CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER R5-2013-0004-01
NPDES NO. CA0084271

WASTE DISCHARGE REQUIREMENTS FOR THE MOUNTAIN HOUSE COMMUNITY SERVICES DISTRICT MOUNTAIN HOUSE WASTEWATER TREATMENT PLANT SAN JOAQUIN COUNTY

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

Table 1. Discharger Information

Discharger	Mountain House Community Services District
Name of Facility	Mountain House Wastewater Treatment Plant
Facility Address	17300 W. Bethany Road
	Mountain House, CA 95391
	San Joaquin 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 Mountain House Community Services District 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	Tertiary Treated Effluent	37º 47’ 52” N	121º 31’ 20” W	Old River

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**31 January 2013**
This Order shall become effective on:	**22 March 2013**
This Order shall expire on:	**1 January 2018**
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:	**3 July 2017**

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 **31 January 2013,** and amended by Order R5-2014-0122 on **9 October 2014**.

ORIGINAL SIGNED BY

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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	Mountain House Community Services District
Name of Facility	Mountain House Wastewater Treatment Plant
Facility Address	17300 W. Bethany Road
	Mountain House, CA 95391
	San Joaquin County
Facility Contact, Title, and Phone	John Miller, Facility Manager, (209) 836-0136
Mailing Address	230 S. Sterling Drive, Suite 100 Mountain House, CA 95391
Type of Facility	Publicly Owned Treatment Works (POTW)
Facility Design Flow	Existing Phase II Plant – 3.0 million gallons per day (MGD) Phase III Plant – 5.4 MGD

II. FINDINGS

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

A. Background. The Mountain House Community Services District (hereinafter Discharger) is currently discharging pursuant to Order R5-2007-0039 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0084271. The Discharger submitted a Report of Waste Discharge, dated 24 October 2011, and applied for a NPDES permit renewal to discharge up to 3.0 MGD and 5.4 MGD of treated wastewater from the Mountain House Wastewater Treatment Plant, hereinafter Facility. The application was deemed complete on 27 January 2012.

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

B. Facility Description. The Discharger owns and operates a POTW. The treatment system has been planned in three phases. Currently, the Facility is at Phase II. The Phase II treatment system consists of a headworks, an anoxic reactor for flow/load equalization and carbon source for denitrification, sequencing batch reactors (SBRs) for biological treatment including nitrification and denitrification, cloth media filtration, and ultraviolet light (UV) disinfection. The Facility also includes two lined, aerated storage reservoirs for use during emergency situations and during plant maintenance. Phase III of the Facility will include a larger influent pumping system and effluent pumping system, a larger bar screen, and an additional batch reactor. Wastewater is discharged from Discharge Point No. 001 (see table on cover page) to the Old River, a water of the United States, within the legal boundary of the Sacramento-San Joaquin Delta. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

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

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

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

F. Technology-based Effluent Limitations. Section 301(b) of the CWA and implementing USEPA permit regulations at 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. 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 technology equivalence requirements, which are necessary to achieve water quality standards. The Central Valley Water Board has considered the factors listed in Water Code 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 October 2011),* for the Sacramento and San Joaquin River Basins (hereinafter Basin Plan) that designates beneficial uses in Section II, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Table II-1 of the Basin Plan identifies beneficial uses of certain specific water bodies. The Sacramento-San Joaquin Delta, which includes the Old River, is listed in Table II-1. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to the Old River are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Old River	Existing uses from Table II-1 of the Basin Plan: Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Industrial process supply (PROC); Industrial service supply (IND); Water contact recreation (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Cold freshwater habitat (COLD); Migration of aquatic organisms, warm and cold (MIGR); Spawning, reproduction, and/or early development, warm (SPWN); Wildlife habitat (WILD); Commercial and sportfishing (COMM) and Navigation (NAV). Potential uses from Table II-1 of the Basin Plan: None Intermittent uses from Section II of the Basin Plan: None

The Basin Plan includes a list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)*." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment*." The southern portion of the Sacramento-San Joaquin Delta is listed on the 303(d) list of impaired water bodies as impaired for diazinon and chlorpyrifos, DDT, electrical conductivity, group A pesticides, invasive species, mercury, and unknown toxicity. The Old River between the San Joaquin River and the Delta-Mendota Canal is

listed on the 303(d) list of impaired water bodies for chlorpyrifos, electrical conductivity, low dissolved oxygen, and total dissolved solids. TMDLs applicable to the Facility include chlorpyrifos, diazinon, and methylmercury.

The State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on 18 May 1972, and amended this plan on 18 September 1975. This plan contains temperature objectives for surface waters. Requirements of this Order implement the Thermal Plan.

The *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) was adopted in December 2006 by the State Water Board superseding the 1995 Bay-Delta Plan. The State Water Board is in the process of a phased review and update of the Bay-Delta Plan. The Bay-Delta Plan identifies the beneficial uses of the estuary and includes objectives for flow, salinity, and endangered species protection.

The State Water Board adopted Decision 1641 (D-1641) on 29 December 1999, and revised on 15 March 2000. D-1641 implements flow objectives for the Bay-Delta Estuary, approves a petition to change points of diversion of the Central Valley Project and the State Water Project in the Southern Delta, and approves a petition to change places of use and purposes of use of the Central Valley Project. The water quality objectives of the Bay-Delta Plan are implemented as part of this Order.

The Bay-Delta Plan includes water quality objectives for Electrical Conductivity (EC) for the South Delta in the vicinity of the discharge[1]. On 1 June 2011, the Superior Court for Sacramento County entered a judgment and peremptory writ of mandate in the matter of *City of Tracy v. State Water Resources Control Board* (Case No; 34-2009-8000-392-CU-WM-GDS), ruling that the South Delta salinity objectives shall not apply to the City of Tracy and other municipal dischargers in the South Delta area pending reconsideration of the South Delta salinity objectives under Wat. Code §13241 and adoption of a proper program of implementation under Wat. Code §13242 that includes municipal dischargers. The State Water Board is currently considering new salinity and flow objectives in the South Delta that will address the Court Order. Therefore, at the time this Order was adopted the South Delta salinity objectives were not applicable to the Discharger.

Requirements of this Order specifically implement the applicable Water Quality Control Plans.

[1] The Bay-Delta Plan includes water quality objectives at three locations in the South Delta for EC. The water quality objectives are a 14-day running average EC of 700 µmhos/cm from 1 April – 31 Aug and a 14-day running average EC of 1000 µmhos/cm from 1 September - 31 March.

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. A Regional Water Board, however, is not required to include a compliance schedule, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Central Valley Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Compliance Schedule Policy, should consider feasibility of achieving compliance, and must impose a schedule that is as short as possible to achieve compliance with the effluent limit based on the objective or criteria.

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

Where a compliance schedule for a final effluent limitation exceeds one year, the Order must include interim numeric limitations for that constituent or parameter, interim milestones and compliance reporting within 14 days after each interim milestone. The permit may also include interim requirements to control the pollutant, such as pollutant

minimization and source control measures. This Order does include compliance schedules and interim effluent limitations. A detailed discussion of the basis for the compliance schedules and interim effluent limitation(s) is included in the Fact Sheet.

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

M. Stringency of Requirements for Individual Pollutants. This Order 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 biochemical oxygen demand (BOD_5) and total suspended solids (TSS). The WQBELs consist of restrictions on ammonia, BOD_5, diazinon and chlorpyrifos, chlorodibromomethane, dichlorobromomethane, electrical conductivity, methylmercury, pH, nitrate+nitrite, temperature, total coliform organisms, and TSS. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes effluent limitations for BOD_5, total coliform organisms, and TSS 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 303(d)(4) and 402(o)(2) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions. Some effluent limitations in this Order are less stringent that those in Order R5-2007-0039. As discussed in detail in the Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

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

Q. Monitoring and Reporting. 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 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.

The technical and monitoring reports in this Order are required in accordance with Water Code section 13267, which states the following in subsection (b)(1), "*In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports*."

The monitoring reports required by this Order are necessary to determine compliance with this Order. The need for the monitoring reports is discussed in the Fact Sheet.

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. Some special provisions require submittal of technical reports. All technical reports are required in accordance with Water Code section 13267. The rationale for the special provisions and need for technical reports required in this Order is provided in the Fact Sheet.

S. Provisions and Requirements Implementing State Law. The provisions/requirements in section VI.A.2.o, VI.C.4.b, VI.C.5.a, and VI.C.5.b of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

T. Notification of Interested Parties. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe 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 R5-2007-0039 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal 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 Water Code.

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

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point No. 001

1. Final Effluent Limitations – Discharge Point No. 001

a. Effective immediately and until compliance with Special Provision VI.C.6.a, the Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program:

Table 6. Effluent Limitations – Discharge Point No. 001

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]	250	375	500	--	--
	lbs/day[2]	450	675	900	--	--
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	250	375	500	--	--
	lbs/day[2]	450	675	900	--	--
Chlorodibromomethane	µg/L	2.6	--	6.4	--	--
Dichlorobromomethane	µg/L	3.2	--	7.5	--	--
Ammonia Nitrogen, Total (as N)	mg/L	0.8	--	2.1	--	--
	lbs/day[1]	20	--	52	--	--
	lbs/day[2]	36	--	95	--	--
Electrical Conductivity @ 25°C	µmhos/cm	1,406	--	--	--	--
Nitrate + Nitrite Nitrogen, Total (as N)	mg/L	10	--	--	--	--

1 Based upon an average dry weather flow of 3.0 MGD.
2 Based upon an average dry weather flow of 5.4 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. There shall be no chronic toxicity in the effluent discharge.

e. Temperature. The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.

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;
ii. 23 MPN/100 mL, more than once in any 30-day period; and
iii. 240 MPN/100 mL, at any time.

g. Diazinon and Chlorpyrifos. Effluent diazinon and chlorpyrifos concentrations shall not exceed the sum of one (1.0) as identified below:

i. Average Monthly Effluent Limitation

$$S_{AMEL} = \frac{C_{D-avg}}{0.08} + \frac{C_{C-avg}}{0.012} \leq 1.0$$

CD-avg = average monthly diazinon effluent concentration in µg/L

CC-avg = average monthly chlorpyrifos effluent concentration in µg/L

ii. Maximum Daily Effluent Limitation

$$S_{MDEL} = \frac{C_{D\ max}}{0.16} + \frac{C_{C\ max}}{0.025} \leq 1.0$$

C_D-max = maximum daily diazinon effluent concentration in µg/L

C_C-max = maximum daily chlorpyrifos effluent concentration in µg/L

h. Average Dry Weather Flow.

i. **Effective immediately and until compliance with Special Provisions VI.C.6.a.**, the average dry weather flow shall not exceed 3.0 MGD.

ii. **Effective upon compliance with Special Provisions VI.C.6.a.**, the average dry weather flow shall not exceed 5.4 MGD.

i. **Methylmercury. Effective 31 December 2030,** the effluent calendar annual methylmercury load shall not exceed 0.37 grams, in accordance with the Delta Mercury Control Program.

2. Interim Effluent Limitations

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

a. **Mercury, Total. Effective immediately** and until 31 December 2030, the effluent calendar annual total mercury load shall not exceed 4.7 grams. This interim effluent limitation shall apply in lieu of the corresponding final effluent limitation specified for methylmercury (Section IV.A.1.i).

B. Land Discharge Specifications – Not Applicable

C. Reclamation Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

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

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.** Concentrations of dissolved oxygen to fall below 5 mg/L.

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; nor

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

10. **Radioactivity:**

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

   b. Radionuclides to be present in excess of the maximum contaminant levels (MCLs) specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations

11. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

12. **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.

13. **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.

14. Temperature.

a. The creation of a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of the river channel at any point.

b. A surface temperature rise greater than 4°F above the natural temperature of the receiving water at any time or place.

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

16. Turbidity.

a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;

b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;

c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;

d. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor

e. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations – Not Applicable

VI. PROVISIONS

A. Standard Provisions

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

2. The Discharger shall comply with the following provisions:

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

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

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

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

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

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

The causes for modification include:

- *New regulations.* New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.

- *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.

- *Change in sludge use or disposal practice.* Under 40 CFR 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

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

c. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under section

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

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

d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:

i. Contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or

ii. Controls any pollutant limited in the Order.

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

e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.

f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal, and adequate public notification to downstream water agencies or others whose contact is reasonably foreseeable with the non-complying discharge.

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 the 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 Water Code, 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 permanent 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. (Water Code 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 Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

B. Monitoring and Reporting Program Requirements

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

C. Special Provisions

1. Reopener Provisions

a. Conditions that necessitate a major modification of a permit are described in 40 CFR 122.62, including, but not limited to:

i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.

ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional

requirements may be included in this Order as a result of the special condition monitoring data.

c. **Mercury.** The Basin Plan's Delta Mercury Control Program was designed to proceed in two phases. After Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers modification to the Delta Mercury Control Program. This Order may be reopened to address changes to the Delta Mercury Control Program.

d. **Bay-Delta Plan South Delta Salinity Objectives Update.** The State Water Board is currently in the process of updating the South Delta Salinity Objectives contained in the Bay-Delta Plan. The updated salinity objectives may result in needed changes to the salinity requirements in this Order. Therefore, this Order may be reopened to modify salinity requirements, as appropriate, in accordance with changes in the Bay-Delta Plan.

e. **Pollution Prevention.** This Order requires the Discharger prepare pollution prevention plans following Water Code section 13263.3(d)(3) for mercury and salinity. Based on a review of the pollution prevention plans, this Order may be reopened for addition and/or modification of effluent limitations and requirements for these constituents.

f. **Whole Effluent Toxicity.** As a result of 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 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.

g. **Water Effects Ration (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable priority and non-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 select metals. 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.

h. **Ultraviolet Light (UV) Disinfection Operating Specifications.** The UV specifications in this Order are based on National Water Research Institute (NWRI) guidelines. If the Discharger conducts a site-specific UV Engineering study that identifies site-specific UV operating specifications that will achieve the virus inactivation equivalent to Title 22 disinfected tertiary recycled water, this Order may be reopened to modify the UV specifications.

i. **Diazinon and Chlorpyrifos Basin Plan Amendment.** Central Valley Water Board staff is developing a Basin Plan Amendment to provide an implementation plan for NPDES-permitted domestic wastewater dischargers. This Order may be reopened to modify diazinon and chlorpyrifos effluent limitations, as appropriate, in accordance with an amendment to the Basin Plan.

j. **Drinking Water Policy.** The Central Valley Water Board is developing a Drinking Water Policy. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

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

i. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.

ii. **Numeric Toxicity Monitoring Trigger.** 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.

iii. Accelerated Monitoring Specifications. If the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing, the Discharger shall initiate accelerated monitoring within 14 days of notification by the laboratory of the exceedance. Accelerated monitoring shall consist of four (4) chronic toxicity tests 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 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.

b. Phase 1 Methylmercury Control Study. In accordance with the Basin Plan's Delta Mercury Control Program and the compliance schedule included in this Order for methylmercury (Section VI.C.7.a), the Discharger shall participate in the Central Valley Clean Water Association (CVCWA) Coordinated Methylmercury Control Study (Study) to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve the methylmercury waste load allocation. A work plan shall be submitted by **20 April 2013**. The study work plan will be reviewed by a Technical Advisory Committee (TAC) and approved by the Executive Officer. The work plan shall be implemented immediately after approval by the Executive Officer, and a progress

report shall be submitted by **20 October 2015**.

The Study shall evaluate the feasibility of reducing sources more than the minimum amount needed to achieve the methylmercury allocation. The Study also may include an evaluation of innovative actions, watershed approaches, offsets projects, and other short and long-term actions that result in reducing inorganic (total) mercury and methylmercury to address the accumulation of methylmercury in fish tissue and to reduce methylmercury exposure. The Study may evaluate the effectiveness of using inorganic (total) mercury controls to control methylmercury discharges.

The Study shall include a description of methylmercury and/or inorganic (total) mercury management practices identified in Phase 1; an evaluation of the effectiveness, costs, potential environmental effects, and overall feasibility of the control actions. The Study shall also include proposed implementation plans and schedules to comply with methylmercury allocations as soon as possible. The Study shall be submitted to the Central Valley Water Board by **20 October 2018**.

The Executive Officer may authorize extending the Study due date. The Executive Officer may, after public notice, extend the due date up to 2 years if the Discharger demonstrates it is making significant progress towards developing, implementing, and/or completing the Study and reasonable attempts have been made to secure funding for the Study, but the Discharger has experienced severe budget shortfalls.

c. **Temperature Study**. The Discharger shall submit a Temperature Study to the Central Valley Water Board that evaluates the thermal discharge to Old River to determine whether the discharge from the Facility fully complies with the Thermal Plan requirements at the current discharge, and the expanded average dry weather discharge flow of 5.4 MGD. The Thermal Plan requirements are included in this Order as effluent and receiving water temperature limitations. The Discharger shall submit a workplan and schedule by **1 August 2013**. The final Study shall be submitted by **1 February 2016**.

3. Best Management Practices and Pollution Prevention

a. **Pollution Prevention Plan for Mercury.** The Discharger shall submit and implement a pollution prevention plan (PPP) for mercury in accordance with Water Code section 13263.3(d)(3), per the compliance schedule in this Order for methylmercury (Section VI.C.7.a). The minimum requirements for the PPP are outlined in the Fact Sheet (Attachment F section VII.B.3.d). Progress reports shall be submitted annually in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1). The progress reports shall discuss the effectiveness of the PPP in the reduction of mercury in the discharge, include a summary of mercury and methylmercury monitoring results, and discuss updates to the PPP.

b. **Mercury Exposure Reduction Program.** The Discharger shall participate in a Mercury Exposure Reduction Program in accordance with the Basin Plan's Delta Mercury Control Program. The Discharger, either individually or collectively with other Delta dischargers, shall submit an exposure reduction work plan for Executive Officer approval by **20 October 2013**. The objective of the Exposure Reduction Program is to reduce mercury exposure of Delta fish consumers most likely affected by mercury. The work plan shall address the Exposure Reduction objective, elements, and the Discharger's coordination with the stakeholders. The minimum requirements for the exposure reduction work plan are outlined in the Fact Sheet (Attachment F Section VIII.B.3.b). The Discharger shall integrate or, at a minimum, provide good-faith opportunities for integration of community-based organizations, tribes, and consumers of the Delta fish into planning, decision making, and implementation of exposure reduction activities. **The Discharger shall implement the work plan within 6 months of Executive Officer approval.**

c. **Salinity Reduction Plan.** The Discharger shall maintain a Salinity Reduction Plan that describes the Discharger's approach to identify, evaluate, and implement measures to reduce salinity in the effluent discharge to the Old River. The Discharger shall submit annual progress reports in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1). The Salinity Reduction Plan shall, at minimum, contain the following:

i. **Pollution Prevention Plan (PPP).** The Discharger submitted a PPP for salinity on 19 December 2007 that meets the requirements of Water Code section 13263.3(d)(3). The Discharger shall continue to implement the PPP and evaluate and update the PPP annually. The annual progress reports for the Salinity Reduction Plan shall include a discussion of the effectiveness of the PPP and any updates to the PPP.

ii. **Salinity Reduction Goal.** The Central Valley Water Board finds that a calendar annual average of 500 µmhos/cm as electrical conductivity increase over the calendar annual weighted average electrical conductivity of the Discharger's water supply is a reasonable increase due to consumptive use in the community. The annual progress reports for the Salinity Reduction Plan shall include a discussion of the progress in meeting the salinity reduction goal.

iii. **Best Practicable Treatment or Control (BPTC) Evaluation for Salinity.** The Discharger submitted a BPTC evaluation dated 19 December 2007. By **1 September 2016**, the Discharger shall update and submit a BPTC evaluation for salinity that considers new information that was not available at the time the December 2007 BPTC evaluation was developed.

iv. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) Participation.** The Discharger shall participate in CV-SALTS. The annual progress reports for the Salinity Reduction Plan shall include a discussion of the Discharger's participation in CV-SALTS.

4. Construction, Operation and Maintenance Specifications

a. Ultraviolet Light (UV) Disinfection System Operating Specifications. The Discharger shall operate the UV disinfection system to provide a minimum UV dose per channel of 100 millijoules per square centimeter (mJ/cm^2) at peak daily flow, and shall maintain an adequate dose for disinfection while discharging to the Old River.

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

ii. The Discharger shall operate the treatment system to insure that turbidity prior to disinfection, measured at UVS-001, shall not exceed

(a) 2 NTU, as a daily average;

(b) 5 NTU, more than 5% of the time within a 24-hour period; and

(c) 10 NTU, at any time

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

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

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

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

b. Emergency Storage Pond Operating Requirements

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

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

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

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

(b) Weeds shall be minimized.

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

iv. Freeboard shall never be less than 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).

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Pretreatment Requirements – Not Applicable

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

i. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, CCR, division 2, subdivision 1, section 20005, et seq. Removal for further treatment, storage, disposal, or reuse at sites (e.g., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.

ii. Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant performance.

iii. The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils. In 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.

iv. The use, disposal, storage, and transportation of biosolids shall comply with existing federal and state laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503. If the State Water Board and the Central Valley Water Board are given the authority to implement regulations contained in 40 CFR Part 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR Part 503 whether or not they have been incorporated into this Order.

v. The Discharger shall comply with Section IX.A. Biosolids of the Monitoring and Reporting Program, Attachment E.

vi. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least 90 days in advance of the change.

vii. **Within 180 days of the permit effective date,** the Discharger shall review and update its existing biosolids use or disposal plan, and submit it to the Central Valley Water Board. The updated plan shall describe at a minimum:

(a) Sources and amounts of biosolids generated annually.

(b) Location(s) of on-site storage and description of the containment area.

(c) Plans for ultimate disposal. For landfill disposal, include the Central Valley Water Board's waste discharge requirement numbers that regulate the particular landfill; the present classification of the landfill; and the name and location of the landfill.

c. Biosolids Storage and Transportation Specifications

Biosolids shall be considered to be "stored" if they are placed on the ground or in non-mobile containers (i.e. not in a truck or trailer) at an intermediate storage location away from the generator/processing for more than 48 hours. Biosolids shall be considered to be "staged" if placed on the ground for brief periods of time solely to facilitate transfer of the biosolids between transportation and application vehicles.

i. Biosolids shall not be stored directly on the ground at any one location for more than seven (7) consecutive days.

ii. Facilities for the storage of Class B biosolids shall be located, designed and maintained to restrict public access to biosolids.

iii. 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.

iv. 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.

v. Biosolids placed on site for more than 24 hours shall be covered.

vi. Biosolids storage facilities shall be designed, maintained and operated to minimize the generation of leachate and the effects of erosion.

vii. If biosolids are to be stored at the site, a plan describing the storage program and means of complying with the specifications contained in sections VI.C.5.b and c of this Order shall be submitted for the Central Valley Water Board's staff approval. The storage plan shall also include an adverse weather plan.

viii. The Discharger shall operate the biosolids storage facilities in accordance with the approved biosolids storage plan.

ix. The Discharger shall immediately remove and relocate any biosolids stored on site in violation of this General Order.

x. All biosolids shall be transported in covered vehicles capable of containing the designated load.

xi. All biosolids having a water content that is capable of leaching liquids shall be transported in leak proof vehicles.

xii. Each biosolids transport driver shall be trained as to the nature of its load and the proper response to accidents or spill events and shall carry a copy of an approved spill response plan.

xiii. The Discharger shall avoid the use of haul routes near residential land uses to the extent possible. If the use of haul routes near residential land uses cannot be avoided, the Discharger shall limit project-related truck traffic to daylight hours.

d. Collection System. On 2 May 2006, the State Water Board adopted State Water Resources Control Board Order 2006-0003-DWQ, Statewide General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order 2006-0003-DWQ and any future revisions thereto. Order 2006-0003-DWQ requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the general WDRs. The Discharger has applied for and has been approved for coverage under Order 2006-0003-DWQ for operation of its wastewater collection system.

e. Continuous Monitoring Systems. This Order, and the Monitoring and Reporting Program which is a part of this Order, 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 shall 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. Discharge Flow Expansion (Phase III Improvements). The Discharger is permitted to discharge up to 5.4 MGD to the Old River upon compliance with the following requirements:

i. Facility Improvements. The Discharger shall have completed construction and startup of the Phase III WWTF, as identified in section II.A of the Fact Sheet, and shall provide evidence certified by the plant design engineer that the plant is operating properly.

ii. Effluent Limitation Compliance. The Discharger shall demonstrate compliance with final effluent limitations in this Order.

iii. Request for Increase. The Discharger shall submit a request for an increase in the permitted flow rate, which demonstrates compliance with items i. and ii., above. The increase in the permitted discharge flow rate shall not be effective until the Executive Officer approves the Discharger's request.

b. 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.

7. Compliance Schedules

a. Compliance Schedule for Final Effluent Limitations for Methylmercury. This Order requires compliance with the final effluent limitations for methylmercury by **31 December 2030**. The Discharger shall comply with the following time schedule to ensure compliance with the final effluent limitations.

Task	Date Due
Phase 1	
i. Submit CVCWA Coordinated Methylmercury Control Study Work Plan	**20 April 2013**

Task	Date Due
ii. Update and Implement Pollution Prevention Plan (PPP)[1] for Mercury (per Section VI.C.3.a)	**1 June 2013**
iii. Submit Mercury Exposure Reduction Work Plan (per Section VI.C.3.b)	**20 October 2013**
iv. Implement CVCWA Coordinated Methylmercury Control Study Work Plan	**Immediately following Executive Officer Approval**
v. Implement Mercury Exposure Reduction Work Plan (per Section VI.C.3.b)	**6 months following Executive Officer Approval**
vi. Annual Progress Reports[2]	**20 October 2014** **20 October 2015** **20 October 2016** **20 October 2017**
vii. Submit CVCWA Coordinated Methylmercury Control Study Progress Report	**20 October 2015**
vii. Submit Final CVCWA Coordinated Methylmercury Control Study	**20 October 2018**[3]
Phase 2	
vii. Implement methylmercury control programs	**TBD**[4]
viii. Full Compliance	**31 December 2030**[4]

1 The PPP for Mercury shall be updated and implemented in accordance with Section VI.C.3.b. The Discharger shall continue to implement its existing PPP for mercury during the period in which it updates the PPP.

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.

3 The Executive Officer may authorize extending the Final CVCWA Coordinated Methylmercury Control Study due date. The Executive Officer may, after public notice, extend the due date up to two years if the Discharger demonstrates it is making significant progress towards developing, implementing and/or completing the Study and reasonable attempts have been made to secure funding for the Study, but the Discharger has experienced severe budget shortfalls.

4 To be determined. Following Phase 1 the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations, final compliance date, etc. Consequently, the start of Phase 2 and the final compliance date is uncertain at the time this Order was adopted.

VII. COMPLIANCE DETERMINATION

A. BOD_5 and TSS Effluent Limitations (Sections IV.A.1.a and IV.A.1.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. Total Mercury Mass Loading Effluent Limitations (Section IV.A.2). The procedures for calculating 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 flow for that quarter. 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 calendar 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.

C. 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.

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

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 IV.A.1.a shall not apply. If the effluent flow is below the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations do apply.

E. Chronic Whole Effluent Toxicity Effluent Limitation (Section IV.A.1.d). Compliance with the accelerated monitoring and TREprovisions of Provision VI.C.2.a shall constitute compliance with the effluent limitation.

F. Chlorpyrifos and Diazinon Effluent Limitations (Section IV.A.1.g). Compliance shall be determined by calculating the sum (S), as provided in this Order, with analytical results that are reported as "non-detectable" concentrations to be considered to be zero.

G. Temperature Effluent Limitations (Section IV.A.1.e). Compliance with the final effluent limitations for temperature shall be ascertained using the daily average effluent temperature at monitoring location EFF-002[2] and the temperature of the receiving water measured on the same day by grab sample at RSW-003.

H. Priority Pollutant Effluent Limitations. Compliance with effluent limitations for priority pollutants shall be determined in accordance with Section 2.4.5 of the SIP, as follows:

1. Dischargers shall be deemed out of compliance with an effluent limitation, 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).

2. Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with section 2.4.5.1 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:

a. A sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or

b. A sample result is reported as non-detect (ND) and the effluent limitation is less than the method detection limit (MDL).

3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, the discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or 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, 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.

[2] Until the installation of a temperature meter at monitoring location EFF-002, the Discharger shall use the daily average effluent temperature at EFF-001.

4. If a sample result, or the arithmetic mean or median of multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the discharger conducts a PMP (as described in section 2.4.5.1), the discharger shall not be deemed out of compliance.

I. Use of Delta Regional Monitoring Program and other Receiving Water Data to Determine Compliance with Receiving Water Limitations. Delta Regional Monitoring Program data and other receiving water monitoring data that is not specifically required to be conducted by the Discharger under this permit, will not be used directly to determine that the discharge is in violation of this Permit. The Discharger may, however, conduct any site-specific receiving water monitoring deemed appropriate by the Discharger that is not conducted by the Delta RMP and submit that monitoring data. As described in Section VIII of Attachment E, such data may be used, if scientifically defensible, in conjunction with other receiving water data, effluent data, receiving water flow data, and other pertinent information to determine whether or not a discharge is in compliance with this Permit.

ATTACHMENT A – DEFINITIONS

Acute Toxic Unit (TU_a)
The reciprocal of the effluent concentration that causes 50 percent of the organisms to die in an acute toxicity test ($TU_a = 100/LC_{50}$) (see LC_{50}).

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

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

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

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

Best Practicable Treatment or Control (BPTC)
BPTC is a requirement of State Water Resources Control Board Resolution 68-16 – "Statement of Policy with Respect to Maintaining High Quality of Waters in California" (referred to as the "Antidegradation Policy"). BPTC is the treatment or control of a discharge necessary to assure that, "*(a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.*" Pollution is defined in CWC Section 13050(l). In general, an exceedance of a water quality objective in the Basin Plan constitutes "pollution".

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

Biosolids
Sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land reclamation activities.

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

Chronic Toxic Unit (TU_c)

The reciprocal of the effluent concentration that causes no observable effect on the test organisms in a chronic toxicity test (TU_c = 100/NOEC) (see NOEC).

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.

Effect Concentration (EC)
A point estimate of the toxicant concentration that would cause an observable adverse effect (e.g. death, immobilization, or serious incapitation) in a given percent of the test organisms, calculated from a continuous model (e.g. Probit Model). EC_{25} is a point estimate of the toxicant concentration that would cause an observable adverse effect in 25 percent of the test organisms.

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 Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inhibition Concentration (IC)
A point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal biological measurement (e.g. reproduction or growth), calculated from a continuous model (e.g. Interpolation Method). IC_{25} is a point estimate of the toxicant concentration that would cause a 25 percent reduction in a non-lethal biological measurement.

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).

LC_{50}, Lethal Concentration, 50 percent
All surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

NOEC, No Observed Effect Concentration
The highest tested concentration of an effluent or test sample whose effect is not different from the control effect, according to the statistical test used (see LOEC). The NOEC is usually the highest tested concentration of an effluent or toxic that causes no observable effects on the

test organisms (i.e. the highest concentration of toxicity at which the values for the observed responses do not statistically differ from the controls).

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 Water Code 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 Regional Water Board.

Reporting Level (RL)
The RL 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 RL 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 in the computation of the RL.

Residual Sludge
Sludge that will not be subject to further treatment at the Facility.

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 Regional Water Board Basin Plan.

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

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

where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

Sludge
The solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes.

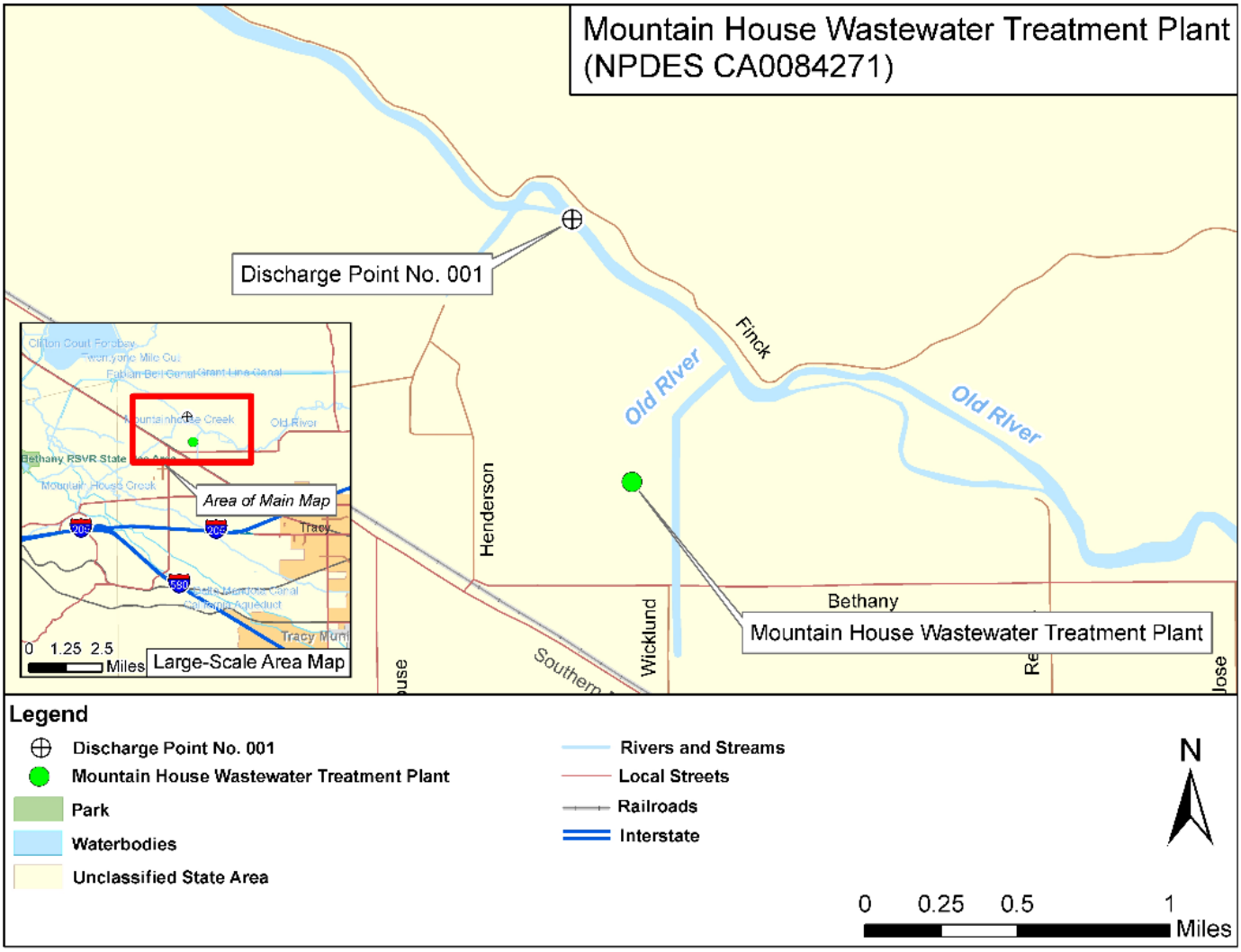
Solid Waste
Grit and screening material generated during preliminary treatment.

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.)

Toxicity Test
The procedure using living organisms to determine whether a chemical or an effluent is toxic. A toxicity test measures the degree of the effect of a specific chemical or effluent on exposed test organisms.

Toxicity Unit
The measure of toxicity in an effluent as determined by the acute toxic units (TU_a) or chronic toxic units (TU_c) measured. The larger the TU, the greater the toxicity.

ATTACHMENT B – MAPS

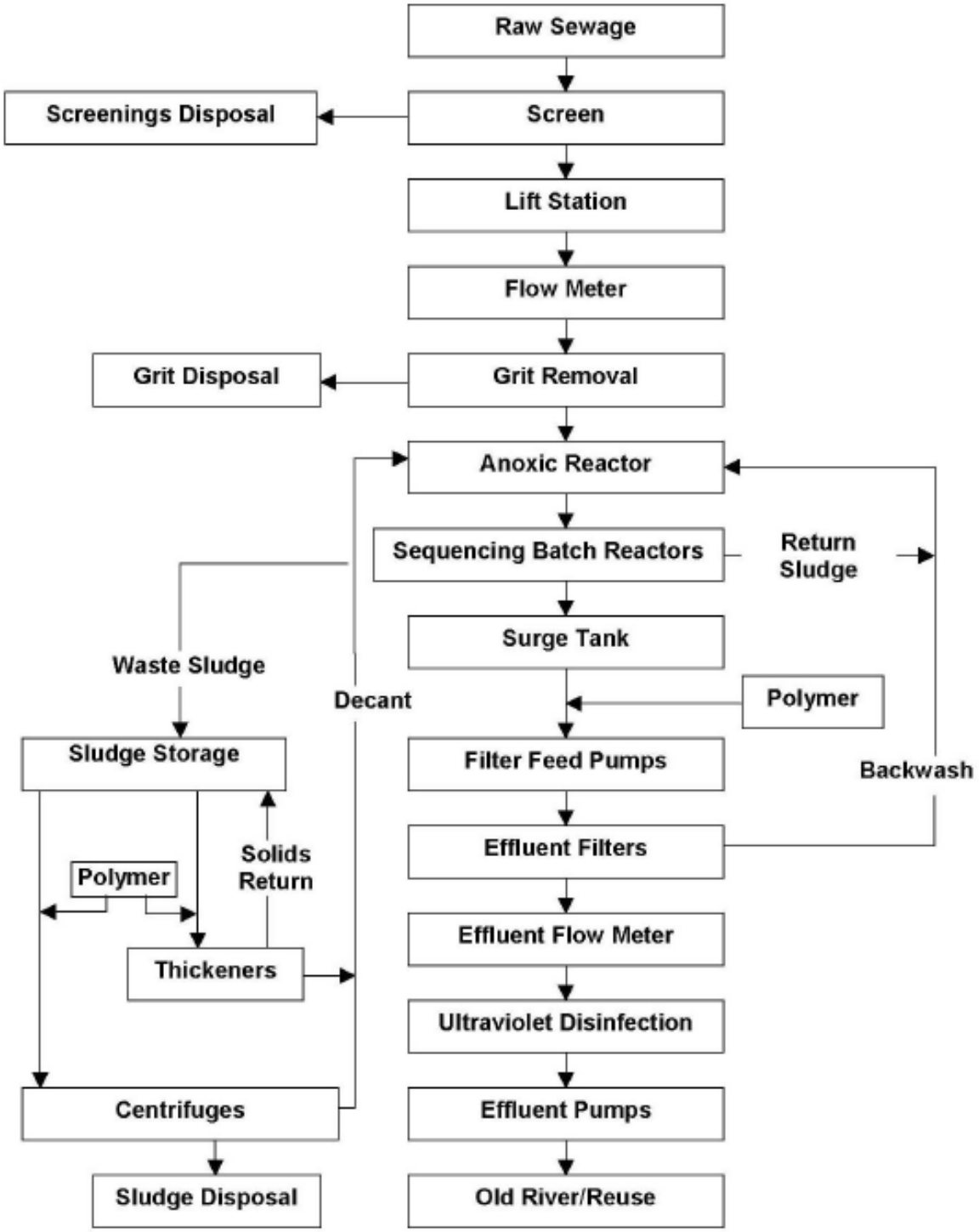


SITE LOCATION MAP

MOUNTAIN HOUSE COMMUNITY SERVICES DISTRICT
MOUNTAIN HOUSE WASTEWATER TREATMENT PLANT
SAN JOAQUIN COUNTY

ATTACHMENT C – FLOW SCHEMATIC

Mountain House Wastewater Treatment Plant "Phase II & III" Flow Schematic



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

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

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR 122.41(i); Water Code 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 Water Code, any substances or parameters at any location. (40 CFR 122.41(i)(4))

G. Bypass

1. Definitions

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

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

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

3. Prohibition of bypass. Bypass is prohibited, and the Regional 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 Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR 122.41(m)(4)(i)(C))

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 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 Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 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 Regional 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 Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR 122.41(h); Wat. Code, § 13267)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 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 Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 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 Regional 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 Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 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 Regional 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 Regional Water Board. (40 CFR 122.41(l)(4)(ii))

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR 122.41(l)(4)(iii))

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

1. The Discharger shall notify the Office of Emergency Services of any noncompliance that may endanger health or the environment within two (2) hours from the time the Discharger becomes aware of the circumstances. The Discharger shall notify the

Central Valley Water Board of the noncompliance by telephone or fax within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided to the Central Valley Water Board within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR 122.41(l)(6)(i))

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR 122.41(l)(6)(ii)):

a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(A))

b. Any upset that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(B))

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR 122.41(l)(6)(iii))

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 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 Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 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 Regional 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 Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 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 (Water Code) sections 13267 and 13383 also authorize the Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the Central Valley Water Board.

B. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.

C. Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory certified for such analyses by the Department of Public Health (DPH). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, dissolved oxygen, turbidity, temperature and residual chlorine, such analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, dissolved oxygen, turbidity, temperature and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.

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

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

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

G. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.

H. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.

I. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. 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	A location where a representative sample of the influent into the Facility can be collected.
001	EFF-001	Final treated effluent at the effluent wet well, prior to entering outfall pipeline.
001	EFF-002	Final treated effluent at the discharge end of outfall pipeline, approximately 0.9 miles from Facility.
--	RSW-001	Old River midstream at latitude 37° 48’ 20” N, longitude 121° 32’ 03” W (downriver – northwest 500 feet)
--	RSW-002	Old River midstream at Discharge Point No. 001
--	RSW-003	Old River at latitude 37° 47’ 05” N, longitude 121° 29’ 57” W (upriver – southeast 1,000 feet)
--	BIO-001	A location where a representative sample of the biosolids can be obtained.
--	PND-001	A location where a representative sample location for the emergency storage basin can be collected.
--	PND-002	A location where a representative sample location for the emergency storage basin can be collected.
--	SPL-001	A location where a representative sample of the municipal water supply can be obtained.

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
	UVS-001	Ultraviolet (UV) disinfection system. A location where a representative sample of the influent to the UV system can be obtained.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

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

Table E-2. Influent Monitoring

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

[1] 24-hour flow proportional composite.

[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or an EPA approved Alternate Testing Procedure; where no methods are specified for a given pollutant that meet a specific reporting limit or method performance standard, an alternate method shall be approved by the Central Valley Water Board.

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

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

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

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	--
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[1]	3/Week	[2]
	lbs/day	Calculate	3/Week	--
pH	standard units	Meter	Continuous[3]	[2,4]
Total Suspended Solids	mg/L	24-hr Composite[1]	3/Week	[2]
	lbs/day	Calculate	3/Week	--
Chlorodibromomethane	µg/L	Grab	1/Month	[2,6]
Dichlorobromomethane	µg/L	Grab	1/Month	[2,6]
Mercury, Total Recoverable	µg/L	Grab	1/Quarter	[7]
Priority Pollutants and Other Constituents of Concern[12]	µg/L	See Att. I	See Att. I	[2,5]
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week[3,8]	[2]
Chlorpyrifos	µg/L	Grab	1/Year	[2]
Diazinon	µg/L	Grab	1/Year	[2]
Dissolved Oxygen	mg/L	Meter	Continuous	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	[2]
Hardness (as $CaCO_3$)	mg/L	Grab	1/Month[9]	[2]
Mercury, Methyl	µg/L	Grab	1/Quarter	[7]
Nitrate plus Nitrite Nitrogen, Total (as N)	mg/L	Grab	1/Month	[2]
Temperature	°F(°C)	Meter	Continuous[3,4,10]	[2]
Total Coliform Organisms	MPN/100 mL	Grab	5/Week[11]	[2]
Total Dissolved Solids	mg/L	Grab	1/Month	[2]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] 24-hour flow proportional composite.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or an EPA approved Alternate Testing Procedure; where no methods are specified for a given pollutant that meet a specific reporting limit or method performance standard, an alternate method can be approved by the Central Valley Water Board.
[3] pH and temperature shall be recorded at the time of ammonia sample collection.
[4] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
[5] In order to verify if bis (2-ethylhexyl) phthalate is truly present in the effluent discharge, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.
[6] 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.
[7] Unfiltered methyl mercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in US 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 US EPA method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/L for methyl mercury and 0.2 ng/L for total mercury.
[8] Concurrent with whole effluent toxicity monitoring.
[9] Hardness samples shall be collected concurrently with metals samples.
[10] Effective 1 January 2014, effluent temperature monitoring shall be conducted at monitoring location EFF-002.
[11] Samples for total coliform organisms may be collected at any point following disinfection.
[12] The maximum required Reporting Level is specified in Attachment I, Table I-1, Priority Pollutants and Other Constituents of Concern.

2. If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, except for priority pollutants, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

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 monthly acute toxicity testing, concurrent with effluent ammonia sampling.

2. *Sample Types* – For static renewal testing, the samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001.

3. *Test Species* – Test species shall be rainbow trout (*Oncorhynchus* mykiss) or fathead minnows (Pimephales promelas).

4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

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

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

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

2. *Sample Types* – Effluent samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-003 during outgoing tide when Monitoring Location RSW-003 is upstream of Discharge Point No. 001**,** 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 monitoring, it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent and two controls. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below, unless an alternative dilution series is detailed in the submitted TRE Action Plan. The receiving water control shall be used as the diluent, unless use of an alternative diluent is detailed in the submitted TRE Action Plan, or when the receiving water is toxic.

Table E-4. Chronic Toxicity Testing Dilution Series

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

7. *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, or as amended by the Discharger's TRE Action Plan.

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

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

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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

The Discharger shall implement the Receiving Water Monitoring Requirements in Attachment E, Sections VIII.A.1 and VIII.A.2 of this Order. However, in lieu of conducting the individual monitoring specified in Attachment E, Sections VIII.A.1 and VIII.A.2 of this Order (including visual observations), the Discharger may elect to participate in the Delta Regional Monitoring Program. [3] The Discharger may choose to conduct all or part of the receiving water monitoring through the Delta Regional Monitoring Program. If the Discharger elects to cease all or part of the individual receiving water monitoring and instead participates in the Delta Regional Monitoring Program, the Discharger shall submit a letter signed by an authorized representative informing the Board that the Discharger will participate in the Delta Regional Monitoring Program, and the date on which individual receiving water monitoring required under Attachment E, Sections VIII.A.1 and VIII.A.2 will cease, or be modified, and specific monitoring locations and constituent combinations that will no longer be conducted individually. Written approval of the Discharger's request, by the Executive Officer, is required prior to discontinuing part or all of individual receiving water monitoring. Approval by the Executive Officer is not required prior to participating in the Delta Regional Monitoring Program.

If the Discharger participates in the Delta Regional Monitoring Program in lieu of conducting individual receiving water monitoring, the Discharger shall continue to participate in the Delta Regional Monitoring Program until such time as the Discharger informs the Board that participation in the Delta RMP will cease and individual monitoring is reinstituted. Receiving water monitoring under Attachment E, Sections VIII.A.1 and VIII.A.2, is not required under this Order so long as the Discharger adequately supports the Delta Regional Monitoring Program. If the Discharger fails to adequately support the Delta Regional Monitoring Program, as defined by the Delta RMP Steering Committee, the Discharger shall reinstitute individual receiving water monitoring under Attachment E, Sections VIII.A.1 and VIII.A.2, upon written notice from the Executive Officer. During participation in the Delta RMP, the Discharger may conduct and submit any or part of the receiving water monitoring included in this Monitoring and Reporting Program that is deemed appropriate by the Discharger.

Delta RMP data is not intended to be used directly to represent either upstream or downstream water quality for purposes of determining compliance with this Permit.

[3] If the Discharger elects to participate in the Delta RMP, it shall continue to submit receiving water data for temperature. At minimum, one representative upstream receiving water temperature sample shall be submitted annually for the month of January. The temperature data shall be submitted in the January self-monitoring report and will be used to determine compliance with the temperature effluent limitation. Temperature data may be collected by the Discharger for this purpose or the Discharger may submit representative temperature data from the Delta RMP or other appropriate monitoring programs (e.g., Department of Water Resources, United States Geological Survey, etc.).

Delta RMP monitoring stations are established generally as "integrator sites" to evaluate the combined impacts on water quality of multiple discharges into the Delta; Delta RMP monitoring stations would not normally be able to identify the source of any specific constituent, but would be used to identify water quality issues needing further evaluation. Delta RMP monitoring data, along with individual Discharger data, may be used to help establish background receiving water quality for Reasonable Potential analyses in an NPDES Permit after evaluation of the applicability of the data for that purpose. Delta RMP data, as with all environmental monitoring data, can provide an assessment of water quality at a specific place and time that can be used in conjunction with other information, such as other receiving water monitoring data, spatial and temporal distribution and trends of receiving water data, effluent data from the Discharger's discharge and other point and non-point source discharges, receiving water flow volume, speed and direction, and other information to determine the likely source or sources of a constituent that resulted in exceedance of a receiving water quality objective.

During the period of participation in the Delta Regional Monitoring Program, the Discharger shall continue to report any individually conducted receiving water monitoring data in the Electronic Self-Monitoring Reports (eSMR) according to the Monitoring and Reporting Program. In addition, with each submitted eSMR, 1) with each submitted eSMR, the Discharger's eSMR cover letter shall state that the Discharger is participating in the Delta Regional Monitoring Program in lieu of conducting the individual receiving water monitoring program required by the permit, and 2) with each annual report, the Discharger shall attach a copy of the letter originally submitted to the Central Valley Water Board describing the monitoring location(s) and constituent combinations that will no longer be conducted individually.

A. Monitoring Locations RSW-001, RSW-002, and RSW-003

1. The Discharger shall monitor the Old River at Monitoring Locations RSW-001, RSW-002, and RSW-003 as follows:

Table E-5. Receiving Water Monitoring Requirements – Monitoring Location RSW-001, RSW-002, and RSW-003

Parameter	Units	Sample Type	Minimum Sampling Frequency[6]	Required Analytical Test Method
pH	standard units	Grab	1/Week	[1,2]
Priority Pollutants and Other Constituents of Concern[7]	µg/L	See Att. I	See Att. I[3]	[1,4]
Dissolved Oxygen	mg/L	Grab	1/Week	[1]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[1]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month[5]	[1,2]

Parameter	Units	Sample Type	Minimum Sampling Frequency[6]	Required Analytical Test Method
Temperature	°F(°C)	Grab	1/Week	[1,2]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.

[2] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

[3] Priority pollutant monitoring is only required at Monitoring Location RSW-003. Priority pollutants samples shall be taken at Monitoring Location RSW-003 during outgoing tide when Monitoring Location RSW-003 is upstream of Discharge Point No. 001.

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

[5] Hardness samples shall be collected concurrently with effluent metals samples.

[6] During water hyacinth growth season, the receiving water sampling locations are inaccessible by boat and samples cannot be collected from banks of the river due to very steep slopes. Central Valley Water Board staff will not consider the lack of receiving water sampling a violation of this Order if the Discharger reports in the SMR cover letter that these conditions are present.

[7] The maximum required Reporting Level is specified in Attachment I, Table I-1, Priority Pollutants and Other Constituents of Concern.

2. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Monitoring Locations RSW-001, RSW-002, and RSW-003. Attention shall be given to the presence or absence of:

a. Direction of flow in Old River (i.e. East/West, Upstream/Downstream);
b. Floating or suspended matter;
c. Discoloration;
d. Bottom deposits;
e. Aquatic life;
f. Visible films, sheens, or coatings;
g. Fungi, slimes, or objectionable growths; and
h. Potential nuisance conditions.

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

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 once per permit term at Monitoring Location BIO-001 in accordance with EPA's *POTW Sludge Sampling*

and Analysis Guidance Document, August 1989, and tested for priority pollutants listed in 40 CFR Part 122, Appendix D, Tables II and III (excluding total phenols).

b. 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.

c. 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.

B. Emergency Storage Basins Monitoring Locations

1. Monitoring Locations PND-001 and PND-002

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

- The date(s) when the wastewater is directed to the basin;
- The type(s) of wastewater (e.g., untreated due to plant upset, tertiary treated) directed to the basin;
- The total volume of wastewater directed to the basin[4];
- The duration of time wastewater is collected in the basin; prior to redirection back to the wastewater treatment plant; and
- The date when all wastewater in the basin has been redirected to the wastewater treatment plant.
- The freeboard available in the basin.

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

C. Municipal Water Supply

1. Monitoring Location SPL-001

The Discharger shall monitor the municipal water supply at Monitoring Location SPL-001 as follows.

[4] The total volume of wastewater directed to the basin may be estimated. This requirement is effective 120 days after adoption of this Order to allow the Discharger time to install necessary equipment.

Table E-6. Municipal Water Supply Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Dissolved Solids[1]	mg/L	Grab	1/Year	[2]
Electrical Conductivity @ 25°C[1]	µmhos/cm	Grab	1/Year	[2]
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 or by methods approved by the Central Valley Water Board or the State Water Board.

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

D. Ultraviolet Light (UV) Disinfection System

1. Monitoring Location UVS-001

The Discharger shall monitor the UV disinfection system at UVS-001 as follows:

Table E-7. Ultraviolet Light Disinfection System Monitoring

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

[1] For continuous analyzers, the Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation

[2] The turbidity meter shall be stationed immediately after the filters, prior to the UV disinfection process.

[3] Report daily average turbidity and maximum turbidity. If the influent exceeds 10 NTU, collect a sample for total coliform organisms and report the duration of the turbidity exceedance.

[4] Report daily minimum hourly average UV dose and daily average UV dose. The minimum hourly average dose shall consist of lowest hourly average dose provided in any channel that had at least one bank of lamps operating during the hour interval. For channels that did not operate for the entire hour interval, the dose will be averaged based on the actual operation time.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

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

3. Compliance Time Schedules. For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.

4. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "*Emergency Planning and Community Right to Know Act*" of 1986.

B. Self Monitoring Reports (SMRs)

1. The Discharger shall continue to submit eSMRs using the State Water Board's CIWQS Program Web site (http:www.waterboards.ca.gov/ciwqs/index.html). The Discharger shall maintain sufficient staffing and resources to ensure it submits eSMRs during the effective duration of this Order. This includes provision of training and supervision of individuals (e.g., Discharger personnel or consultant) on how to prepare and submit eSMRs.

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

Table E-8. Monitoring Periods and Reporting Schedule

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

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

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

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated

Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ 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.

4. 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.

5. Reporting Requirements. 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.

a. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations or with other waste discharge requirements (e.g., discharge specifications, receiving water limitations, special provisions, etc.).

b. Reports must clearly show when discharging to Discharge Point No. 001 or other permitted discharge locations. Reports must show the date and time that the discharge started and stopped at each location.

c. The highest daily maximum for the month and monthly and weekly averages shall be determined and recorded as needed to demonstrate compliance.

6. **Calculation Requirements.** The following shall be calculated and reported in the SMRs:

   a. **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.

   b. **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 Discharge Requirements.

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

   d. **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.16.a-e. of the Limitations and Discharge Requirements.

   e. **Temperature Receiving Water Limitations.** The Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at Monitoring Locations RSW-001 and RSW-003.

   f. **Chlorpyrifos and Diazinon Effluent Limitations (Section IV.A.1.g).** The Discharger shall calculate and report the value of S_{AMEL} and S_{MDEL} for the effluent, using the equation in Effluent Limitations IV.A.1.g and consistent with the Compliance Determination language specified in Section VII.G.

   g. **Total Calendar Annual Mass Loading Effluent Limitations**. For constituents with effluent limitations specified as “total calendar annual mass loading” (i.e., methylmercuryand total mercury) the Discharger shall report the total calendar annual mass loading in the December SMR. The total calendar annual mass loading shall be calculated as specified in Section VII.B of the Limitations and Discharge Requirements.

7. The Discharger shall submit SMRs in accordance with the following requirements:

a. 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. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS.

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

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

Table E-9. Reporting Requirements for Special Provisions Reports

Special Provision	Reporting Requirements
Temperature Study (Section VI.C.2.c of this Order)	Submit Plan within 6 months of adoption date of this Order
Pollution Prevention Plan for Mercury (Sections VI.C.3.a and VI.C.7.a of this Order)	1 June 2013
Pollution Prevention Plan for Mercury, Progress Reports (Sections VI.C.3.a and VI.C.7.a of this Order)	20 October 2014 20 October 2016 20 October 2017
Salinity Reduction Plan, Progress Reports (Section VI.C.3.c of this Order)	1 June, annually
Central Valley Clean Water Association (CVCWA) Coordinated Methylmercury Control Study Work Plan (Section VI.C.7.a of this Order)	20 April 2013
Central Valley Clean Water Association Coordinated Methylmercury Control Study Progress Report (Section VI.C.7.a of this Order)	20 October 2015
Final CVCWA Coordinated Methylmercury Control Study (Section VI.C.7.a of this Order)	20 October 2018

2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, PMP, and Pollution Prevention Plans required by Special Provisions VI.C of this Order. The Discharger shall report the progress in satisfaction of compliance schedule dates specified in the Special Provision at section VI.C.7 of this Order. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date.

3. Within 60 days of permit adoption, the Discharger shall submit a report outlining reporting levels, method detection limits, and analytical methods for approval. 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. In accordance with Section 2.4.2 of the SIP, when there is more than one ML value for a given substance, the Central Valley Water Board shall include as RLs, in the permit, all ML values, and

their associated analytical methods, listed in Appendix 4 that are below the calculated effluent limitation. The Discharger may select any one of those cited analytical methods for compliance determination. If no ML value is below the effluent limitation, then the Central Valley Water Board shall select as the RL, the lowest ML value, and its associated analytical method, listed in Appendix 4 for inclusion in the permit. Table I-1 (Attachment I) provides required maximum reporting levels in accordance with the SIP.

4. **Effluent and Receiving Water Characterization Study.** An effluent and receiving water monitoring study is required to ensure adequate information is available for the permit renewal. The Discharger shall conduct quarterly monitoring of the effluent at Monitoring Location EFF-001 and of the receiving water at Monitoring Location RSW-003 during the third or fourth year of this permit term for all priority pollutants and other constituents of concern as described in Attachment I.

   If the Discharger is participating in the Delta Regional Monitoring Program as described in Attachment E, Section VIII, the Receiving Water portion of this Characterization Study is not required. However, the Report of Waste Discharge for the next permit renewal shall include, at minimum, one representative ambient background characterization monitoring event for priority pollutant constituents during the term of the permit. Data from the Delta Regional Monitoring Program may be utilized to characterize the receiving water in the permit renewal. The Discharger may request that the RMP perform sampling and laboratory analysis to address all or a portion of the monitoring under this Characterization Study with the understanding that the Discharger will provide funding to the RMP sufficient to reimburse all of the costs of this additional effort. Alternatively, the Discharger may conduct any site-specific receiving water monitoring deemed appropriate by the Discharger and submit that monitoring data with this Characterization Study. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point.

   The report shall be completed in conformance with the following schedule.

Task	Compliance Date
i. Submit Work Plan and Time Schedule	No later than 2 years 6 months from adoption of this Order
ii. Conduct monitoring in accordance with Attachment I of this Order	Quarterly during third or fourth year of permit term
iii. Submit Final Report	6 months following completion of final monitoring event

5. **Annual Operations Report.** By 1 February of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

   a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.

b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.

d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

e. The Discharger may also be requested to submit an annual report to the 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.

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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	5B391078003
Discharger	Mountain House Community Services District
Name of Facility	Mountain House Wastewater Treatment Plant
Facility Address	17300 W. Bethany Road
	Mountain House, CA 95391
	San Joaquin County
Facility Contact, Title and Phone	John Miller, Facility Manager, (209) 836-0136
Authorized Person to Sign and Submit Reports	Nader Shareghi, Public Works Director, (209) 831-2300
Mailing Address	230 S. Sterling Drive, Suite 100, Mountain House, CA 95391
Billing Address	Same as Mailing Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Not Applicable
Facility Permitted Flow	Existing Phase II Plant – 3.0 million gallons per day (MGD) Phase III Plant – 5.4 MGD
Facility Design Flow	Existing Phase II Plant – 3.0 million gallons per day (MGD) Phase III Plant – 5.4 MGD
Watershed	Sacramento-San Joaquin Delta Watershed
Receiving Water	Old River
Receiving Water Type	Estuary

A. Mountain House Community Services District (hereinafter Discharger) is the owner and operator of the Mountain House Wastewater Treatment Plant (hereinafter, Facility), a POTW.

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

B. The Facility discharges wastewater to the Old River, a water of the United States, and was regulated by Order R5-2007-0039 which was adopted on 4 May 2007 and expired on 1 May 2012. The terms and conditions of Order R5-2007-0039 were automatically continued and remained in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit were adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge (ROWD) and submitted an application for renewal of its WDRs and NPDES permit on 24 October 2011. A site visit was conducted on 8 February 2012 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the community of Mountain House and serves a population of approximately 9,800. The current average dry weather flow capacity of the Facility is 3.0 MGD.

A. Description of Wastewater and Biosolids Treatment or Controls

The treatment system at the Facility is planned to expand in three phases. Currently, the Discharger is discharging from the Phase II wastewater treatment plant (WWTP). The Phase II treatment system consists of headworks, an anoxic reactor for flow/load equalization and carbon source for denitrification, sequencing batch reactors (SBRs) for biological treatment including nitrification and denitrification, cloth media filtration, and ultraviolet light (UV) disinfection. The Facility also includes two lined, aerated storage reservoirs for use during emergency situations and during plant maintenance. The storage reservoirs have a capacity of approximately twelve million gallons, which provide automatic short-term emergency storage. Level and flow metering, aeration equipment and discharge pumping facilities are available to allow a metered return to the regular process stream.

Sludge handling at the Facility includes two aerobic digesters, a drum thickener, and a centrifuge. Solids are collected in a truck and transported to Synagro for disposal approximately twice per month.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 3, T2S, R4E, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated municipal wastewater is discharged at Discharge Point No. 001 to the Old River, a water of the United States and tributary to the Sacramento-San Joaquin Delta at a point latitude 37° 47' 52" N and longitude 121° 31' 20" W.

3. The Old River, in the vicinity of the discharge, is tidally influenced. River flow moves upstream during the incoming or flood tide, while downstream flows occur during the outgoing or ebb tide. Upstream San Joaquin River releases, tidal influences, the South Delta Temporary Barriers Project, and State Water Project pumping at Clifton Court Forebay affect the amount of flow in the Old River. A more detailed discussion of the Old River hydrodynamics and dilution is provided in section IV.C.2.c.

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

Effluent limitations contained in Order R5-2007-0039 for discharges from Discharge Point No. 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2007-0039 are as follows:

Table F-2. Historical Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From July 2007 to March 2012)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	--	--	3.0[1,2]	--	--	0.82
	MGD	--	--	5.4[1,3]	--	--	--
Biochemical Oxygen Demand (5-Day @ 20°C)	mg/L	10	15	20	2.5	3.4	8.0
	lbs/day[4]	250[2]	375[2]	500[2]	10	13	23
	lbs/day[5]	450[3]	675[3]	900[3]	NA	NA	NA
	% Removal	85	--	--	NR	--	--
Total Suspended Solids	mg/L	10	15	20	2.7	4.4	16
	lbs/day[4]	250[2]	375[2]	500[2]	13	23	60
	lbs/day[5]	450[3]	675[3]	900[3]	NA	NA	NA
	% Removal	85	--	--	NR	--	--
Ammonia Nitrogen, Total (as N)	mg/L	1.0	--	2.1	0.63	--	1.5
	lbs/day[4]	24[2]	--	53[2]	2.1	--	5.0
	lbs/day[5]	45[3]	--	95[3]	NA	--	NA
Nitrate Nitrogen, Total (as N)	mg/L	10	--	--	3.3	--	--
	lbs/day[4]	250[2]	--	--	9.3	--	--
	lbs/day[5]	450[3]	--	--	NA	--	--
Nitrite Nitrogen, Total (as N)	mg/L	1	--	--	<0.1	--	--
	lbs/day[4]	25[2]	--	--	0.5	--	--
	lbs/day[5]	45[3]	--	--	NA	--	--
Settleable Solids	mL/L	0.1	--	0.2	0.1	--	0.1

Parameter	Units	Effluent Limitation			Monitoring Data (From July 2007 to March 2012)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
pH	standard units	--	--	6.5 – 8.5	--	--	6.7 – 8.4[6]
Oil and Grease	mg/L	10	--	15	4.3	--	4.3
Aluminum	µg/L	--	--	567[7]	NA	--	68
	µg/L	63[8]	--	159[8]	--		NA
Iron, Total Recoverable	µg/L	--	--	300	--	--	185
Bis (2-Ethylhexyl) Phthalate	µg/L	1.8	--	3.6	2.6[9]	--	2.6[9]
Bromoform	µg/L	4.3	--	8.6	3.5	--	3.5
Cyanide	µg/L	4.1	--	8.9	16.8	--	16.8
Dichlorobromomethane	µg/L	0.56	--	1.1	3.1	--	3.1
Chlorodibromomethane	µg/L	0.41	--	0.82	1.9	--	2.6
Group A Pesticides	µg/L	--	--	ND[10]	--	--	[11]
Total Trihalomethanes	µg/L	80	--	--	8.4	--	--
Chlorine, Total Residual	mg/L	--	0.01[12]	0.02[13]	--	NA	NA
Turbidity	NTU	--	5[14]	10[15]/2[1]	--	--	2.8
Total Coliform Organisms	MPN/100 mL	23[16]	2.2[17]	240[15]	--	7.0	70
Mercury	µg/L	--	--	--	0.02	--	--
	lbs/month	0.005[18]	--	--	0.003	--	--
Temperature	°F	--	--	[19]	--	--	32
Dissolved Oxygen	mg/L	--	--	[20]	--	--	2.3[21]
Electrical Conductivity @ 25°C	µmhos/cm	1,406[22]	--	--	1,070	--	1,180
	µmhos/cm	[23]	--	--	NA	--	--
Acute Toxicity	% Survival	--	--	[24]	--	--	70[21]

Parameter	Units	Effluent Limitation			Monitoring Data (From July 2007 to March 2012)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge

NA = Not Available
NR = Not Reported

[1] Applied as a daily average effluent limitation.
[2] Effluent limitation effective until completion of Special Provision VI.C.4.a in Order R5-2007-0039.
[3] Effluent limitation effective upon compliance with Special Provision VI.C.4.a in Order R5-2007-0039.
[4] Based upon a design treatment capacity of 3.0 MGD.
[5] Based upon a design treatment capacity of 5.4 MGD.
[6] The Discharger reported a pH sample as 8.8 standard units in August 2007. The Discharger reported that the elevated pH was due to a faulty meter. As a result, the pH meter was cleaned and calibrated and the following sample was reported as 8.3 standard units.
[7] Interim effluent limitation effective until 30 April 2012.
[8] Final effluent limitation effective on 1 May 2012.
[9] Represents the highest daily discharge reported when clean sampling and analysis techniques were used.
[10] The non-detectable limitation applies to each individual pesticide. No individual pesticide may be present in the discharge at detectable concentrations.
[11] There were no reportable concentrations of any Group A pesticides in the effluent from July 2007 through March 2012.
[12] Applied as a 4-day average effluent limitation.
[13] Applied as a 1-hour average effluent limitation.
[14] Not to be exceeded more than 5 percent of the time within a 24-hour period.
[15] Not to be exceeded at any time.
[16] Not to be exceeded more than once in any 30-day period.
[17] Applied as a 7-day median effluent limitation.
[18] The total monthly mass discharge shall not exceed 0.005 lbs/month.
[19] The maximum temperature of the discharge shall not nexceed the natural receiving water temperature by more than 20°F.
[20] The daily average effluent dissolved oxygen concentration shall not be less than 5.0 mg/L.
[21] Represents the minimum value reported.
[22] Interim effluent limitation.
[23] Upon determination by the Central Valley Water Board that the Discharger has materially failed to submit a Salinity Plan to reduce its salinity impacts on the Southern Delta, the electrical conductivity in the discharge shall not exceed a monthly average of 700 µmhos/cm from 1 April to 31 August and a monthly average of 1,000 mmhos/cm, from 1 September to 31 March. The Discharger submitted the Salinity Plan on 17 December 2007.
[24] 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%

D. Compliance Summary

The Discharger reported the following effluent limitation violations and mandatory minimum penalties were assessed, as summarized below, for the period of July 2007 thru March 2012:

Date	Constituent	Reported Result	Effluent Limitation	Limitation Period
8/12/2007	pH	8.8	8.5[1]	Instantaneous
8/14/2007	pH	8.7	8.5[1]	Instantaneous
8/16/2007	pH	8.8	8.5[1]	Instantaneous
8/31/2007	pH	8.8	8.5[1]	Instantaneous
4/30/2008	Dibromochloromethane	1.9	0.41	Monthly
4/30/2008	Dichlorobromomethane	1.5	0.56	Monthly
5/7/2008	Dibromochloromethane	1.9	0.82	Daily Max
5/7/2008	Dichlorobromomethane	1.5	1.1	Daily Max
7/31/2008	Dichlorobromomethane	0.9	0.56	Monthly
8/13/2008	Dibromochloromethane	1.4	0.82	Daily Max
8/31/2008	Dibromochloromethane	1.4	0.41	Monthly
8/31/2008	Dichlorobromomethane	0.9	0.56	Monthly
10/31/2008	Dibromochloromethane	0.67	0.41	Monthly
12/31/2008	Dibromochloromethane	0.6	0.41	Monthly
9/23/2009	Coliform	7	2.2	7-day median

[1] Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are applicable based on protection of the Basin Plan objectives for pH.

A Time Schedule Order (R5-2007-0013) was adopted on 4 May 2007, which included interim effluent limitations for bis(2-ethylhexyl)phthalate, cyanide, group A pesticides, and iron. The Time Schedule Order was amended on 5 February 2009 to include dibromochloromethane, dichlorobromomethane, and total trihalomethanes. Time Schedule Order R5-2007-0013 was rescinded and interim effluent limitations were carried forward for dichlorobromomethane and dibromochloromethane in Order R5-2012-0073, which was adopted by the Central Valey Water Board on 3 August 2012.

E. Planned Changes

Currently, the Facility discharges from the Phase II WWTP. The Phase III WWTP is an expansion of the Phase II WWTF to accommodate planned growth within the service area, adding larger influent and effluent pumping systems, a larger bar screen, and an additional sequencing batch reactor and cloth media filtration in order to accommodate expanded flows up to 5.4 MGD. The Discharger must demonstrate compliance with Provision VI.C.6.a of this Order prior to increasing flow to 5.4 MGD.

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 (Water Code) 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 October 2011), for the Sacramento and San Joaquin River Basins* (Basin Plan)

   b. *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan)

   The Thermal Plan is applicable to the discharge from the Facility. For the purposes of the Thermal Plan, the Discharger is considered to be an Existing Discharger of Elevated Temperature Waste. The Thermal Plan in section 5.A contains the following temperature objectives for surface waters that are applicable to this discharge:

   "5. Estuaries
   A. Existing discharges
   (1) Elevated temperature waste discharges shall comply with the following:
   a. The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.
   b. Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.
   c. No discharge shall cause a surface water temperature to rise greater than 4°F above the natural temperature of the receiving waters at any time or place.
   d. Additional limitations shall be imposed when necessary to assure protection of beneficial uses."

   c. *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan)

The *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) was adopted in May 1995 by the State Water Board superseding the 1991 Bay-Delta Plan. The Bay-Delta Plan was last updated on 13 December 2006. The Bay-Delta Plan identifies the beneficial uses of the estuary and includes objectives for flow, salinity, and endangered species protection.

The State Water Board adopted Decision 1641 (D-1641) on 29 December 1999, and revised on 15 March 2000. D-1641 implements flow objectives for the Bay-Delta Estuary, approves a petition to change points of diversion of the Central Valley Project and the State Water Project in the Southern Delta, and approves a petition to change places of use and purposes of use of the Central Valley Project.

The Bay-Delta Plan includes water quality objectives for Electrical Conductivity (EC) for the South Delta in the vicinity of the discharge[5]. On 1 June 2011, the Superior Court for Sacramento County entered a judgment and peremptory writ of mandate in the matter of *City of Tracy v. State Water Resources Control Board* (Case No; 34-2009-8000-392-CU-WM-GDS), ruling that the South Delta salinity objectives shall not apply to the City of Tracy and other municipal dischargers pending reconsideration of the South Delta salinity objectives and adoption of a proper program of implementation that includes municipal dischargers. The State Water Board is currently considering new salinity and flow objectives in the South Delta that will address the Court Order. Therefore, at the time this Order was adopted the South Delta salinity objectives were not applicable to the Discharger.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** This Order implements the NTR and CTR as specified in the Finding contained at section II.I of this Order.

3. **State Implementation Policy (SIP).** This Order implements the SIP as specified in the Finding contained at section II.J of this Order.

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

5. **Antidegradation Policy.** As specified in the Finding contained at section II.N of this Order and as discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.), the discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board (State Water Board) Resolution 68-16.

6. **Anti-Backsliding Requirements.** This Order is consistent with anti-backsliding policies as specified in the Finding contained at section II.O of this Order.

[5] The Bay-Delta Plan includes water quality objectives at three locations in the South Delta for EC. The water quality objectives are a 14-day running average EC of 700 µmhos/cm from 1 April – 31 Aug and a 14-day running average EC of 1,000 µmhos/cm from 1 September - 31 March.

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 Water Code, requires that "*the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective*".

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

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

8. Storm Water Requirements. USEPA promulgated federal regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment 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 12 November 2010 USEPA gave final approval to California's 2010 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet*

(or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR Part 130, et seq.)." The Basin Plan also states, "*Additional treatment beyond minimum federal 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 southern portion of the Sacramento-San Joaquin Delta includes diazinon and chlorpyrifos, DDT, electrical conductivity, group A pesticides, invasive species, mercury, and unknown toxicity. The listing for the Old River between the San Joaquin River and the Delta-Mendota Canal includes chlorpyrifos, electrical conductivity, low dissolved oxygen, and total dissolved solids.

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. The status of each TMDL and applicable effluent limitations are discussed in Tables F-3a and F-3b, below, for each specific pollutant.

Table F-3a. 303 (d) List for Old River

Pollutant	Potential Sources	Proposed TMDL Completion
Chlorpyrifos	Agriculture	Approved 10 October 2007
Electrical Conductivity	Unknown	2021
Low Dissolved Oxygen	Agriculture	2019
Total Dissolved Solids	Agriculture	2021

Table F-3b. 303 (d) List for the Sacramento-San Joaquin Delta Waterways, southern portion

Pollutant	Potential Sources	Proposed TMDL Completion
Chlorpyrifos	Agriculture	Approved 10 October 2007
DDT (Dichlorodiphenyltrichloroethane)	Agriculture	(1)
Diazinon	Agriculture	Approved 10 October 2007
Electrical Conductivity	Agriculture	2019
Invasive Species	Unknown	2019
Organo-chlorine Group A Pesticides	Agriculture	(1)
Mercury	Resource Extraction	Approved 20 October 2011

Pollutant	Potential Sources	Proposed TMDL Completion
Unknown Toxicity	Unknown	2019

[1] TMDL completion date will be updated when the next 303(d) list is updated.

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, Policies and Regulations

1. **Title 27, California Code of Regulations (CCR), section 20005 *et seq*. (hereafter Title 27)** Discharges of wastewater to land from the emergency storage ponds are unconditionally exempt from the requirements of Title 27, pursuant to the "sewage" exemption, Title 27 CCR section 20090(a), which states, in part, the following:

   "(a) Sewage – Discharges of domestic sewage or treated effluent which are regulated by WDRs . . . and treatment or storage facilities associated with municipal wastewater treatment plants…."

   The emergency storage ponds are a necessary part of the Facility's municipal wastewater treatment system, and thus are unconditionally exempt from Title 27.

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. **Prohibition III.A (Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited).** This prohibition is based on Water Code section 13260 that requires filing of a ROWD before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited. This prohibition is retained from Order R5-2007-0039.

2. **Prohibition III.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)). 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 WQO 2002-0015, which cites the federal regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation. This prohibition is retained from Order R5-2007-0039.

3. **Prohibition III.C (Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the Water Code).** This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance. This prohibition is retained from Order R5-2007-0039.

4. **Prohibition III.D (The Discharger shall not allow pollutant-free wastewater to be discharged into the treatment or disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants).** This prohibition is based on CFR Part 122.41 et seq. that requires the proper design and operation of treatment facilities.

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 BOD_5, 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. Tertiary treatment is necessary to protect the beneficial uses of the receiving stream and the final effluent limitations for BOD_5 and TSS are based on the technical capability of the tertiary process. BOD_5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The secondary and tertiary treatment standards for BOD_5 and TSS are indicators of the effectiveness of the treatment processes. 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. In applying 40 CFR Part 133 for weekly and monthly average BOD_5 and TSS limitations, 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; the 30-day average BOD_5 and TSS limitations have been revised to 10 mg/L, which is technically based on the capability of a tertiary system. In addition to the average weekly and average monthly effluent limitations, a daily maximum effluent limitation for BOD_5 and TSS is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. If 85 percent removal of BOD_5 and TSS must be achieved by a secondary treatment plant, it must also be achieved by a tertiary (i.e., treatment beyond secondary level) treatment plant. This Order contains a limitation requiring an average of 85 percent removal of BOD_5 and TSS over each calendar month.

b. Flow. Currently, the Facility is designed to provide a tertiary level of treatment for up to a design flow of 3.0 MGD. Therefore, this Order contains an average dry weather discharge flow effluent limitation of 3.0 MGD. The Discharger has planned an additional upgrade and expansion project that would increase the treatment capacity from 3.0 MGD to 5.4 MGD. Upon compliance with Provision VI.C.6.a of this Order, this Order contains an average dry weather discharge flow effluent limitation of 5.4 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.

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

Table F-4. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	--	--	3.0[1]	--	--
		--	--	5.4[2]	--	--
Biochemical Oxygen Demand (5-day @ 20°C)[3]	mg/L	30	45	--	--	--
	lbs/day[4]	751[5]	1,126[5]	--	--	--
	lbs/day[6]	1,351[7]	2,027[7]	--	--	--
	% Removal	85	--	--	--	--
pH[3]	standard units	--	--	--	6.0	9.0
Total Suspended Solids[3]	mg/L	30	45	--	--	--
	lbs/day[4]	751[5]	1,126[5]	--	--	--
	lbs/day[6]	1,351[7]	2,027[7]	--	--	--
	% Removal	85	--	--	--	--

1 The average dry weather flow shall not exceed 3.0 MGD until the Discharger demonstrates compliance with Provision VI.C.6.a of this Order.
2 Upon compliance with Provision VI.C.6.a of this Order, the average dry weather flow shall not exceed 5.4 MGD.
3 Note that more stringent water quality-based effluent limitations (WQBELs) for BOD_5, pH, and TSS are applicable and are established as final effluent limitations in this Order (see section IV.C.3.d of this Fact Sheet).
4 Based upon an average dry weather flow of 3.0 MGD.
5 Effluent limitations effective until the Discharger demonstrates compliance with Provision VI.C.6.a of this Order.
6 Based upon an average dry weather flow of 5.4 MGD.
7 Effluent limitations effective upon compliance with Provision VI.C.6.a of 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 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.

a. Receiving Water and Beneficial Uses. The beneficial uses of the Sacramento-San Joaquin Delta, including Old River downstream of the discharge, as identified in Table II-1 of the Basin Plan are municipal and domestic supply

(MUN), agricultural supply (AGR), agricultural stock watering, industrial process water supply (PRO), industrial service supply (IND), water contact recreation (REC1), other non-contact water recreation (REC2), warm freshwater aquatic habitat (WARM), cold freshwater aquatic habitat (COLD), migration of aquatic organisms (MIGR) both warm and cold habitats, warm spawning habitat (SPWN), wildlife habitat (WILD), commercial and sportfishing (COMM), and navigation (NAV). The beneficial uses of the underlying groundwater are municipal and domestic (MUN), industrial service (IND), industrial process (PRO) and agricultural supply (AGR). Thus, beneficial uses applicable to Old River are described as follows:

Table F-5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Old River	Existing uses from Table II-1 of the Basin Plan: Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Industrial process supply (PROC); Industrial service supply (IND); Water contact recreation (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Cold freshwater habitat (COLD); Migration of aquatic organisms, warm and cold (MIGR); Spawning, reproduction, and/or early development, warm (SPWN); Wildlife habitat (WILD); Commercial and sportfishing (COMM) and Navigation (NAV). Potential uses from Table II-1 of the Basin Plan: None Intermittent uses from Section II of the Basin Plan: None

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 July 2007 through March 2012, which includes effluent and ambient background data submitted in SMRs. Flow in the Old River is tidal and there is no consistent upstream or downstream monitoring location that is out of the influence of the Discharge Point No. 001. Therefore, to be conservative, receiving water monitoring data from Monitoring Locations RSW-001 and RSW-003 was used to conduct the RPA.

c. Assimilative Capacity/Mixing Zone

i. South Delta Operations. Stage and flow in the Old River and other portions of the South Delta are managed by the operation of four temporary rock weir barriers, installed by the California Department of Water Resources (DWR). Three of the barriers are used to improve water levels for agricultural purposes and are installed from spring to fall, typically from April through November. The fourth barrier, Head of Old River, restricts San Joaquin River

flow from entering the Old River. The Head of Old River barrier is installed for about 1 month in the spring, typically April, to reduce entrainment of emigrating juvenile San Joaquin fall-run Chinook salmon in the South Delta. In the fall for one month, typically October, the Head of Old River barrier is installed to maintain flow rates in the San Joaquin River, thereby improving dissolved oxygen conditions in the Stockton Deep Water Ship Channel. The lowest flows in the Old River occur when all barriers are installed.

A component of the South Delta Improvement Program (SDIP) is to replace the temporary barriers with a permanent flow control gate at the Head of Old River as a fish control gate and up to three permanent flow control gates at Middle River, Grant Line Canal, and the Old River, respectively. The operation of the three flow control gates would vary over the course of the irrigation season. The fish control gate is intended to prevent migrating and outmigrating salmon from entering the Old River from the San Joaquin River. The flow control structures are intended to assist in maintaining water levels and water quality for south Delta agricultural users.

In June 2009, the National Marine Fisheries Service (NMFS) offered a biological opinion that directs the DWR to halt implementation of the SDIP until 3 years of fish predation studies at the temporary barriers are completed. There is currently no schedule for project completion.

ii. **South Delta/Old River Hydrodynamics.** Discharge Point No. 001 to the Old River is located in a tidal zone, which affects the movement and dilution of effluent in the Old River. River flow moves upstream during the incoming or flood tide, while downstream flows occur during the outgoing or ebb tide. Flow conditions in at Discharge Point No. 001 in the Old River are also affected by San Joaquin River flow, the operations of the barriers installed in the South Delta, export pumping rates of the State Water Project (SWP) and Central Valley Project (Jones Pumping Plant), and agricultural diversions in the South Delta. The complex dynamics of the stream flow, the tidal flows, the barrier operations, and the State and federal pumping operations must be considered in an evaluation of an available dilution for the discharge.

The flow of diluting water at the point of discharge varies with the tidal cycle. Typically, as net river flows drop, at some point in the tidal cycle the incoming tide balances against the downstream river flow resulting in river flow stagnation and very little dilution of effluent. Below this net river flow, the direction of the river flow reverses with incoming tides resulting in short periods of time with zero net river flows. Additionally, with flow reversals, some volume of river water is multiple dosed with the effluent as the river flows downstream past the point of discharge, reverses, moves upstream past the discharge a second time, then again reverses direction and passes the discharge point a third time as it moves down the river. A particular volume of river water may move back and forth, past the discharge point many times due to tidal action, each time receiving an additional load of wastewater. This is exacerbated with the barriers installed in the South Delta.

The barriers minimize inflow from the San Joaquin River and restrict downstream flows. Therefore, flows while the barriers are in place are primarily tidal, since the Head of Old River barrier directs the majority of San Joaquin River flows north towards Stockton. In addition, the agricultural barriers allow flood tides through but the ebb tides are restricted. This maintains water levels for irrigation, but reduces downstream flow in the Old River.

iii. **Regulatory Guidance for Dilution Credits and Mixing Zones.** The Discharger has requested mixing zones and dilution credits for compliance with human health water quality criteria. The Central Valley Water Board has the discretion to accept or deny mixing zones and dilution credits. The CWA directs states to adopt water quality standards to protect the quality of its waters. USEPA's current water quality standards regulation authorizes states to adopt general policies, such as mixing zones, to implement state water quality standards (40 CFR section 122.44 and section 122.45). The USEPA allows states to have broad flexibility in designing its mixing zone policies. Primary policy and guidance on determining mixing zone and dilution credits is provided by the SIP and the Basin Plan. If no procedure applies in the SIP or the Basin Plan, then the Central Valley Water Board may use the USEPA *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) (TSD).

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

For non-priority pollutant constituents the allowance of mixing zones by the Central Valley Water Board is discussed in the Basin Plan, *Policy for Application of Water Quality Objectives*, which states in part, "*In conjunction with the issuance of NPDES and storm water permits, the Regional Board may designate mixing zones within which water quality objectives will not apply provided the discharger has demonstrated to the satisfaction of the Regional Board that the mixing zone will not adversely impact beneficial uses. If allowed, different mixing zones may be designated for different types of objectives, including, but not limited to, acute aquatic life objectives, chronic aquatic life objectives, human health objectives, and acute and chronic whole effluent toxicity objectives, depending in part on the averaging period over which the objectives apply. In determining the size of such mixing zones, the Regional Board will consider the applicable procedures and guidelines in the*

EPA's Water Quality Standards Handbook and the [TSD]. Pursuant to EPA guidelines, mixing zones designated for acute aquatic life objectives will generally be limited to a small zone of initial dilution in the immediate vicinity of the discharge."

For priority pollutants, the SIP supersedes the Basin Plan mixing zone provisions. Section 1.4.2 of the SIP states, in part, "…*with the exception of effluent limitations derived from TMDLs, in establishing and determining compliance with effluent limitations for applicable human health, acute aquatic life, or chronic aquatic life priority pollutant criteria/objectives or the toxicity objective for aquatic life protection in a basin plan, the Regional Board may grant mixing zones and dilution credits to dischargers…The applicable priority pollutant criteria and objectives are to be met through a water body except within any mixing zone granted by the Regional Board.* ***The allowance of mixing zones is discretionary and shall be determined on a discharge-by-discharge basis.*** *The Regional Board may consider allowing mixing zones and dilution credits only for discharges with a physically identifiable point of discharge that is regulated through an NPDES permit issued by the Regional Board*." [***emphasis added***]

For incompletely-mixed discharges, the Discharger must complete an independent mixing zone study to demonstrate to the Central Valley Water Board that a dilution credit is appropriate. In granting a mixing zone, Section 1.4.2.2 of the SIP requires the following to be met:

"***A mixing zone shall be as small as practicable****. The following conditions must be met in allowing a mixing zone:* (***emphasis added***)

A: A mixing zone shall not:

1. *compromise the integrity of the entire water body;*
2. *cause acutely toxic conditions to aquatic life passing through the mixing zone;*
3. *restrict the passage of aquatic life;*
4. *adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws;*
5. *produce undesirable or nuisance aquatic life;*
6. *result in floating debris, oil, or scum;*
7. *produce objectionable color, odor, taste, or turbidity;*
8. *cause objectionable bottom deposites;*
9. *cause nuisance;*
10. *dominate the receiving water body or overlap a mixing zone from different outfalls; or*
11. *be allowed at or near any drinking water intake. A mixing zone is not a source of drinking water. To the extent of any conflict between this determination and the Sources of Drinking Water Policy (Resolution No. 88-63), this SIP supersedes the provisions of that policy."*

Section 1.4.2 of the SIP establishes the authority for the Central Valley Water Board to consider dilution credits based on the mixing zone conditions in a receiving water. Section 1.4.2.1 in part states:

> *"The dilution credit, D, is a numerical value associated with the mixing zone that accounts for the receiving water entrained into the discharge. The dilution credit is a value used in the calculation of effluent limitations (described in Section 1.4).* ***Dilution credits may be limited or denied on a pollutant-by-pollutant basis, which may result in a dilution credit for all, some, or no priority pollutants in the discharge.****"* (***emphasis added***)

The mixing zone is thus an administrative construct defined as an area around the outfall that may exceed water quality objectives, but is otherwise protective of the beneficial uses. Dilution is defined as the amount of mixing that has occurred at the edge of this mixing zone under critical conditions, thus protecting the beneficial uses at the concentration and for the duration and frequency required.

iv. Dilution/Mixing Zone Study Results. On 23 September 2011, the Discharger submitted a study (2011 Study) requesting dilution credits of 7:1 (parts river water: parts effluent) for chlorodibromomethane and 5.6:1 for dichlorobromomethane. The 2011 study was based on two studies previously submitted and performed by the Discharger, "*The Tidal Dilution Study of the Mountain House Wastewater Treatment Plant Discharge Into Old River"* (2005 Study) and "*Mountain House Wastewater Treatment Plant Dye Study and Discharge Modeling"* (2009 Study).

(a) Tidal Dilution Study of the Mountain House Wastewater Treatment Plant Discharge into Old River, September 2005. The 2005 Study used the Delta Simulation Model Version 2 (DSM2), a one-dimensional tidal hydraulic and water quality model, to simulate the dilution of the Facility effluent. The DSM2 was used to simulate the April through July 2004 hydrologic period under three Delta operations scenarios with an assumed Facility discharge rate of 6.5 MGD. The three operations scenarios were historical 2004 scenario, which used 2004 values for inflows, export pumping, agricultural diversions, and operations of the four barriers, a no-barrier scenario, which used the same inflows and diversions as the historical 2004 scenario, but without the installation of the barriers, and a future operations scenario. The Study found that the worst-case conditions for effluent dilution in the Old River occurred under the historical 2004 scenario. The Study found that during June of the historical 2004 scenario, the Old River in the vicinity of Discharge Point No. 001 (after initial mixing) contained a maximum daily average of 30 percent effluent, demonstrating that despite relatively stagnant conditions, there is some capacity to dilute effluent. Furthermore, the Study found that the maximum daily average concentration of the Facility effluent at the Jones Pumping Plant was 1 percent under both the

historical and future operation scenarios, and 2 percent under the no-barrier scenario. The 2005 Study also indicated that the effluent plume would be vertically and horizontally mixed within the entire tidal flow of the river with 150 feet upstream and downstream of Dishcarge Point No. 001.

(b) Mountain House Wastewater Treatment Plant Dye Study and Discharge Modeling (March 2009). The intent of the 2009 Study was to confirm the findings in the 2005 Study and evaluate the effects of varying export pumping rates, barrier operations, and agricultural diversion rates in the South Delta on the Facility effluent. The Study used the Visual Plumes model and the Fischer Delta Model (FDM) to simulate the Facility discharge. Visual Plumes was used to evaluate near-field effluent dilution and the FDM was used to evaluate far-field effluent concentrations that would result from continuous long-term discharge of the effluent. The FDM was set up to simulate the Facility discharge from October 2007 through September 2008 to evaluate concentrations of effluent that would result in the far-field from a long-term discharge. In addition, six more scenarios were simulated to assess the effects of barrier operations, export pumpuing rates, and agricultural diversion rates on the long-term buildup of Facility effluent in the Old River at key locations in the Delta. To verify the FDM for use in simulating the Facility discharge to the Old River, a field dye study was conducted in September 2008. The simulation results and field dye study reasonably well.

The 2009 Study found the following:

(1) Using the near-field dye study, the effluent plume was well-mixed over the depth of the river and nearly mixed laterally at 700 feet from the outfall, greater than the 150 feet measured in the 2005 study.

(2) The Study found that removing the barriers leads to a large increase in river flow, resulting in decreased effluent concentration, similar to results of the 2005 Study.

(3) There was little or no effect of removing the barriers on the effluent concentration at the Jones Pumping Plant.

(4) Export pumping rates were either doubled or halved and the effects were measured at Discharge Point No. 001 and at Jones Pumping Plant. When the pumping rates were doubled, the 95 percentile effluent concentration was higher at Dishcarge Point No. 001, however the median concentration was lower. When the pumping rates were halved, the 95 percentile effluent concentration and the median concentration were both higher at Discharge Point No. 001. At Jones Pumping Plant, doubling the pumping rate decreased the 95 percentile and median effluent concentration. While halving the pumping rates increased the 95 percentile and median effluent concentrations.

(5) Agricultural discharge rates were either doubled or halved and the effects were measured at Discharge Point No. 001 and at Jones Pumping Plant. At Discharge Point No. 001, doubling the agricultural diversion rates increased effluent concentration while halving it decreased effluent concentration. At Jones Pumping Plant, doubling the agricultural diversion rate decreased the effluent concentration, while halving the agricultural diversion rates had little to no effect on effluent concentration at the Facility.

(6) The far-field results from the 2009 Study was similar the the far-field results in the 2005 Study.

The 2011 Study discusses the findings in the 2009 and 2005 Studies, and requests a dilution of 7:1 for chlorodibromomethane and 5.6:1 for dichlorobromomethane and a mixing zone of 1,000 feet west and 2,000 feet east of the outfall. The mixing zone is based on the 95 percentile effluent concentration, which also addresses the variability in barrier operations and water operations.

v. Evaluation of Available Dilution for Human Health Carcinogen Criteria. Section 1.4.2.2 of the SIP, provides that mixing zones should not be allowed at or near drinking water intakes. Furthermore, regarding the application of a mixing zone for protection of human health, the TSD states that*" …the presence of mixing zones should not result in significant health risks, when evaluated using reasonable assumptions about exposure pathways. Thus, where drinking water contaminants are a concern, mixing zones should not encroach on drinking water intakes."* Discharge Point No. 001 is within approximately 4.5 miles form the Jones Pumping Plant on the Delta Mendota Canal, a source of drinking water. Based on the 2011 Study, the human health carcinogen mixing zone for chlorodibromomethane and dichlorobromomethane extends 1,000 feet west and 2,000 feet east of Discharge Point No. 001 and dilution credit of 7:1 and 5.6:1, respectfully, is allowed. Human health carcinogen criteria dilution credits have been used in the calculation of the WQBELs for chlorodibromomethane and dichlorobromomethane.

The human health carcinogen criteria mixing zone meets the requirements of the SIP as follows:

(1) *Shall not compromise the integrity of the entire waterbody* – The TSD states that "*If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of a waterbody (such as a river segment), then mixing zones are likely to have little effect on the integrity of the waterbody as a whole, provided that the mixing zone does not impinge on unique or critical habitats."* The human health mixing zone is not applicable to aquatic life criteria. The human health mixing zone does not compromise the integrity of the entire waterbody.

(2) *Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone* –The human health mixing zone is not applicable to aquatic life criteria. Therefore, acutely toxic conditions will not occur in the mixing zone.

(3) *Shall not restrict the passage of aquatic life* – The human health mixing zone is not applicable to aquatic life criteria. Therefore, the mixing zone will not restrict the passage of aquatic life.

(4) *Shall not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws* – The human health mixing zone is not applicable to aquatic life criteria. The mixing zone will not impact biologically sensitive or critical habitats.

(5) *Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance* – The allowance of a human health mixing zone will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; or cause nuisance.

(6) *Shall not dominate the receiving water body or overlap a mixing zone from different outfalls* – The human health mixing zone is small relative to the water body, so it will not dominate the water body.

(7) *Shall not be allowed at or near any drinking water intake* – The closest drinking water intake is located at the Jones Pumping Plant, 4.5 miles west of Discharge Point No. 001. Thus, there are no drinking water intakes within the human health mixing zone.

The human health mixing zone therefore complies with the SIP. The mixing zone also complies with the Basin Plan, which requires that the mixing zone not adversely impact beneficial uses. Beneficial uses will not be adversely affected for the same reasons discussed above. In determining the size of the mixing zone, the Central Valley Water Board considered the procedures and guidelines in the EPA's Water Quality Standards Handbook, 2d Edition (updated July 2007), Section 5.1, and Section 2.2.2 of the Technical Support Document for Water Quality-based Toxics Control (TSD). The SIP incorporates the same guidelines.

vi. **Evaluation of Available Dilution for Specific Constituents (Pollutant-by-Pollutant Evaluation).** When determining to allow dilution credits for a specific pollutant several factors must be considered, such as, available assimilative capacity, facility performance, and best practicable treatment or control. In this subsection a pollutant-by-pollutant evaluation of dilution is discussed. The Discharger requested human carcinogen dilution credits for chlorodibromomethane and dichlorobromomethane. A pollutant-by-pollutant evaluation is discussed below.

(a) Chlorodibromomethane and Dichlorobromomethane. The receiving water contains assimilative capacity for chlorodibromomethane and dichlorobromomethane and a human carcinogen mixing zone for chlorodibromomethane and dichlorobromomethane meets the mixing zone requirements of the SIP. For chlorodibromomethane, the WQBELs based on a human carcinogen dilution credit of 7:1 are an AMEL and MDEL of 2.6 µg/L and 6.4 µg/L, respectively. For dichlorobromomethane, the WQBELs based on a human carcinogen dilution credit of 5.6:1 are an AMEL and MDEL of 3.2 µg/L and 7.5 µg/L, respectively. Based on the Discharger's mixing zone study, the human carcinogen human health mixing zone extends 1,000 feet west and 2,000 feet east of Discharge Point No. 001.

Although this Order allows a mixing zone and dilution credits for dichlorobromomethane and chlorodibromomethane, the Discharger demonstrated in the 2011 Study that the receiving water will still have remaining assimilative capacity despite the dilution given. In the 2011 Study, the Discharger presented projected concentrations of dichlorobromomethane and chlorodibromomethane that would occur at the Tracy Pumping Plant under the effluent limitations established in this Order with dilution credits applied. The Discharger used the Tracy Pumping Plant for this assessment because it had the highest daily average effluent concentrations of dichlorobromomethane and chlorodibromomethane, thus it is the most conservative approach. Background concentration came from the Banks Pumping Plant, which is in the same vicinity of the Delta as the Tracy Pumping Plant and the Facility. The Discharger demonstrated the following:

Pollutant	Criterion (µg/L)	Background Concentration[1] (µg/L)	Assimilative Capacity Available %	Use of Available Assimilative Capacity Associated with Dilution Credits (%)	Remaining Assimilative Capacity (%)
Dichlorobromomethane	0.41	0.25	39	0.37	38.63
Chlorodibromomethane	0.56	0.25	55	0.32	54.68

[1] There were no detected receiving water samples during the 2011 Study. Therefore, this table assumes half the reporting level as the background concentration as a conservative value.

Thus, for dichlorobromomethane and chlorodribromomethane there is 38.63 percent and 54.68 percent assimilative capacity remaining after dilution. Therefore, granting dilution credit for dichlorobromomethane and chlorodibromomethane would not contribute to further degradation of the receiving water.

Section 1.4.2.2 of the SIP requires that, "*A mixing zone shall be as small as practicable.*", and Section 1.4.2.2.B requires, "*The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements.*" The Discharger's mixing zone study demonstrates the mixing zones are as small as practicable and comply with the Antidegradation Policy, because the water quality-based effluent limits result in the Discharger implementing best practicable treatment or control of the discharge necessary to assure that a pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained.

d. Conversion Factors. The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc which are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default USEPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria.

e. 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[6], the CTR[7] and State Water Board Order 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)) 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).

As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces hardness-dependent CTR criteria based on the reasonable worst-case downstream ambient hardness that ensure these

[6] 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.

[7] 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.

metals do not cause receiving water toxicity under any downstream receiving water condition. Under this methodology, the Central Valley Water Board considers all hardness conditions that could occur in the ambient downstream receiving water after the effluent has mixed with the water body[8]. This ensures that effluent limitations are fully protective of aquatic life in all areas of the receiving water affected by the discharge under all flow conditions, at the fully mixed location, and throughout the water body including at the point of discharge into the water body.

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

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

(b) The SIP requires WQBELs if the receiving water is impaired upstream (outside the influence) of the discharge, i.e., if the maximum ambient background concentration of a pollutant exceeds the applicable criterion, adjusted for hardness[9]. For comparing the maximum ambient background concentration to the applicable criterion, the reasonable worst-case upstream ambient hardness was used to adjust the criteria. This is appropriate, because this area is outside the influence of the discharge. Since the discharge does not impact the upstream hardness, the effect of the effluent hardness was not included in this evaluation.

[8] All effluent discharges will change the ambient downstream metals concentration and hardness. It is not possible to change the metals concentration without also changing the hardness.
[9] The pollutant must also be detected in the effluent.

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

A 2006 Study[10] developed procedures for calculating the effluent concentration allowance (ECA) [11] for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g., high and low flow conditions) and the hardness and metals concentrations of the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. This method is superior to relying on downstream receiving water samples alone because it captures all possible mixed conditions in the receiving water. Both receiving water and effluent hardness vary based on flow and other factors, but the variability of receiving water and effluent hardness is sometimes independent. Using a calculated hardness value ensures that the Central Valley Water Board considers all possible mixed downstream values that may result from these two independent variables. Relying on receiving water sampling alone is less likely to capture all possible mixed downstream conditions.

The equation describing the total recoverable regulatory criterion, as established in the CTR[12], is as follows:

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

Where:

H = hardness (as $CaCO_3$)[13]
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:

$$\text{ECA} = C \quad (\text{when } C \leq B)^{14} \quad \text{(Equation 2)}$$

[10] 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.
[11] 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.
[12] 40 CFR § 131.38(b)(2).
[13] For this discussion, all hardness values are in mg/L as $CaCO_3$.

Where:

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

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

ECA for Chronic Cadmium, Chromium III, Copper, Nickel, and Zinc – For Concave Down Metals (i.e., chronic cadmium, chromium III, copper, nickel, and zinc) the 2006 Study demonstrates that when the effluent is in compliance with the CTR criteria and the upstream receiving water is in compliance with the CTR criteria, any mixture of the effluent and receiving water will always be in compliance with the CTR criteria[15]. The 2006 Study proves that regardless of whether the effluent hardness is lower or greater than the upstream hardness, the reasonable worst-case flow condition is the effluent dominated condition (i.e., no receiving water flow)[16]. Consequently, for Concave Down Metals, the CTR criteria have been calculated using the downstream ambient hardness under this condition.

The effluent hardness ranged from 109 mg/L to 154 mg/L, based on five samples from November 2007 to February 2011. Receiving water hardness varied from 55 mg/L to 297 mg/L, based on 13 samples from February 2011 to March 2012 at Monitoring Location RSW-001, and varied from 49 mg/L to 311 mg/L, based on 12 samples from April 2011 to March 2012 at Monitoring Location RSW-003. Flow in the Old River is tidal, thus there is no consistent upstream or downstream monitoring location that is outside the influence of Discharge Point No. 001. Therefore, the reasonable worst-case ambient hardness from Monitoring Locations RSW-001 and RSW-003 was used to adjust the criteria. Under the effluent dominated condition, the reasonable worst-case ambient hardness is 109 mg/L. As demonstrated in the example shown in Table F-6, below, using this hardness to calculate the ECA for all

[14] The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e., C ≤ B)
[15] 2006 Study, p. 5700
[16] There are two typographical errors in the 2006 Study in the discussion of Concave Down Metals when the effluent hardness is less than the receiving water hardness. The effluent and receiving water hardness were transposed in the discussion, but the correct hardness values were used in the calculations. The typographical errors were confirmed by the author of the 2006 Study, by email dated 1 April 2011, from Dr. Robert Emerick to Mr. James Marshall, Central Valley Water Board.

Concave Down Metals will result in WQBELs that are protective under all flow conditions, from the effluent dominated condition to high flow condition. This example for copper assumes the following conservative conditions for the receiving water:

- Receiving water always at the lowest observed receiving water hardness (i.e., 49 mg/L)
- Receiving water copper concentration always at the CTR criteria (i.e., no assimilative capacity).

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

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

Where:

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

In this example, for copper, for any receiving water flow condition (high flow to low flow), the fully-mixed ambient copper concentration is in compliance with the CTR criteria[17].

[17] This method considers the actual lowest observed receiving water hardness and actual lowest observed effluent hardness to determine the reasonable worst-case ambient downstream hardness under all possible receiving water flow conditions. Table F-5 demonstrates that the receiving water is always in compliance with the CTR criteria at the fully-mixed location in the receiving water. It also demonstrates that the receiving water is in compliance with the CTR criteria for all mixtures from the point of discharge to the fully-mixed location. Therefore, a mixing zone is not used for compliance.

Table F-6. Copper ECA Evaluation

Lowest Observed Effluent Hardness					**109 mg/L (as $CaCO_3$)**
Lowest Observed Receiving Water Hardness					**49 mg/L (as $CaCO_3$)**
Highest Assumed Receiving Water Copper Concentration					**5.1 µg/L[1]**
Copper $ECA_{chronic}$[2]					**10 µg/L**
Effluent Fraction[6]		**Fully Mixed Downstream Ambient Concentration**			
		Hardness[3] (mg/L)	**CTR Criteria[4] (µg/L)**	**Copper[5] (µg/L)**	**Complies with CTR Criteria**
High Flow	1%	50	5.1	5.1	**Yes**
	5%	52	5.3	5.3	**Yes**
	15%	58	5.9	5.8	**Yes**
	25%	64	6.4	6.3	**Yes**
	50%	79	7.6	7.6	**Yes**
	75%	94	8.8	8.8	**Yes**
Low Flow	100%	109	10	10	**Yes**

1 Highest assumed receiving water copper concentration calculated using Equation 1 for chronic criterion at a hardness of 49 mg/L.

2 ECA calculated using Equation 1 for chronic criterion at a hardness of 109 mg/L.

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

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

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

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

ECA for Acute Cadmium, Lead, and Acute Silver – For Concave Up Metals (i.e., acute cadmium, lead, and acute silver), the relationship between hardness and the metals criteria is different than for Concave Down Metals. The 2006 Study demonstrates that for Concave Up Metals, the effluent and upstream receiving water can be in compliance with the CTR criteria, but the resulting mixture may contain metals concentrations that exceed the CTR criteria and could cause toxicity. For these metals, the 2006 Study provides a mathematical approach to calculate the ECA that is protective of aquatic life, in all areas of the receiving water affected by the discharge, under all discharge and receiving water flow conditions (see Equation 4, below).

The ECA, as calculated using Equation 4, is based on the reasonable worst-case receiving water hardness, the lowest observed effluent hardness, and assuming no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criterion). Equation 4 is not used in place of the CTR equation (Equation 1). Rather, Equation 4, which is derived using the CTR equation, is used as a direct approach for calculating the ECA. This replaces an iterative approach for calculating the ECA. The CTR equation has been used to evaluate the receiving water at all discharge and flow conditions to ensure the ECA is protective (e.g., see Table F-7).

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

Where:

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

An example similar to the Concave Down Metals is shown for lead, a Concave Up Metal, in Table F-7, below. As previously mentioned, the lowest effluent hardness is 109 mg/L, while the receiving water hardness at Monitoring Location RSW-001 ranged from 55 mg/L to 297 mg/L, and the receiving water hardness at Monitoring Location RSW-003 ranged from 49 mg/L to 311 mg/L. In this case, the reasonable worst-case receiving water hardness to use in Equation 4 to calculate the ECA is 311 mg/L.

Using the procedures discussed above to calculate the ECA for all Concave Up Metals will result in WQBELs that are protective under all potential effluent/receiving water flow conditions (high flow to low flow) and under all known hardness conditions, as demonstrated in Table F-7, for lead.

Table F-7. Lead ECA Evaluation

Lowest Observed Effluent Hardness					**109 mg/L**
Reasonable Worst-case Receiving Water Hardness					**311 mg/L**
Reasonable Worst-case Receiving Water Lead Concentration					**1.3 µg/L[1]**
Lead $ECA_{chronic}$[2]					**2.3 µg/L**
Effluent Fraction[6]		**Fully Mixed Downstream Ambient Concentration**			
		Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Lead[5] (µg/L)**	**Complies with CTR Criteria**
High Flow	1%	309	13	13	**Yes**
	5%	301	13	13	**Yes**
	15%	281	12	12	**Yes**
	25%	261	11	11	**Yes**
	50%	210	8.2	7.9	**Yes**
	75%	160	5.8	5.1	**Yes**
Low Flow	100%	109	3.6	2.3	**Yes**

1 Reasonable worst-case receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 311 mg/L.

2 ECA calculated using Equation 4 for chronic criteria.

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

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

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

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

Based on the procedures discussed above, Table F-8 lists all the CTR hardness-dependent metals and the associated ECA used in this Order.

Table F-8. Summary of ECA Evaluations for CTR Hardness-dependent Metals

CTR Metals	ECA (µg/L, total recoverable)	
	acute	chronic
Copper	15	10
Chromium III	1,864	222
Cadmium	4.3	2.6
Lead	60	2.3
Nickel	505	56
Silver	3.7	--
Zinc	129	129

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 Regional Water Boards may use the SIP as guidance for water quality-based toxics control.[18] The SIP states in the introduction "*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency*." Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs.

b. Constituents with No Reasonable Potential. WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential (i.e., constituents were not detected in the effluent or receiving water); however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

Most constituents with no reasonable potential are not discussed in this Order. However, the following constituents are discussed because they are specific constituents of concern for this discharge:

i. Aluminum

(a) WQO. The Code of Federal Regulations promulgated criteria for priority toxic pollutants for California's surface waters as part of section 131.38 Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (California Toxics Rule or CTR), including metals criteria. Freshwater aquatic life criteria for metals are expressed as a function of total hardness. However, aluminum criteria were not promulgated as part of the CTR. Absent numeric aquatic life criteria for aluminum, WQBEL's in the Central Valley Water Board's NPDES permits are based on the Basin Plan's narrative toxicity objective.

The Basin Plan's *Policy for Application of Water Quality Objectives* requires the Central Valley Water Board to consider, "*on a case-by-case basis, direct evidence of beneficial use impacts, all material and relevant information submitted by the discharger and other interested parties, and relevant numerical criteria and guidelines developed and/or published by other agencies and organizations. In considering such criteria, the Board evaluates whether the specific numerical criteria which are available through these sources and through other information supplied to the Board, are relevant and appropriate to the situation at hand and, therefore,*

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

should be used in determining compliance with the narrative objective." Relevant information includes, but is not limited to the following: (1) USEPA Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses, (2) USEPA National Recommended Ambient Water Quality Criteria (NAWQC), (3) NAWQC–Correction, and (4) site-specific aluminum studies conducted by dischargers within the Central Valley Region. (Basin Plan, p. IV.-17.00; see also, 40 CFR 122.44(d)(vi).)

For aluminum, this Order implements the Basin Plan's narrative toxicity objective and the narrative chemical constituents objective for protection of the aquatic life and domestic and municipal supply beneficial uses. USEPA developed National Recommended Ambient Water Quality Criteria (NAWQC) for protection of freshwater aquatic life for aluminum (1988). 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 NAWQC can be used to implement the Basin Plan's narrative toxicity objective. In addition, the Secondary Maximum Contaminant Level (MCL) - Consumer Acceptance Limit for aluminum is 200 µg/L, which implements the Basin Plan's narrative chemical constituents objective. Order R5-2007-0039 included effluent limitations for aluminum based on the NAWQC chronic criteria.

In April 1999, USEPA released the National Recommended Water Quality Criteria–Correction. There were no corrections to the 1988 aluminum recommended criteria; however, USEPA recognized that they were aware of field data indicating that many high quality waters in the U.S. contain more than 87 µg/L aluminum, when either total recoverable or dissolved is measured (i.e., the higher levels of aluminum did not affect beneficial uses). Therefore, Footnote L to the National Recommended Ambient Water Quality Criteria summary table for aluminum indicated a water effects ratio (WER) might be appropriate for implementation of its recommended chronic criterion for aluminum to protect aquatic organisms. (*National Recommended Water Quality Criteria–Correction (April 1999*).)

Although striped bass may be present in the receiving water in the vicinity of the discharge, monitoring data demonstrates that the study conditions are not similar to those in the Old River, which consistently has a higher upstream hardness, ranging from 49 to 311 mg/L and higher pH, ranging from 6.4 to 9.6 standard units. Because the hardness in the Old River is higher (which decreases the toxic effects to aquatic life) than the water hardness values in which the criterion was developed, USEPA advises that a WER might be appropriate to better reflect the actual toxicity of aluminum to aquatic organisms.

In April 2005, the City of Modesto, which discharges to the San Joaquin River upstream of the confluence with the Old River, completed a Phase I WER for aluminum, and on 11 November 2005, submitted the results in its

Aluminum Water-Effect Ratio Study Plan. The Phase I WER study consisted of range-finding toxicity tests, in which the NOEC, LOEC, and EC_{50}[19] were determined for the species *Daphnia magna, Ceriodaphnia dubia, and Rainbow Trout*. For this initial range-finding test, side-by-side testing with laboratory water was not conducted. However, to obtain an estimate of the potential WER for the Modesto WWTP effluent, the EC_{50} values determined for the site water were divided by the Species Mean Acute Value (SMAV) available in the aluminum criteria document according to EPA's streamlined WER procedure.[20] According to the EPA streamlined procedure, two WERs are determined by dividing site water WERs with both the laboratory dilution water EC_{50} and the SMAV; the final WER of the sample is the lesser of the two. The estimated WERs calculated using the SMAVs are presented in the table below:

Species	Site Water EC_{50} for Total Al (µg/L)	SMAV (µg/L Al)	WER
Daphnia magna	31,604	38.2	827
Ceriodaphnia dubia	>11,900[1]	1.9	6,263
Rainbow trout	>34,250[1]	10.39	3,296

[1] The 2001 EPA streamlined procedures state that a "greater than" value for the EC_{50} in the site water is interpreted as "equal to" in calculating the WER.

The Modesto Phase I WER study is not sufficient to calculate a WER, however, the preliminary results confirm the conditions of San Joaquin River are not similar to the EPA study conditions for the development of the USEPA recommended chronic criterion. The chronic criterion is overly stringent and is not appropriate to use to interpret the Basin Plan's narrative toxicity objective.

In addition, on 12 April 2007, the City of Manteca completed a Phase II aluminum WER study for the San Joaquin River near its discharge point, which is downstream of the City of Modesto. The Manteca Phase II WER study, which may be used to calculate a WER for the City of Manteca's discharge, indicated that a WER of 22.7 can be applied to the chronic criterion for aluminum (resulting in a chronic criterion of 22.7 x 87 ug/L = 1,975 ug/L).

In addition, monitoring data demonstrates Old River hardness concentrations ranging from 49 mg/L to 311 mg/L and pH ranging from 6.4 to 9.6 standard units, both similar to conditions in the San Joaquin River near the Modesto WWTP discharge location, are higher than conditions in which the NAWQC chronic criteria were developed. Thus, it is unlikely that

[19] The NOEC is the "no observed effect concentration", the LOEC is the "lowest observed effect concentration", and the EC_{50} is the concentration that caused an effect to 50% of the test organisms. See Attachment A for more detailed definitions.

[20] USEPA. 2001. Streamlined Water-Effect Ratio Procedure for Discharges of Copper. Office of Water. EPA-822-R-01-005. March.

application of the chronic criterion of 87 µg/L is necessary to protect aquatic life in the Old River. Since the characteristics of the Old River (e.g., hardness and pH) near Manteca and Modesto are similar to those near the Facility, the results of the Manteca WER and Modesto studies indicates that the chronic criterion recommended by the NAWQC for aluminum is overly stringent for the Old River.

Based on professional judgment considering the site-specific conditions of the receiving water (e.g., hardness and pH), the Modesto Phase I WER Study, and the Manteca Phase II WER Study, the Central Valley Water Board finds that the NAWQC chronic criterion for aluminum is overly stringent and should not be used to interpret the narrative toxicity objective for this discharge. Therefore, the DPH Secondary MCL for aluminum was used to conduct the reasonable potential analysis for aluminum.

(b) RPA Results. The maximum effluent concentration (MEC) for aluminum was 67.9 µg/L and aluminum was detected in the receiving water with a maximum concentration of 2,400 µg/L based on 15 samples collected between March 2004 and June 2005.

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Aluminum is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions in the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for this non-priority pollutant constituent.

The most stringent objective is the Secondary Drinking Water MCL, which is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity to humans or aquatic life. Although the receiving water contains aluminum exceeding the Secondary MCL, the receiving water is not listed on the 303(d) list for aluminum, and aluminum is not a constituent of concern in the development of the Drinking Water Policy. Additionally, the effluent aluminum is consistently less than the concentrations in the receiving water and below the Secondary MCL. Therefore, the Central Valley Water Board finds the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion and the Facility is adequately controlling the discharge of aluminum. The WQBELs for aluminum have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

ii. Bis (2-Ethylhexyl) Phthalate

(a) WQO. The CTR includes a criterion of 1.8 µg/L for bis (2-ethylhexyl) phthalate for the protection of human health for waters from which both water and organisms are consumed. Order

R5-2007-0039 included effluent limitations for bis (2-ethylhexyl) phthalate based on the CTR human health criteria.

(b) RPA Results. Bis (2-ethylhexyl) phthalate is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and sources of detected bis (2-ethylhexyl) phthalate may be from plastics used for sampling or analytical equipment. "Clean techniques" are used to ensure that sample containers, sampling apparatus, and analytical equipment are not sources of the detections. The Discharger began using "clean techniques" for sampling and analysis for bis (2-ethylhexyl) phthalate in June 2008. Between June 2008 and March 2012 the Discharger collected 49 effluent samples of which 43 were non-detect (method detection limits of 0.6-1.0 µg/L). The six detected results are summarized in the table below.

Date	Concentration	Comment
2 Jul 2008	8.22 µg/L	Did not use clean techniques
6 May 2009	2.58 J µg/L	Estimated value, clean techiques used
10 Feb 2010	34 µg/L	Did not use clean techniques
3 Mar 2010	1.6 J µg/L	Estimated value, clean techiques used
10 Aug 2011	15.1 µg/L	Suspected lab contamination, detected in method blank
16 Nov 2011	1.21 µg/L	Clean techiques used

Three detected samples have not been considered to be representative of the effluent and were removed from the dataset, because they were not collected using "clean techniques" or there were lab QA/QC issues. The samples collected on 2 July 2008 and 10 February 2010 were collected using an autosampler with peristaltic pump tubing, which does not meet the "clean technique" requirements. Bis (2-ethylhexyl) phthalate was detected in the method blank for the 10 August 2011 sample and thus the detection is suspected to be the result of laboratory contamination.

For the remaining three detected samples, only one exceeded the CTR criterion. However, the sample was a j-flagged result with an estimated value, which is not a reliable quantified result that should be used in the reasonable potential analysis. Therefore, considering the fact that 93% of the data is non-detect and there were no detections above the reporting level exceeding the CTR criterion, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health in the receiving water, and WQBELs for bis (2-ethylhexyl) phthalate have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iii. Bromoform

(a) WQO. The CTR includes a criterion of 4.3 µg/L for bromoform for the protection of human health for waters from which both water and organisms are consumed. Order R5-2007-0039 included effluent limitations for bromoform based on the CTR criterion.

(b) RPA Results. The MEC for bromoform was 3.5 µg/L and bromoform was not detected in the receiving water in six samples with a minimum method detection limit (MDL) of 0.081 µg/L. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR human health criteria, and WQBELS for bromoform have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iv. Chlorine Residual

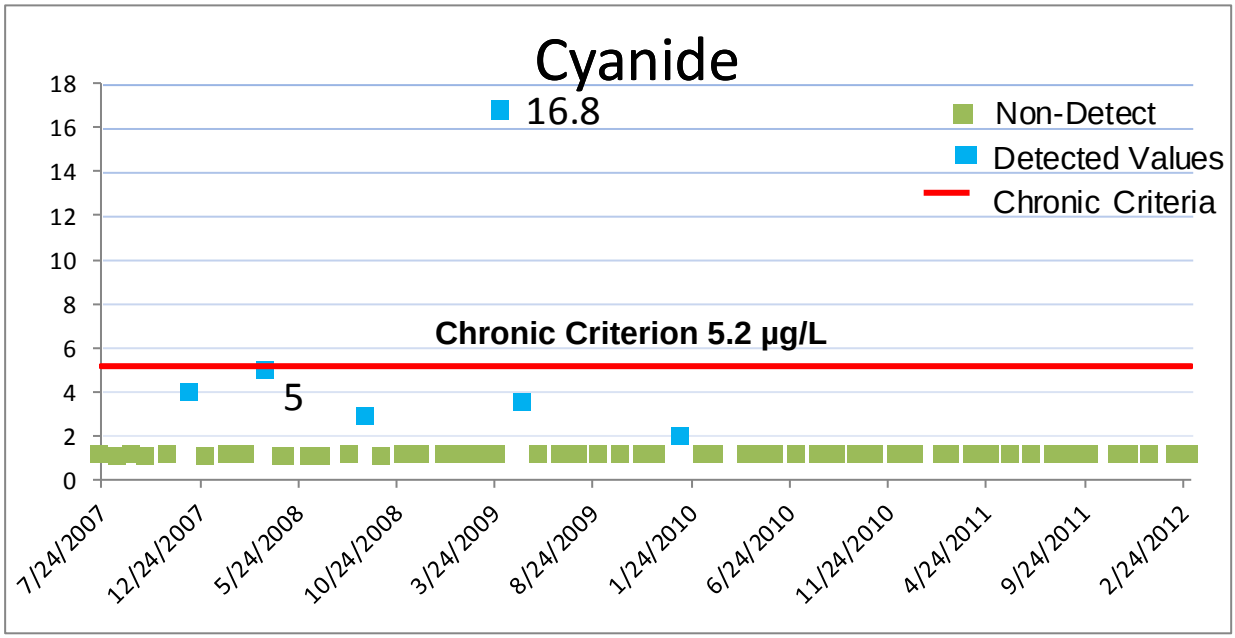
(a) WQO. USEPA developed NAWQC for protection of freshwater aquatic life for chlorine residual. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for chlorine residual are 0.011 µg/L and 0.019 µg/L, respectively. Order R5-2007-0039 included effluent limitations for chlorine residual based on the NAWQC criteria.

(b) RPA Results. The Discharger converted from chlorine disinfection to UV disinfection upon commencement of the Phase II facility, which went online in March 2007. Order R5-2007-0039 required the Discharger to monitor for chlorine only when chlorine was being used at the Facility, thus no chlorine monitoring data is available. Since chlorine is no longer used at the Facility, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the NAWQC for chlorine and the effluent limitations for chlorine have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

v. Cyanide

(a) WQO. The CTR includes maximum 1-hour average and 4-day average criteria of 5.2 µg/L and 22 µg/L, respectively, for cyanide, for the protection of freshwater aquatic life. Order R5-2007-0039 included effluent limitations for cyanide based on the CTR freshwater aquatic life criteria.

(b) RPA Results. Based on 59 effluent samples from July 2007 to March 2012, there were 53 non-detect results (< 1.1 µg/L) and six samples that were detected. The effluent cyanide results are shown in the figure below.



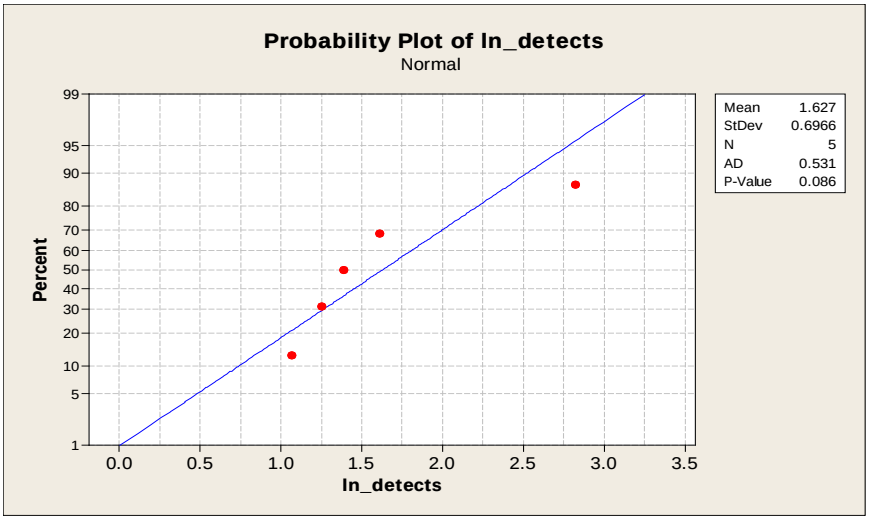
The MEC for cyanide was 16.8 µg/L based on a sample collected 1 April 2009. The Discharger sampled cyanide using USEPA's approved method, which includes preserving the samples with sodium hydroxide. There have been several studies documenting analytical errors when sodium hydroxide is used[21]. In January 2010, the Discharger started conducting split samples for cyanide, one by preserving the sample using sodium hydroxide (current USEPA method) and one with no preservation. The 1 April 2009 sample was thus collected prior to conducting the split sampling. Based on the known issue with the analytical method, the fact there are no significant industrial users in the service area, and a visual examination of the data in the figure above, the elevated sample is suspected as an outlier. The Grubbs outlier test[22] has been used to determine if the elevated sample is an outlier.

The Grubbs outlier test is the recommended test when testing for a single outlier and has been recommended by the State Water Resources Control Board, Division of Water Quality. Although the Grubbs outlier test is based on the assumption that the data are sampled from a Gaussian distribution, it is possible to transform all of the values in a lognormal distribution to their logarithms and then the distribution becomes Gaussian. The following two figures were created using Minitab.

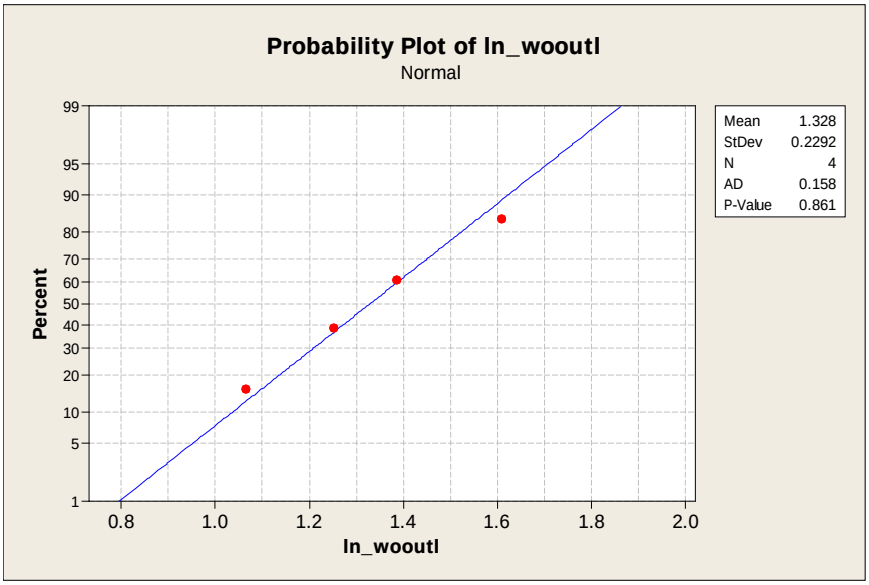
[21] Los Angeles County Sanitation Districts, *Factors Affecting Cyanide Generation in Chlorinated Wastewater Effluent*, Pandit, et.al, 2006.
Water Environment Research Foundation, *Cyanide Formation and Fate in Complex Effluents and its Relation to Water Quality Criteria*, Kavanaugh, et.al, 2003.
Water Environment Research Foundation, *Insights to False Positive Total Cyanide Measurements in Wastewater Plant Effluents*, Weinberg, et.al, 2005.

[22] American Society for Quality, *Procedures for Detecting Outlying Observations in Samples*, Frank E. Grubbs.

Cyanide: Log Transformed Data (5 Observations)



Cyanide: Log Transformed Data with Removal of Outlier (4 Observations)



The cyanide results fit a lognormal distribution, therefore, the data was transformed to their logarithms, and the Grubbs outlier test was performed. The Grubbs outlier test confirmed that the1 April 2009 data point of 16.8 µg/L is an outlier. Therefore, the sample is not representative of the effluent and was not used to conduct the RPA.

Based on the remaining effluent data, the MEC was 5 µg/L, while cyanide was not detected in the receiving water in six samples with a minimum MDL of 1.0 µg/L. Therefore, cyanide in the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life.

vi. Diazinon and Chlorpyrifos

(a) WQO. The Central Valley Water Board completed a TMDL for diazinon and chlorpyrifos in the Sacramento-San Joaquin Delta Waterways and amended the Basin Plan to include diazinon and chlorpyrifos water quality objectives and waste load allocations. The Basin Plan Amendment for the Control of Diazinon and Chlorpyrifos Runoff into the Sacramento-San Joaquin Delta was adopted by the Central Valley Water Board on 23 June 2006 and became effective on 10 October 2007.

The amendment *"…modifies Basin Plan Chapter III (Water Quality Objectives) to establish site specific number objectives for diazinon and chlorpyrifos in the Delta Waterways."* The amendment also *"…identifies the requirements to meet the additive formula already in Basin Plan Chapter IV (Implementation), for the additive toxicity of diazinon and chlorpyrifos."*

The amendment provides that: *"The waste loads allocations for all NPDES-permitted dischargers…shall not exceed the sum (S) of one (1) as defined below.*

$$S = \frac{C_D}{WQO_D} + \frac{C_C}{WQO_C} \leq 1.0$$

where:

C_D *= diazinon concentration in µg/L of point source discharge…*

C_C *= chlorpyrifos concentration in µg/L of point source discharge…*

WQO_D *= acute or chronic diazinon water quality objective in µg/L…*

WQO_C *= acute or chronic clorpyrifos water quality objective in µg/L.*

Available samples collected within the applicable averaging period for the water quality objective will be used to determine compliance with the allocations and loading capacity. For purposes of calculating the sum (S) above, analytical results that are reported as 'non-detectable' concentrations are considered to be zero."

(b) RPA Results. Diazinon was not detected in six effluent samples collected between June 2004 and July 2005 (minimum MDL 0.15 µg/L). Chlorpyrifos was not detected in five effluent samples collected during the same time period (minimum MDL 0.26 µg/L). Diazinon and chlorpyrifos were not detected in six receiving water samples collected between March 2004 and July 2005 (minimum chlorpyrifos MDL of 0.26 µg/L; minimum diazinon MDL of 0.15 µg/L). Based on the available data the discharge

does not have reasonable potential to cause or contribute to an exceedance of the applicable water quality objectives in the receiving water.

(c) WQBELs. Although diazinon and chlorpyrifos were not detected in the effluent, the waste load allocations are applicable to all NPDES dischargers to the Sacramento-San Joaquin Delta waterways, which includes Old River. An AMEL and MDEL have been calculated using the procedures in Section 1.4 of the SIP and consistent with the TMDL waste load allocation resulting in the following effluent limitations for chlorpyrifos and diazinon.

(1) Average Monthly Effluent Limitation

$$S_{avg} = \frac{C_{D\ avg}}{0.079} + \frac{C_{C\ avg}}{0.012} \leq 1.0$$

$C_{D\text{-}avg}$ = average monthly diazinon effluent concentration in µg/L

$C_{C\text{-}avg}$ = average monthly chlorpyrifos effluent concentration in µg/L

(2) Maximum Daily Effluent Limitation

$$S_{max} = \frac{C_{D\ max}}{0.16} + \frac{C_{C\ max}}{0.025} \leq 1.0$$

$C_{D\text{-}max}$ = maximum daily diazinon effluent concentration in µg/L

$C_{C\text{-}max}$ = maximum daily chlorpyrifos effluent concentration in µg/L

The Central Valley Water Board staff is developing a Basin Plan amendment for the TMDL to provide an exemption to the requirement to include effluent limitations for diazinon and chlorpyrifos based on a discharger's demonstration that there have been no detectable concentrations of chlorpyrifos and diazinon in the effluent. As discussed in section VII.B.1.g of this Fact Sheet, this Order may be reopened to modify diazinon and chlorpyrifos requirements in accordance with a Basin Plan amendment.

(d) Plant Performance and Attainability. Diazinon and chlorpyrifos were not detected in the effluent based on effluent data collected between June 2004 and July 2005. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

vii. Dissolved Oxygen

(a) WQO. The Basin Plan contains a numeric site-specific water quality objective for the Sacramento-San Joaquin Delta waterways, in the vicinity of the discharge, that requires that dissolved oxygen concentrations shall not be reduced below 5.0 mg/L. Order R5-2007-0039 included a minimum daily average effluent limitation for dissolved oxygen of 5.0 mg/L.

(b) RPA Results. The Discharger reported 1,703 effluent sample results for dissolved oxygen from July 2007 through March 2012, of which nine samples in August 2007 were below the water quality objective of 5.0 mg/L. The Discharger reported these low dissolved oxygen concentrations were due to a lack of calibration of the monitoring equipment which has since been rectified. Since then, effluent dissolved oxygen concentrations have been maintained above 5.0 mg/L. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion below the Basin Plan's objective of 5.0 mg/L, and WQBELS for dissolved oxygen have not been retained in this Order. This Order does, however, retain receiving water limitations for dissolved oxygen. Removal of the effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

viii. Iron

(a) WQO. The Basin Plan contains a site-specific numeric objective for the Delta of 300 µg/L (maximum concentration) for iron, expressed as dissolved metal. The Secondary MCL for iron is 300 µg/L, expressed as total recoverable. Order R5-2007-0039 included an effluent limitation for iron based on the Basin Plan site-specific objective and Secondary MCL.

(b) RPA Results. The MEC for iron was 185 µg/L and the maximum calendar annual average effluent concentration for iron was 53 µg/L. The maximum observed iron concentration in the receiving water was 700 µg/L.

For priority pollutants, the SIP dictates the procedures for conducting the RPA. However, since iron is not a priority pollutant , the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

The most stringent objective is the Secondary Drinking Water MCL, which is derived from human welfare considerations (e.g., taste, odor, laundry staining) not for toxicity to humans or aquatic life. Although the receiving water contains iron exceeding the Secondary MCL, the effluent iron is consistently less than the concentrations in the receiving water and below the applicable water quality objective. Therefore, the Central Valley Water Board finds the discharge does not have reasonable potential to cause or contribute to an exceedance in the receiving water and the Facility is adequately controlling the discharge of iron.

Since the discharge does not demonstrate reasonable potential, the effluent limitations for iron have not been retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

ix. Manganese

(a) WQO. The Basin Plan contains a site-specific numeric objective for the Delta of 50 µg/L (maximum concentration) for manganese, expressed as dissolved metal. The Secondary MCL for manganese is 50 µg/L, expressed as total recoverable.

(b) RPA Results. The MEC for manganese was 22 µg/L and the maximum calendar annual average effluent concentration for manganese was 22 µg/L. The maximum observed manganese concentration in the receiving water was 110 µg/L.

For priority pollutants, the SIP dictates the procedures for conducting the RPA. However, since manganese is not a priority pollutant, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

The most stringent objective is the Secondary Drinking Water MCL, which is derived from human welfare considerations (e.g., taste, odor, laundry staining) not for toxicity to humans or aquatic life. Although the receiving water contains manganese exceeding the Secondary MCL, the receiving water is not listed on the 303(d) list for manganese, and manganese is not a constituent of concern in the development of the Drinking Water Policy. Additionally, the effluent manganese is consistently less than the concentrations in the receiving water and below the applicable water quality objective. Therefore, the Central Valley Water Board finds the discharge does not have reasonable potential to cause or contribute to an exceedance in the receiving water and the Facility is adequately controlling the discharge of manganese.

x. Oil and Grease

(a) WQO. The Basin Plan contains a narrative oil and grease objective which states, *"Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses."* Order R5-2007-0039 established effluent limitations for oil and grease.

(b) RPA Results. Oil and grease was detected in four out of 58 samples with an MEC of 4.25 mg/L, below the effluent limitations contained in Order R5-2007-0039. In the past oil and grease was a problem at many POTWs and effluent limitations were necessary to protect the treatment plant and receiving waters. The Discharger is required to be covered under State Water Board Order 2006-0003, a Statewide General WDR for Sanitary Sewer Systems, which requires each enrollee to evaluate its service area to determine whether a fats, oils, and grease (FOG) control program is needed. If an enrollee determines that a FOG control program is not needed, the enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. The Discharger's compliance with the requirements of WQO 2006-0003 will ensure minimal amounts of oil and grease are discharged into the Facility. Furthermore, the Discharger uses a tertiary treatment system which should also ensure that oil and grease is not discharged at concentrations that will cause or contribute to an exceedance of the narrative water quality objective. Based on monitoring data indicating that oil and grease has not been detected at concentrations exceeding the MDEL in Order R5-2007-0039 and the requirement to obtain coverage under WQO 2006-0003, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan water quality objective for oil and grease and the effluent limitations for oil and grease have not been retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

xi. 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. The CTR also contains water quality criteria for individual pesticides for the protection of water and organisms. Order R5-2007-0039 included effluent limitations for persistent chlorinated hydrocarbon pesticides (i.e., Group A pesticides) based on the Basin Plan objective.

(b) RPA Results. Effluent and upstream receiving water monitoring of individual persistent chlorinated hydrocarbon pesticides resulted in no detected results for each individual persistent chlorinated hydrocarbon pesticide. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan objective or CTR criteria for persistent chlorinated hydrocarbon pesticides and the effluent limitations for persistent chlorinated hydrocarbon pesticides have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

xii. Settleable Solids

(a) WQO. For inland surface waters, the Basin Plan states that *"[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses."* Order R5-2007-0039 established an AMEL of 0.1 ml/L and a MDEL of 0.2 ml/L for settleable solids to implement the narrative settleable solids objective.

(b) RPA Results. Settleable solids were detected three times in the effluent, in July through September 2008 at 0.1 ml/L and were not detected in the remaining 57 samples. Because settleable solids were not detected above existing effluent limitations and because the Discharger provides tertiary treatment, the discharge from the Facility does not have reasonable potential to cause or contribute to an excursion above the Basin Plan's narrative objective for settleable solids and the effluent limitations for settleable solids have not been retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

xiii. Total Trihalomethanes (THMs)

(a) WQO. DPH has adopted a Primary MCL for total THMs[23] of 80 µg/L. Order R5-2007-0039 included a monthly average effluent limitation of 80 µg/L based on the USEPA MCL.

(b) RPA Results. The MEC for total THMs in the effluent was 8.4 µg/L. Receiving water data for total THMs is not available, but individual THM data is available. Two individual THMs were detected in the receiving

[23] Total THMs is the sum of bromoform, chloroform, chlorodibromomethane, and dichlorobromomethane.

water, chloroform (0.9 µg/L) and dichlorobromomethane (0.37 µg/L), which were well below the Primary MCL for total trihalomethanes. Bromoform and chlorodibromomethane were not detected in the upstream receiving water. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the DPH Primary MCL of 80 µg/L, and WQBELS for total THMs have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

c. Constituents with Reasonable Potential. The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, ammonia, BOD_5, chlorodibromomethane, dichlorobromomethane, methylmercury, nitrate, nitrite, pH, salinity, temperature, total coliform organisms, and TSS. WQBELs for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

i. Ammonia

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

(b) RPA Results. Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines 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.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. Ammonia is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the

appropriate method for conducting the RPA for this non-priority pollutant constituent.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters).*" USEPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.*" With regard to POTWs, USPEA recommends that, "*POTWs should also be characterized for the possibility of chlorine and ammonia problems.*" (TSD, p. 50)

The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia in concentrations that produce detrimental physiological responses to human, plant, animal, or aquatic life would violate the Basin Plan narrative toxicity objective. Although the Discharger nitrifies the discharge, inadequate or incomplete nitrification creates the potential for ammonia to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for ammonia and WQBELs are required.

(c) WQBELs. Ammonia is a non-CTR constituent, therefore the Central Valley Water Board calculates WQBELs in accordance with SIP procedures for non-CTR constituents. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, USEPA recommends modifying the procedure

for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the average monthly effluent limitation (AMEL) and the maximum daily effluent limitation (MDEL). The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains a final AMEL and MDEL for ammonia of 0.8 mg/L and 2.1 mg/L, respectively, based on the NAWQC acute criterion.

(d) Plant Performance and Attainability. The MEC for ammonia was 1.49 mg/L. Based on the 245 ammonia samples reported, ammonia was not detected at a concentration greater than the MDEL of 2.1 mg/L. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. Chlorodibromomethane

(a) WQO. The CTR contains a criterion of 0.41 µg/L for chlorodibromomethane for the protection of human health for waters from which both water and organisms are consumed. Order R5-2007-0039 included effluent limitations for chlorodibromomethane based on the CTR human health criterion.

(b) RPA Results. The MEC for chlorodibromomethane was 2.58 µg/L while the chlorodibromomethane was not detected in the receiving water in six samples with a minimum MDL of 0.1 µg/L. The Central Valley Water Board has determined, therefore, that chlorodibromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR human health criterion.

(c) WQBELs. As described further in section IV.C.2.c of this Fact Sheet, assimilative capacity is available and a dilution credit of 7:1 is appropriate for calculating effluent limitations for chlorodibromomethane. Following the procedures established by the SIP for calculating WQBELs and applying a dilution credit of 7:1 to the CTR criterion, the resulting AMEL and MDEL for chlorodibromomethane is 2.6 µg/L and 6.4 µg/L, respectfully.

(d) Plant Performance and Attainability. Based on the available effluent data for chlorodibromomethane it appears the Discharger can comply with the WQBELs. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. Dichlorobromomethane

(a) WQO. The CTR contains 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. Order R5-2007-0039 included effluent limitations for dichlorobromomethane based on the CTR human health criterion.

(b) RPA Results. The MEC for dichlorobromomethane was 3.14 µg/L, while the maximum observed receiving water concentration was 0.37 µg/L. The Central Valley Water Board has determined, therefore, that dichlorobromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR human health criterion.

(c) WQBELs. As described further in section IV.C.2.c of this Fact Sheet, assimilative capacity is available and a dilution credit of 5.6:1 is appropriate for calculating effluent limitations for dichlorobromomethane. Following the procedures established by the SIP for calculating WQBELs and applying a dilution credit of 5.6:1 to the CTR criterion, the resulting AMEL and MDEL for dichlorobromomethane is 3.2 µg/L and 7.5 µg/L, respectfully.

(d) Plant Performance and Attainability. Based on the available effluent data for dichlorobromomethane it appears the Discharger can comply with the WQBELs. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iv. Mercury and Methylmercury

(a) WQO. The Basin Plan contains fish tissue objectives for all Delta waterways listed in Appendix 43 of the Basin Plan that states, *"…the average methylmercury concentrations shall not exceed 0.08 and 0.24 mg methylmercury/kg, wet weight, in muscle tissue of trophic level 3 and 4 fish, respectively (150-500 mm total length). The average methylmercury concentrations shall not exceed 0.03 mg methylmercury/kg, wet weight, in whole fish less than 50 mm in length."* The Delta Mercury Control Program contains aqueous methylmercury wasteload allocations that are calculated to achieve the fish tissue objectives. Methylmercury reductions are assigned to dischargers with concentrations of methylmercury greater than 0.06 ng/L (the concentrations of methylmercury in water to meet the fish tissue objectives). The CTR contains a human health criterion (based on a threshold dose level causing neurological effects in infants) of 50 ng/L for total mercury for waters from which both water and aquatic organisms are consumed. However, 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 MEC for mercury and methlmercury concentrations were 45 ng/L and 0.05 ng/L. The maximum ambient total mercury and methylmercury concentrations were 9.37 ng/L and 0.346 ng/L, respectively. The effluent and receiving water methylmercury concentrations demonstrate the discharge has reasonable potential to cause or contribute to an exceedance of the site-specific methylmercury fish tissue objective for the Delta.

(c) WQBELs. The Basin Plan's Delta Mercury Control Program includes wasteload allocations for POTWs in the Delta, including for the Discharger. This Order contains final WQBELs for methylmercury based on the wasteload allocation. The total calendar annual methylmercury load shall not exceed 0.37 grams.

(d) Plant Performance and Attainability. The Central Valley Water Board finds the Discharger is unable to immediately comply with the final WQBELs for methylmercury. Therefore, a compliance schedule in accordance with the State Water Board's Compliance Schedule Policy and the Delta Mercury Control Program has been established in this Order.

v. Nitrate and Nitrite

(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).

(b) RPA Results. Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines 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.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. Nitrate and nitrite are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA

for this non-priority pollutant constituent.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters).*" USEPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.*" With regard to POTWS, USPEA recommends that, "*POTWs should also be characterized for the possibility of chlorine and ammonia problems.*" (TSD, p. 50)

The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia and this Order requires removal of ammonia (i.e., nitrification). Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification/denitrification to remove ammonia, nitrite, and nitrate from the waste stream. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream. Discharges of nitrate plus nitrite in concentrations that exceed the primary MCL would violate the Basin Plan narrative chemical constituents objective. Although the Discharger denitrifies the discharge, inadequate or incomplete denitrification creates the potential for nitrate and nitrite to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the primary MCL. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for nitrate plus nitrite and WQBELs are required.

(c) WQBELs. This Order contains a final AMEL for nitrate plus nitrite of 10 mg/L (total as N), based on the Primary MCL. This effluent limitation is included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial use of municipal and domestic supply.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that an MEC of 6.7 mg/L for nitrate and 0.2 mg/L for nitrite are less than the applicable WQBEL. The Central Valley Water Board concludes, therefore, that immediate compliance with the effluent limitation is feasible.

vi. Pathogens

(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; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL, at any time.

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 DPH's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

(b) RPA Results. Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines 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.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. Pathogens are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a*

permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters)." USEPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.*" (TSD, p. 50)

The beneficial uses of Old River include municipal and domestic supply, water contact recreation, and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. Although the Discharger provides disinfection, inadequate or incomplete disinfection creates the potential for pathogens to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for pathogens and WQBELs are required.

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

includes operating specifications for turbidity of 2 NTU as a daily average; 5 NTU, not to be exceeded more than 5% of the time within a 24-hour period; and 10 NTU as an instantaneous maximum.

This Order contains effluent limitations, operating specifications, 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 Water Code section 13241 in establishing these requirements.

(d) Plant Performance and Attainability. The Facility includes disinfection facilities that can comply with the WQBELs. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

vii. pH

(a) WQO. The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the *"…pH shall not be depressed below 6.5 nor raised above 8.5.*"

(b) RPA Results. Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines 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.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. pH is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters).*" USEPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where*

facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data." (TSD, p. 50)

The Facility is a POTW that treats domestic wastewater. Based on 1,711 samples taken from July 2007 to March 2012, the maximum pH reported was 8.8 and the minimum was 6.7. The Facility exceeded the instantaneous maximum effluent limitation four times in July and August 2007, due to a calibration error on the pH meter. Since September 2007, the maximum pH reported was 8.4. Although the Discharger has proper pH controls in place, the pH for the Facility's influent varies due to the nature of municipal sewage, which provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's numeric objective for pH in the receiving water. Therefore, WQBELs for pH are required in this Order.

(c) WQBELs. Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH. They are retained from Order R5-2007-0039.

(d) Plant Performance and Attainability. Based on 1,711 samples taken from July 2007 to March 2012, the maximum pH reported was 8.8 and the minimum was 6.7. Since 1 September 2007, the maximum pH reported is 8.4. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

viii. Salinity

(a) WQO. The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The USEPA Ambient Water Quality Criteria for chloride recommends acute and chronic criteria for the protection of aquatic life.

Table F-9. Salinity Water Quality Criteria/Objectives

Parameter	Secondary MCL[1]	Bay-Delta Plan	USEPA NAWQC	Effluent	
				Average	Maximum
EC (µmhos/cm)	900, 1,600, 2,200	700/1,000[3]	N/A	891[2]	1,180
TDS (mg/L)	500, 1,000, 1,500	N/A	N/A	489[2]	692
Sulfate (mg/L)	250, 500, 600	N/A	N/A	67	79
Chloride (mg/L)	250, 500, 600	N/A	230 4-day 860 1-hr	148	175

[1] The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

[2] Maximum calendar annual average.

[3] The Bay-Delta Plan includes water quality objectives at three locations in the South Delta for EC, which includes a 14-day running average EC of 700 µmhos/cm from 1 April – 31 August and a 14-day running average EC of 1,000 µmhos/cm from 1 September – 31 March. The State Water Board is developing revised salinity objectives for municipal dischargers.

(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. USEPA Ambient Water Quality Criteria for Chloride recommends acute (1-hour) and chronic (4 day) criteria for the protection of freshwater aquatic life of 860 mg/L and 230 mg/L, respectively.

(2) Electrical Conductivity. The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1,600 µmhos/cm as an upper level, and 2,200 µmhos/cm as a short-term maximum.

The Bay-Delta Plan includes water quality objectives for EC for the South Delta in the vicinity of the discharge[24]. On 1 June 2011, the Superior Court for Sacramento County entered a judgment and peremptory writ of mandate in the matter of *City of Tracy v. State Water Resources Control Board* (Case No; 34-2009-8000-392-CU-WM-GDS), ruling that the South Delta salinity objectives shall not apply to the City of Tracy and other municipal dischargers pending reconsideration of the South Delta salinity objectives and adoption of a proper program of implementation that includes municipal dischargers. The State Water Board is currently considering new salinity and flow objectives in the South Delta that will address the Court Order. Therefore, at the time this Order was adopted the South Delta salinity objectives are not applicable to the Discharger.

[24] The Bay-Delta Plan includes water quality objectives at three locations in the South Delta for EC. The water quality objectives are a 14-day running average EC of 700 µmhos/cm from 1 April – 31 August and a 14-day running average EC of 1,000 µmhos/cm from 1 September - 31 March.

(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.

(b) RPA Results

(1) Chloride. Chloride concentrations in the effluent ranged from 99 mg/L to 175 mg/L, with an average of 148 mg/L. Background concentrations in the Old River ranged from 37 mg/L to 164 mg/L, with an average of 82 mg/L, for five samples collected by the Discharger from November 2007 through February 2011. The applicable water quality objective to implement the Basin Plan's narrative chemical constituents objective for salinity is the Bay-Delta Plan South Delta salinity objectives, which are under development.

(2) Electrical Conductivity. A review of the Discharger's monitoring reports shows an average effluent EC of 831 µmhos/cm, with a range from 502 µmhos/cm to 1,180 µmhos/cm. The background receiving water EC averaged 620 µmhos/cm. The applicable water quality objective to implement the Basin Plan's narrative chemical constituents objective for salinity is the Bay-Delta Plan South Delta salinity objectives.

(3) Sulfate. Sulfate concentrations in the effluent ranged from 52 mg/L to 79 mg/L, with an average of 67 mg/L. These levels do not exceed the secondary MCL. Background concentrations in the Old River ranged from 27 mg/L to 158 mg/L, with an average of 78 mg/L. The discharge does not have reasonable potential for sulfate.

(c) Total Dissolved Solids. The average TDS effluent concentration was 451 mg/L with concentrations ranging from 181 mg/L to 692 mg/L. The background receiving water TDS ranged from 209 mg/L to 651 mg/L, with an average of 356 mg/L. The applicable water quality objective to implement the Basin Plan's narrative chemical constituents objective for salinity is the Bay-Delta Plan South Delta salinity objectives, which are under development.

The State Water Board is currently revising the Bay-Delta Plan to include salinity objectives that would be applicable to the discharge. Since the Bay-Delta Plan will include the applicable salinity objectives to conduct the RPA, until completion of the update, the RPA cannot be completed properly.

Pending the Bay-Delta Plan amendment, this Order establishes performance-based effluent limits and salinity controls from the previous permit. This Order includes an annual performance-based AMEL of 1,406 µmhos/cm for electrical conductivity and requires the Discharger to implement measures to reduce the salinity in its discharge to Old River.

This Order also requires the Discharger to implement a Salinity Reduction Plan that includes pollution prevention measures to reduce the salinity in its discharge to the Old River. The Salinity Plan must include a pollution prevention plan for salinity in accordance with Water Code section 13263.3(d)(3), and requires the Discharger to report on progress in reducing salinity discharges to the Old River in an effort to meet a salinity goal of a calendar annual average 500 µmhos/cm electrical conductivity increase over the calendar annual weighted average EC of the Discharger's water supply. The Salinity Reduction Plan must also include measures the Discharger is taking to implement best practicable treatment or control (BPTC) of the discharge for salinity, and describe the Discharger's participation in CV-SALTS.

(d) Plant Performance and Attainability. The effluent limitations established in this Order for salinity are based on the performance of the treatment system. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ix. Temperature

(a) WQO. The Thermal Plan requires that, "*The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F*." The Discharger is considered to be an existing discharger of elevated thermal wastes; thus requirements in the Thermal Plan are applicable to the Facility. Order R5-2007-0039 contained a temperature effluent limitation based on the Thermal Plan objective.

(b) RPA Results. Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines 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.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. Temperature is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30,

states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters).*" USEPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.*" (TSD, p. 50)

The Facility is a POTW that treats domestic wastewater. Domestic wastewater is an elevated temperature waste, which provides the basis for the discharge to have a reasonable potential to cause or contribute to an excursion above Thermal Plan requirements. Therefore, WQBELs for temperature are required in this Order.

(c) WQBELs. To ensure compliance with the Thermal Plan, an effluent limitation for temperature is included in this Order.

(d) Plant Performance and Attainability. Effluent temperature exceeded the receiving water by more than 20°F 17 times out of 218 individual samples at Monitoring Location RSW-001 and 19 times out of 218 individual samples at Monitoring Location RSW-003 from July 2007 through March 2012. Provision VI.C.2.c of this Order requires the Discharger to prepare a temperature study to provide evidence the Facility is in full compliance with the Thermal Plan and Order requirements.

4. WQBEL Calculations

a. This Order includes WQBELs for ammonia, BOD_5, chlorodibromomethane, dichlorobromomethane, diazinon and chlorpyrifos, electrical conductivity, methylmercury, nitrate, nitrite, pH, temperature, total coliform organisms, and TSS. 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., LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.

e. **Human Health Criteria.** WQBELs based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The ECAs are set equal to the AMEL and a statistical multiplier was used to calculate the MDEL.

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

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

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

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

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

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

Table F-10. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--
	lbs/day[1]	250[2]	375[2]	500[2]	--	--
	lbs/day[3]	450[4]	675[4]	900[4]	--	--
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	250[2]	375[2]	500[2]	--	--
	lbs/day[3]	450[4]	675[4]	900[4]	--	--
Chlorodibromomethane	µg/L	2.6	--	6.4	--	--
Dichlorobromomethane	µg/L	3.2	--	7.5	--	--
Ammonia Nitrogen, Total (as N)	mg/L	0.8	--	2.1	--	--
	lbs/day[1]	20	--	52	--	--
	lbs/day[3]	36	--	95	--	--
Diazinon and Chlorpyrifos	µg/L	[5]	--	[6]	--	--
Electrical Conductivity @ 25°C	µmhos/cm	1,406	--	--	--	--
Methylmercury	grams	0.37[7]	--	--	--	--
Nitrate plus Nitrite Nitrogen, Total (as N)	mg/L	10	--	--	--	--
Temperature	°F	--	--	--	--	[8]
Total Coliform Organisms	MPN/100 mL	--	2.2[9]	23[10]	--	240

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

[1] Based upon an average dry weather flow of 3.0 MGD.
[2] Effluent limitations effective until the Discharger demonstrates compliance with Provision VI.C.6.a of this Order.
[3] Based upon an average dry weather flow of 5.4 MGD.
[4] Effluent limitations effective upon compliance with Provision VI.C.6.a of this Order.
[5] $$S_{avg} = \frac{C_{D\ avg}}{0.079} + \frac{C_{C\ avg}}{0.012} \leq 1.0$$
$C_{D\text{-}avg}$ = average monthly diazinon effluent concentration in µg/L
$C_{C\text{-}avg}$ = average monthly chlorpyrifos effluent concentration in µg/L
[6] $$S_{max} = \frac{C_{D\ max}}{0.16} + \frac{C_{C\ max}}{0.025} \leq 1.0$$
$C_{D\text{-}avg}$ = maximum daily diazinon effluent concentration in µg/L
$C_{C\text{-}avg}$ = maximum daily chlorpyrifos effluent concentration in µg/L
[7] The total calendar annual load for methylmercury shall not exceed 0.37 grams.
[8] The maximum temperature of the discharge shall not exceed the natural receving water temperature by more than 20°F.
[9] Applied as a 7-day median effluent limitation.
[10] Not to be exceeded more than once in any 30-day period.

5. Whole Effluent Toxicity (WET)

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

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute toxicity is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used best professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific*

pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters)." Although the discharge has been consistently in compliance with the acute effluent limitations, the Facility is a POTW that treats domestic wastewater containing ammonia and other acutely toxic pollutants. Acute toxicity effluent limits are required to ensure compliance with the Basin Plan's narrative toxicity objective.

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.*" Consistent with Order R5-2007-0039, effluent limitations for acute toxicity have been included in this Order as follows:

> **Acute Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
>
> Minimum for any one bioassay---------- 70%
> Median for any three consecutive bioassays ---------- 90%

b. Chronic Aquatic Toxicity. The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) Based on chronic WET testing performed by the Discharger from July 2007 through March 2012, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective, as shown in Table F-11 below.

Table F-11. Whole Effluent Chronic Toxicity Testing Results

Date	**Water Flea** *Ceriodaphnia dubia*		**Fathead Minnow** *Pimephales promelas*		**Green Algae** *Selenastrum capricornutum*
	Survival (TUc)	Reproduction (TUc)	Survival (TUc)	Growth (TUc)	Growth (TUc)
13 August 2007	1	1	1	1	1
30 October 2007	1	1	1	1	1
5 February 2008	1	1	1	1	1
6 May 2008	1	1	1	1	1
12 August 2008	1	1	1	1	8
5 November 2008	1	1	1	1	1
10 February 2009	1	1	1	1	1
6 May 2009	1	1	1	1	1
5 August 2009	1	1	1	1	1
4 November 2009	1	1	1	1	1
10 February 2010	1	1	1	1	1
9 February 2010	1	1	1	1	1
11 August 2010	1	1	1	1	1
2 November 2010	1	1	1	1	1
15 February 2011	1	1	1	1	1
5 May 2011	1	1	1	1	1
9 August 2011	1	1	1	1	1
17 November 2011	1	1	1	1	1
16 February 2012	1	1	1	1	1

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

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region[25] that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, "*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a*

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

regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits." The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, this Order includes a narrative effluent limitation for chronic toxicity and 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 for BOD_5, TSS, ammonia, and mercury. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations have been established in this Order for ammonia, BOD_5, and TSS because they are oxygen demanding substances. Mass-based effluent limitations have been established for mercury becayse it is a bioaccumulative pollutant and because the TMDL includes mass-based WLAs.

Mass-based effluent limitations were calculated based upon the design flow (Average Dry Weather Flow) permitted in section IV.A.1.h of this Order.

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

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 uses maximum daily effluent limitations in lieu of average weekly effluent limitations for ammonia, bis (2-ethylhexyl) phthalate, chlorodibromomethane, dichlorobromomethane, and diazinon and chlorpyrifos 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_5, pH, total coliform, and TSS, 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.

3. Satisfaction of Anti-Backsliding Requirements

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

The effluent limitations in this Order are at least as stringent as the effluent limitations in Order R5-2007-0039, with the exception of effluent limitations for aluminum, bis (2-ethylhexyl) phthalate, bromoform, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, dissolved oxygen, iron, nitrate (mass), nitrite (mass), oil and grease, persistent chlorinated hydrocarbon pesticides, settleable solids, total trihalomethanes, and turbidity. The effluent limitations for these pollutants are less stringent than those in Order R5-2007-0039. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

a. CWA section 402(o)(1) and 303(d)(4). CWA section 402(o)(1) specifies that, in the case of effluent limitations established on the basis of CWA section

301(b)(1)(C) (i.e., WQBELs), a permit may not be renewed, reissued, or modified to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit except in compliance with CWA section 303(d)(4). The effluent limitations for aluminum, bis (2-ethylhexyl) phthalate, bromoform, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, dissolved oxygen, iron, nitrate (mass), nitrite (mass), oil and grease, persistent chlorinated hydrocarbon pesticides, settleable solids, and total trihalomethanes established in Order R5-2007-0039 are WQBELs and may be relaxed if the requirements of CWA section 303(d)(4) are satisfied.

CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.

i. For waters where standards are not attained, CWA section 304(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDLs or WLAs will assure the attainment of such water quality standards. The 303(d) listings applicable to the Old River, as described in section III.D.1 of this Fact Sheet, include dissolved oxygen and group A pesticides. TMDLs and WLAs for dissolved oxygen and pesticides have not been adopted. Monitoring data indicates the Facility will not contribute to exceedances of the water quality standards for dissolved oxygen and pesticides. Additionally, this Order retains receiving water limitations for dissolved oxygen and pesticides which will assure the Facility will not contribute to exceedances of applicable water quality standards for aforementioned pollutants.

ii. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy. The 303(d) listings for the Old River, as described in section III.D.1 of this Fact Sheet, do not include aluminum, bromoform, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, iron, nitrate, nitrite, oil and grease, settleable solids, and total trihalomethanes. Thus the receiving water is an attainment water for these constituents[26]. The removal or relaxation of WQBELs for aluminum, bromoform, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, iron, oil and grease, settleable solids, and total trihalomethanes is consistent with CWA sections 402(o)(1) and 303(d)(4) and, as described in section IV.D.4 of this Fact Sheet, the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Therefore, the modifications to these effluent limitations do not violate anti-backsliding requirements.

[26] "*The exceptions in Section 303(d)(4) address both waters in attainment with water quality standards and those not in attainment, i.e. waters on the section 303(d) impaired waters list.*" State Water Board Order WQ 2008-0006, Berry Petroleum Company, Poso Creek/McVan Facility.

Order R5-2007-0039 established final mass-based effluent limitations for nitrate and nitrite. 40 CFR 122.45(f)(1)(ii) states that mass limitations are not required when applicable standards and limitations are expressed in terms of other units of measurement. The numerical effluent limitations for these pollutants established in this Order are based on water quality standards and objectives, which are expressed in terms of concentration. Pursuant to 40 CFR 122.25(f)(1)(ii), expressing the effluent limitations in terms of concentration is in accordance with Federal Regulations. Compliance with the concentration-based limits will ensure that significantly less mass of the pollutants is discharged to the receiving water. Discontinuing mass-based effluent limitations for these parameters is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Any impact on existing water quality will be insignificant. Therefore, the modifications to these effluent limitations do not violate anti-backsliding requirements.

b. **CWA section 402(o)(2).** CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. CWA 402(o)(2)(B)(i) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

As described further in section IV.C.3.b of this Fact Sheet, updated information that was not available at the time Order R5-2007-0039 was issued indicates that aluminum, bis (2-ethylhexyl) phthalate, bromoform, chlorine residual, cyanide, iron, oil and grease, settleable solids, and total trihalomethanes do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. Additionally, updated information that was not available at the time Order R5-2007-0039 was issued indicates that less stringent effluent limitations for chlorodibromomethane and dichlorobromomethane based on available dilution credits satisfy requirements in CWA section 402(o)(2). The updated information that supports the relaxation of effluent limitations for these constituents includes the following:

i. **Aluminum.** Effluent monitoring data collected between July 2007 and March 2012 indicates that aluminum in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.

ii. **Bis (2-ethylhexyl) Phthalate.** Effluent and receiving water monitoring data collected between July 2007 and March 2012 for bis (2-ethylhexyl) phthalate indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR human health criteria.

iii. **Bromoform.** Effluent and receiving water monitoring data collected between July 2007 and March 2012 for bromoform indicates that the discharge does

not exhibit reasonable potential to cause or contribute to an exceedance of the CTR human health criteria.

iv. **Chlorine Residual.** The Discharger converted from chorine disinfection to UV disinfection upon commencement of the Phase II facility in March 2007. Therefore, there is no reasonable potential to cause or contribute to an exceedance of the NAWQC critierion for chlorine.

v. **Chlorodibromomethane.** Based on dilution/mixing zone studies conducted in September 2005, March 2009, and September 2011 and receiving water monitoring data collected between July 2007 and March 2012, a mixing zone and dilution credit of 7:1 is applicable and the receiving water contains assimilative capacity for chlorodibromomethane, as discussed in section IV.C.2.c of this Fact Sheet. Therefore, this Order includes less stringent effluent limitations for chlorodibromomethane based on the performance of the Facility and the available dilution.

vi. **Cyanide.** Effluent and receiving water monitoring data collected between July 2007 and March 2012 for cyanide indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR criteria for the protection of freshwater aquatic life.

vii. **Dissolved Oxygen.** Effluent and receiving water monitoring data for dissolved oxygen indicates that the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion below the Basin Plan objective. Additionally, this Order contains receiving water limitations for dissolved oxygen.

viii. **Dichlorobromomethane.** Based on dilution/mixing zone studes conducted in September 2005, March 2009, and September 2011 and receiving water monitoring data collected between July 2007 and March 2012, a mixing zone and dilution credit of 5.6:1 is applicable and the receiving water contains assimilative capacity for dichlorobromomethane, as discussed in section IV.C.2.c of this Fact Sheet. Therefore, this Order includes less stringent effluent limitations for dichlorobromomethane based on the performance of the Facility and the available dilution.

ix. **Iron.** Effluent monitoring data collected between July 2007 and March 2012 indicates that iron in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.

x. **Oil and Grease.** Effluent monitoring data collected between July 2007 and March 2012 was below effluent limitaitons contained in Order R5-2007-0039. Furthermore, the Discharger's compliance with the requirements of WQO 2006-0003 will ensure minimal amounts of oil and grease are discharged into the Facility and since effluent is treated to a tertiary level, oil and grease is not expected to be present in discharges from the Facility. Therefore, discharge

from the Facility does not have reasonable potential to cause or contribute to an excursion above the Basin Plan's narrative objective.

xi. **Persistent Chlorinated Hydrocarbon Pesticides.** Effluent and receiving water monitoring data collected between July 2007 and March 2012 for persistent chlorinated hydrocarbon pesticides indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan objective or the CTR criteria for individual persistent chlorinated hydrocarbon pesticides.

xii. **Settleable Solids.** Effluent and receiving water monitoring data collected between July 2007 and March 2012 for settleable solids indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan narrative objective for settleable solids.

xiii. **Total Trihalomethanes.** Effluent monitoring data collected between July 2007 and March 2012 for total trihalomethanes indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the USEPA Primary MCL for total trihalomethanes.

Thus, removal or relaxation of the effluent limitations for aluminum, bromoform, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, iron, oil and grease, settleable solids, total trihalomethanes, and turbidity from Order R5-2007-0039 is in accordance with CWA section 402(o)(2)(B)(i), which allows for the removal of effluent limitations based on information that was not available at the time of permit issuance.

c. **Turbidity.** Order R5-2007-0039 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.

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

The revised operational specifications for turbidity are the same as the effluent limitations in Order R5-2007-0039. 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 R5-2007-0039 and therefore does not allow degradation.

4. Satisfaction of Antidegradation Policy

The Facility was planned in three phases, which is currently discharging from the Phase II WWTP. The Phase II WWTP currently discharges up to 3.0 MGD, while the future Phase III WWTP will discharge up to 5.4 MGD. Order R5-2007-0039 authorized an increase in the permitted average discharge flow to 5.4 MGD from the Phase III WWTP. The Central Valley Water Board found in Order R5-2007-0039 that *"The permitted discharge is consistent with the antidegradation provison of 40 CFR Section 131.12 and State Water Board Resolution 68-16."* An increase in the permitted average dry weather discharge flow up to 5.4 MGD was authorized under Order R5-2007-0039 and this Order does not provide for an expansion from the previously authorized discharge rate of 5.4 MGD. 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.

This Order removes existing effluent limitations for constituents in which updated monitoring data demonstrates that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water. The Central Valley Water Board finds that the removal of the effluent limitations does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, removal of effluent limitations is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

This Order allows a mixing zone and dilution credits for dichlorobromomethane and chlorodibromomethane, resulting in effluent limitations that are less stringent than existing limitations. State Water Board Administrative Procedures Update (APU) 90-004 *Antidegradation Policy Implementation for NPDES Permitting* recommends that a simple antidegradation analysis is appropriate, instead of a complete antidegradation analysis, where a Regional Water Board determines that the reduction of water quality will be spatially localized or limited with respect to the waterbody (e.g., convined to a mixing zone). In the 2011 Study, the Discharger compared the projected concentrations of chlorodibromomethane and dichlorobromomethane that would occur at the Tracy Pumping Plant under the existing AMELs (no dilution) and proposed AMELs (with dilution). This comparison demonstrated that the estimated increase in assimilative capacity used for either dichlorobromomethane or chlorodibromomethane would be less than 0.37% and the increase in discharge of dichlorobromomethane and chlorodibromomethane associated with the dilution credits would result in a less than measurable increase in chlorodibromomethane and dichlorobromomethane outside of the proposed mixing zone. Furthermore, the actual increase would be much less given that dichlorobromomethane and chlorodibromomethane are volatile. Thus, the effect of

higher effluent limitations would be negligible outside of the proposed mixing zone and does not require a complete antidegradation analysis. Granting dilution credits for chlorodibromomethane and dichlorobromomethane would not contribute to further degradation of the receiving water; therefore, the permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

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_5 and TSS. The WQBELs consist of restrictions on ammonia, BOD_5, chlorodibromomethane, diazinon and chlorpyrifos, dichlorobromomethane, electrical conductivity, methylmercury, nitrate, nitrite, pH, temperature, total coliform organisms, and TSS. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes effluent limitations for BOD_5, total coliform organisms, and TSS to meet numeric objectives or protect beneficial uses.

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

Summary of Final Effluent Limitations
Discharge Point No. 001

Table F-12. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	MGD	--	--	3.0[2]	--	--	DC
	MGD	--	--	5.4[3]	--	--	
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--	TTC
	lbs/day[4]	250[5]	375[5]	500[5]	--	--	
	lbs/day[6]	450[7]	675[7]	900[7]	--	--	
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.5	BP
Total Suspended Solids	mg/L	10	15	20	--	--	TTC
	lbs/day[4]	250[5]	375[5]	500[5]	--	--	
	lbs/day[6]	450[7]	675[7]	900[7]	--	--	
	% Removal	85	--	--	--	--	CFR
Chlorodibromomethane	µg/L	2.6	--	6.4	--	--	CTR, PB
Dichloropromomethane	µg/L	3.2	--	7.5	--	--	CTR, PB
Ammonia Nitrogen, Total (as N)	mg/L	0.8	--	2.1	--	--	NAWQC
	lbs/day[4]	21	--	54	--	--	NAWQC
	lbs/day[5]	37	--	96	--	--	NAWQC
Diazinon and Chlorpyrifos	µg/L	[8]	--	[9]	--	--	TMDL
Electrical Conductivity @ 25°C	µmhos/cm	1,460	--	--	--	--	PB
Methylmercury	grams	0.37[10]	--	--	--	--	TMDL
Nitrate plus Nitrite Nitrogen, Total (as N)	mg/L	10	--	--	--	--	MCL
Temperature	°F	--	--	--	--	[11]	TP
Total Coliform Organisms	MPN/100 mL	--	2.2[12]	23[13]	--	240	Title 22
Acute Toxicity	% Survival	--	--	[14]	--	--	BP
Chronic Toxicity	TUc	--	--	[15]	--	--	BP

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	

[1] DC – Based on the design capacity of the Facility.
TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
CFR – Based on secondary treatment standards contained in 40 CFR Part 133.
BP – Based on water quality objectives contained in the Basin Plan.
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
PB – Based on the performance of the facility.
NAWQC – Based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
SEC MCL – Based on the Secondary Maximum Contaminant Level.
TMDL – Based on the TMDL.
MCL – Based on the Primary Maximum Contaminant Level.
Title 22 – Based on CA Department of Public Health Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).
TP – Based on water quality objectives contained in the Thermal Plan.

[2] The average dry weather flow shall not exceed 3.0 MGD until the Discharger demonstrates compliance with Provision VI.C.6.a of this Order.

[3] Upon compliance with Provision VI.C.6.a of this Order, the average dry weather flow shall not exceed 5.4 MGD.

[4] Based upon an average dry weather flow of 3.0 MGD.

[5] Effluent limitations effective compliance with Provision VI.C.6.a of this Order.

[6] Based upon an average dry weather flow of 5.4 MGD.

[7] Effluent limitations effective upon compliance with Provision VI.C.6.a of this Order.

[8] $$S_{avg} = \frac{C_{D\ avg}}{0.079} + \frac{C_{C\ avg}}{0.012} \leq 1.0$$
CD-avg = average monthly diazinon effluent concentration in µg/L
CC-avg = average monthly chlorpyrifos effluent concentration in µg/L

[9] $$S_{max} = \frac{C_{D\ max}}{0.16} + \frac{C_{C\ max}}{0.025} \leq 1.0$$
CD-avg = maximum daily diazinon effluent concentration in µg/L
CC-avg = maximum daily chlorpyrifos effluent concentration in µg/L

[10] The total calendar annual load for methylmercury shall not exceed 0.37 grams.

[11] The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.

[12] Applied as a 7-day median effluent limitation.

[13] Not to be exceeded more than once in any 30-day period.

[14] Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
Minimum for any one bioassay: 70%
Median for any three consecutive bioassays: 90%

[15] There shall be no chronic toxicity in the effluent discharge.

E. Interim Effluent Limitations

1. **Compliance Schedule for Mercury.** The permit limitations for methylmercury are more stringent than the limitations previously imposed. These new limitations are based on the Basin Plan's Delta Mercury Control Program that became effective on 20 October 2011. The Discharger has complied with the application requirements in paragraph 4 of the State Water Board's Compliance Schedule Policy, and the Discharger's application demonstrates the need for additional time to implement actions to comply with the new limitations, as described below. Therefore, a compliance schedule for compliance with the effluent limitations for methylmercury is established in this Order.

A compliance schedule is necessary because the Discharger must implement actions, including a Phase 1 Methylmercury Control Study and possible facility upgrades to comply with the final effluent limitations.

The Discharger has made diligent efforts to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream, and the results of those efforts. The Discharger is currently implementing a pollution prevention plan for mercury that was submitted to the Central Valley Water Board on 19 December 2007.

The compliance schedule is as short as possible. The Central Valley Water Board will use the Phase 1 Control Studies' results and other information to consider amendments to the Delta Mercury Control Program during the Phase 1 Delta Mercury Control Program Review. Therefore, at this time it is uncertain what measures must be taken to consistently comply with the waste load allocation for methylmercury. The interim effluent limits and final compliance date may be modified at the completion of Phase 1.

Interim performance-based limitations have been established in this Order in accordance with the Delta Mercury Control Program. The interim limitations were determined as described in section IV.E.2, below, and are in effect until the final limitations take effect.

2. **Interim Limits for Total Mercury.** During Phase 1, the Delta Mercury Control Program requires POTWs to limit their discharges of inorganic (total) mercury to facility performance-based levels. The interim inorganic (total) mercury effluent mass limit is to be derived using current, representative data and shall not exceed the 99.9th percentile of 12-month running effluent inorganic (total) mercury loads (lbs/year). At the end of Phase 1, the interim inorganic (total) mercury mass limit will be re-evaluated and modified as appropriate.

   The interim limitations for total mercury in this Order are based on the current treatment plant performance. 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 percent of the data points lie within 3.3 standard deviations of the mean (Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row). Therefore, the 99.9th percentile was determined using the mean plus 3.3 standard deviations of the available data.

   Total mercury effluent data collected from July 2007 through March 2012 was used to determine the performance-based interim effluent limitations. 12-month running mercury loads were calculated, the average and standard deviation of the 12-month running mercury loads were determined and used to calculate the 99.9th percentile.

   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 following table summarized the calculations of the interim effluent limitations for total mercury:

Table F-13. Mercury Interim Effluent limitation Calculation Summary

Parameter	Units	Maximum Effluent Concentration	Mean	Standard Deviation	Number of Samples	Interim Limitation
Mercury, Total Recoverable	g/year	3.3	1.3	1.1	60	4.7

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 biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

a. pH. Order R5-2007-0039 established a receiving water limitation for pH specifying that discharges from the Facility shall not cause the ambient pH to change by more than 0.5 units based on the water quality objective for pH in the Basin Plan, and allowed a 1-month averaging period for calculating pH change. The Central Valley Water Board adopted Resolution No. R5-2007-0136 on 25 October 2007, amending the Basin Plan to delete the portion of the pH water quality objective that limits the change in pH to 0.5 units and the allowance of averaging periods for pH. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and USEPA. Consistent with the revised water quality objective in the Basin Plan, this Order does not require a receiving water limitation for pH change.

In Finding No. 14 of Resolution No. R5-2007-0136, the Central Valley Water Board found that the change in the pH receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

Ammonia is the only constituent in the discharge regulated by this Order directly related to pH. The fixed ammonia effluent limitations in this Order are based on reasonable worse-case conditions. Although ammonia criteria are based on pH, and the pH receiving water limitations are more lenient in this Order than in the previous permit, the fixed ammonia limits are new limits, and are developed to protect under worse-case pH conditions. Therefore the relaxation of the pH receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the pH receiving water limitation (i) is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

The revised receiving water limitation for pH, which is based on the amendment to the Basin Plan's pH water quality objective, reflects current scientifically supported pH requirements for the protection of aquatic life and other beneficial uses. The revised receiving water limitation for pH is more consistent with the current USEPA recommended criteria and is fully protective of aquatic life and the other beneficial uses listed in the Basin Plan. Changes in pH when pH is

maintained within the range of 6.5 to 8.5 are neither beneficial nor adverse and, therefore, are not considered to be degradation in water quality. Attempting to restrict pH changes to 0.5 pH units would incur substantial costs without demonstrable benefits to beneficial uses. Thus, any changes in pH that would occur under the revised pH limitation would not only be protective of beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore the proposed amendment will not violate antidegradation policies.

B. Groundwater – Not Applicable

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Regional Water Boards 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 frequencies for flow (continuous), pH (daily), electrical conductivity (weekly), and total dissolved solids (weekly) have been retained from Order R5-2007-0039. The influent monitoring frequencies for BOD_5 and TSS have been reduced from daily to three time per week. The Discharger has been in full compliance with percent removal requirements specifified in this Order, thus reduced monitoring is appropriate to determine compliance with percent removal requirements. Monthly monitoring requirements for methylmercury have not been retained from Order R5-2007-0039 as they are not necessary to determine compliance with permit requirements.

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 for flow (continuous), ammonia (weekly), chlorodibromomethane (monthly), dichlorobromomethane (monthly) , dissolved oxygen (continuous), electrical conductivity (monthly), nitrate (weekly), nitrite (weekly), pH (continuous), temperature (continuous), and total dissolved solids (monthly) have been retained from Order R5-2007-0039 to determine compliance with effluent limitations for these parameters, where applicable, and to characterize the effluent.

3. Effluent monitoring for BOD_5 and TSS has been reduced from daily to three days per week. The Discharger has been in compliance with BOD_5 and TSS effluent limitations during the term of Order R5-2007-0039. The Central Valley Water Board finds that this frequency will provide sufficient information to determine compliance with effluent limitations and monitor the performance of the Facility. .

4. Effluent monitoring for total coliform organisms has been reduced from daily to five times per week. The Central Valley Water Board finds that this frequency will provide sufficient information to determine compliance with effluent limitations for total coliform organisms.

5. Effluent monitoring for mercury and methylmecury has been reduced from monthly to quarterly. Mercury and methylmercury is not expected to be in the discharge from the Facility, thus quarterly monitoring is sufficient to determine compliance with effluent limitations.

6. Monitoring data collected over the term of Order R5-2007-0039 for aldrin, aluminum, bromoform, chloroform, cyanide, heptachlor, iron, oil and grease, phosphorous, settleable solids, standard minerals, total kjeldahl nitrogen, and total organic carbon did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order R5-2007-0039.

7. The Discharger converted from chlorine disinfection to UV disinfection in March 2007. Therefore, chlorine residual does not demonstrate reasonable potential to exceed water quality objectives and monitoring requirements have not been retained from Order R5-2007-0039.

8. This Order establishes monthly effluent monitoring requirements for hardness at Monitoring Location EFF-001 to ensure that adequate data is available to properly adjust water quality criteria for hardness-based metals in future permit renewals.

9. This Order includes effluent limitations for diazinon and chlorpyrifos based on the applicable TMDL for the Sacramento-San Joaquin Delta. Effluent monitoring data for diazinon and chlorpyrifos is not available; therefore, this Order establishes annual monitoring for diazinon and chlorpyrifos to characterize the presence in the effluent and determine compliance with the applicable effluent limitations based on the TMDL.

10. This Order includes operational specifications for turbidity. This Order moves the point of compliance from the final effluent after disinfection to an internal compliance point prior to disinfection. Therefore, monitoring for turbidity is required at Monitoring Location UVS-001 and effluent monitoring requirements have not been retained in this Order.

11. Priority pollutant data for the effluent has been provided by the Discharger over the term of Order R5-2007-0039 and was used to conduct a RPA. In accordance with Section 1.3 of the SIP, periodic monitoring for priority pollutants for which criteria or

objectives apply and for which no effluent limitations have been established is required. This Order requires quarterly monitoring at Discharge Point No. 001 during the third or fourth year of this permit term in order to collect data to conduct an RPA for the next permit renewal. See Attachment I for more detailed requirements related to performing priority pollutant monitoring.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Consistent with Order R5-2007-0039, monthly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Consistent with Order R5-2007-0039, 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.

b. Receiving water monitoring frequencies and sample types for dissolved oxygen (weekly), electrical conductivity (weekly), hardness (monthly), pH, (weekly), and temperature (weekly) have been retained from Order R5-2007-0039.

c. Receiving water monitoring requirements contained in Order R5-2007-0039 at Monitoring Location RSW-004 have not been retained because they are not necessary to determine compliance with limitations and requirements of this Order.

d. Receiving water monitoring requirements for chloroform, phosphorus, total kjedahl nitrogen, total organic carbon, and standard minerals have not been retained from Order R5-2007-0039 as they are not necessary to determine compliance with requirements of this Order.

e. Priority pollutant data for the receiving water has been provided by the Discharger over the term of Order R5-2007-0039, and was used to conduct a meaningful RPA. In accordance with Section 1.3 of the SIP, periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established is required. During the third or fourth year of this permit term, the Discharger shall perform quarterly monitoringfor priority pollutants and other pollutants of concern, performed concurrently with effluent monitoring, at Monitoring Location RSW-003 during outgoing tide when Monitoring Location RSW-003 is upstream of Discharge Point No. 001 in order to

collect data to conduct an RPA for the next permit renewal. See Attachment I for more detailed requirements related to performing priority pollutant monitoring.

f. Delta Regional Monitoring Program

The Central Valley Water Board requires individual dischargers and discharger groups to conduct monitoring of Delta waters and Delta tributary waters in the vicinity of their discharge, known as ambient (or receiving) water quality monitoring. This monitoring provides information on the impacts of waste discharges on Delta waters, and on the extant condition of the Delta waters. However, the equivalent funds spent on current monitoring efforts could be used more efficiently and productively, and provide a better understanding of geographic and temporal distributions of contaminants and physical conditions in the Delta, and of other Delta water quality issues, if those funds were used for a coordinated ambient monitoring effort, rather than continue to be used in individual, uncoordinated ambient water quality monitoring programs. The Delta Regional Monitoring Program (RMP) will provide data to better inform management and policy decisions regarding the Delta.

This Order will allow Dischargers to elect to participate in the Delta RMP in lieu of conducting all or part of the individual receiving water monitoring required in the Monitoring and Reporting Program. If the Discharger elects to cease individual receiving water monitoring and participate in the Delta Regional Monitoring Program, the Discharger shall submit a letter signed by an authorized representative to the Executive Officer informing the Board that the Discharger will participate in the Delta Regional Monitoring Program and the date on which individual receiving water monitoring under Attachment E, Sections VIII.A.1 and VIII.A.2, will cease or be modified. Approval by the Executive Officer is required, and contingent on Delta RMP Steering Committee action on the forthcoming RMP monitoring plan.

Delta RMP data is not intended to be used directly to represent either upstream or downstream water quality for purposes of determining compliance with this Permit. Delta RMP monitoring stations are established generally as “integrator sites” to evaluate the combined impacts on water quality of multiple discharges into the Delta; Delta RMP monitoring stations would not normally be able to identify the source of any specific constituent, but would be used to identify water quality issues needing further evaluation. Delta RMP monitoring data may be used to help establish background receiving water quality for Reasonable Potential analyses in an NPDES Permit after evaluation of the applicability of the data for that purpose. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point. Delta RMP data, as with all environmental monitoring data, can provide an assessment of water quality at a specific place and time that can be used in conjunction with other information, such as other receiving water monitoring data, spatial and temporal distribution and trends of receiving water

data, effluent data from the Discharger's discharge and other point and non-point source discharges, receiving water flow volume, speed and direction, and other information to determine the likely source or sources of a constituent that resulted in exceedance of a receiving water quality objective.

If the Discharger begins to participate in the Delta Regional Monitoring Program in lieu of individual receiving water monitoring, the Discharger shall continue to participate in the Delta Regional Monitoring Program until such time as the Discharger informs the Board that participation in the Delta RMP will cease and individual monitoring is reinstituted. Receiving water monitoring under Attachment E, Sections VIII.A.1 and VIII.A.2, is not required under this Order so long as the Discharger adequately supports the Delta Regional Monitoring Program. Participation in the Delta RMP by a Discharger shall consist of providing funds and/or in-kind services to the Delta RMP at least equivalent to discontinued individual monitoring and study efforts. If a discharger or discharger group fails to maintain adequate participation in the Delta RMP, as determined through criteria to be developed by the Delta RMP Steering Committee, the Steering Committee will recommend to the Central Valley Water Board that an individual monitoring program be reinstated for that discharger or discharger group.

If the Discharger is participating in the Delta Regional Monitoring Program as described in Attachment E, Section VIII, the Receiving Water portion of the required Characterization Study need not be conducted by the Discharger. Instead, data from the Delta Regional Monitoring Program will be utilized to characterize the receiving water in the permit renewal. The Discharger may, however, conduct any site-specific receiving water monitoring deemed appropriate by the Discharger and submit that monitoring data with this Characterization Study. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point. Historic receiving water monitoring data taken by the discharger and from other sources may also be evaluated to determine whether or not that data is representative of current receiving water conditions. If found to be representative of current conditions, then that historic data may be used in characterizing receiving water quality for the purposes of Reasonable Potential analysis.

2. Groundwater – Not Applicable

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements contained in the Special Provision contained in section VI.C.5.b. of this

Order. Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

2. Emergency Storage Basin Monitoring

Emergency storage basin monitoring is required to ensure compliance with the pond operating requirements contained in the Special Provision, section VI.C.4.b, of this Order.

3. Water Supply Monitoring

Water supply monitoring is required to evaluate the source of constituents in the wastewater. This Order requires annual water supply monitoring for electrical conductivity, standard minerals, and total dissolved solids.

4. UV Disinfection System Monitoring

UV system specifications and monitoring and reporting is required when the UV system becomes operational to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens in the wastewater. UV Disinfection system monitoring is imposed pursuant to 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"*.

5. Effluent and Receiving Water Characterization Study.

An effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal. The Discharger is required to conduct quarterly monitoring of the effluent at Monitoring Location EFF-001 and of the receiving water at Monitoring Location RSW-003 during the third or fourth year of this permit term for all priority pollutants and other constituents of concern as described in Attachment I.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

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

40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

a. Mercury. The Delta Mercury Control Program was designed to proceed in two phases. Phase 1 spans a period of approximately 9 years. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. At the end of Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations, and/or the Final Compliance Date; implementation of management practices and schedules for methylmercury controls; and adoption of a mercury offset program for dischargers who cannot meet their load and waste load allocations after implementing all reasonable load reduction strategies. The fish tissue objectives, the linkage analysis between objectives and sources, and the attainability of the allocations will be re-evaluated based on the findings of Phase 1 control studies and other information. The linkage analysis, fish tissue objectives, allocations, and time schedules may be adjusted at the end of Phase 1, or subsequent program reviews, as appropriate. Therefore, this Order may be reopened to address changes to the Delta Mercury Control Program.

b. Bay-Delta Plan South Delta Salinity Objectives Update. The State Water Board is currently in the process of updating the South Delta Salinity Objectives contained in the Bay-Delta Plan. The updated salinity objectives may result in needed changes to the salinity requirements in this Order. Therefore, this Order may be reopened to modify salinity requirements, as appropriate, in accordance with changes to the Bay-Delta Plan.

c. Pollution Prevention. This Order requires the Discharger prepare pollution prevention plans following Water Code section 13263.3(d)(3) for mercury and salinity**.** This reopener provision allows the Central Valley Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for these constituents based on a review of the pollution prevention plans.

d. 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 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.

e. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for select metals. 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. **Ultraviolet (UV) Disinfection Operating Specifications.** The UV specifications in this Order are based on NWRI guidelines. If the Discharger conducts a site-specific UV Engineering study that identifies site-specific UV operating specifications that will achieve the virus inactivation equivalent to Title 22 disinfection tertiary recycled water, this Order may be reopened to modify the UV specifications.

g. **Diazinon and Mercury Basin Plan Amendment.** Central Valley Water Board staff is developing a Basin Plan Amendment to provide a chlorpyrifos and diazinon effluent limitation exemption if a discharger can demonstrate that there has been no detected samples of chlorpyrifos and diazinon in the effluent. The proposed Basin Plan Amendment may result in needed changes to the diazinon and chlorpyrifos requirements in this Order. As discussed in the RPA for diazinon and chlorpyrifos, there have been no detectable results for these constituents. Therefore, this Order may be reopened to modify diazinon and chlorpyrifos effluent limitations, as appropriate, in accordance with an amendment to the Basin Plan.

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 July 2007 through March 2012, 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 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 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.

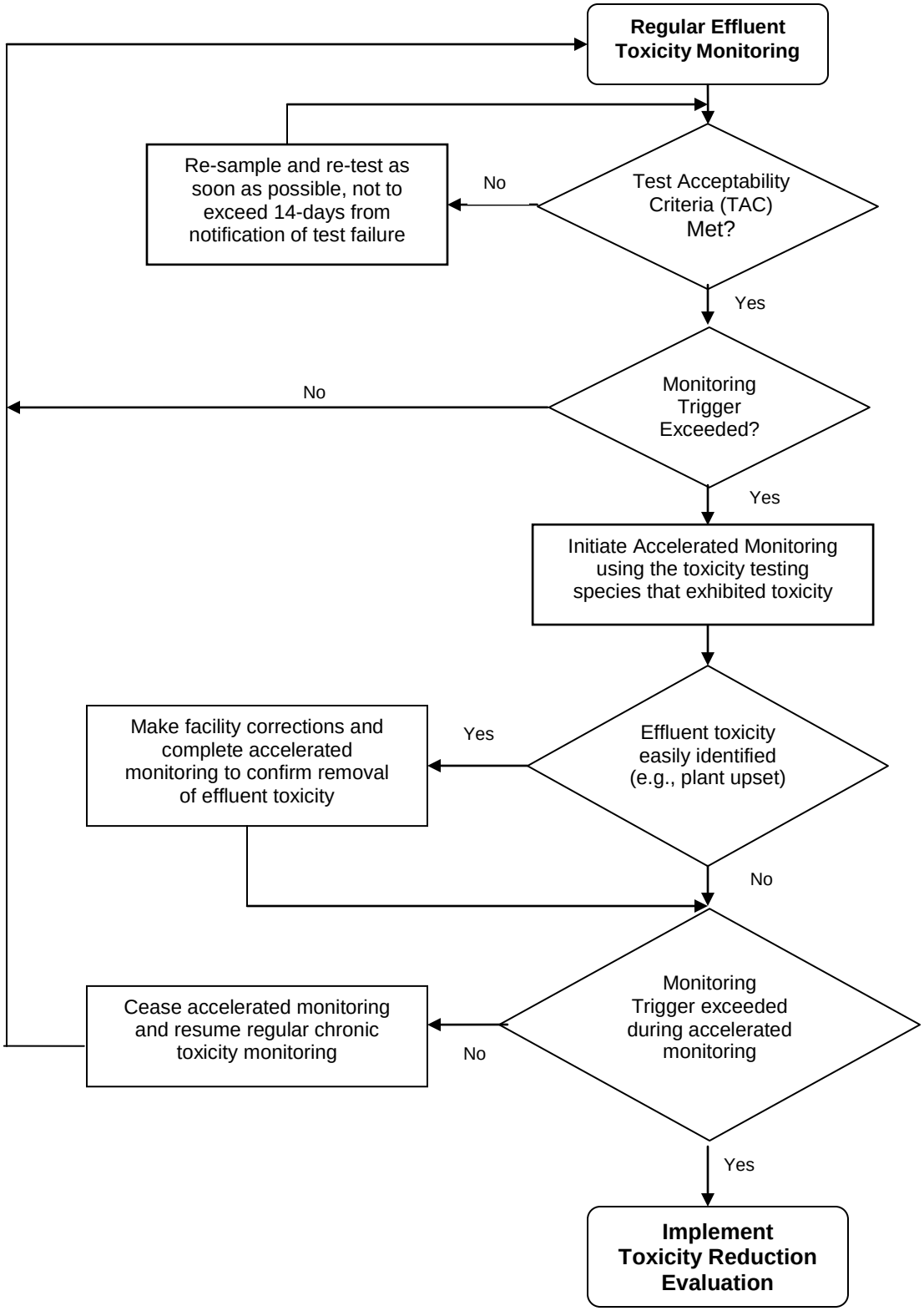
- Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA 600/R-92/081, September 1993.

- 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.

b. Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991.

Figure F-1
WET Accelerated Monitoring Flow Chart



c. **Phase 1 Methylmercury Control Study.** The Basin Plan's Delta Mercury Control Program requires NPDES dischargers, working with other stakeholders, to conduct methylmercury control studies (Control Studies) to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve their methylmercury load and waste load allocations. Control Studies can be developed through a stakeholder group approach or other collaborative mechanism, or by individual dischargers. By letter dated 18 April 2012, the Discharger agreed to participate in the Central Valley Clean Water Association (CVCWA) Coordinated Methylmercury Control Study (Study).

The Central Valley Water Board will use the Phase 1 Control Studies' results and other information to consider amendments to the Delta Mercury Control Program during the Phase 1 Delta Mercury Control Program Review. The objective of the Control Studies is to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve the methylmercury load and waste load allocation. In accordance with the Delta Mercury Control Plan, a work plan shall be submitted by **20 April 2013**.

The Central Valley Water Board commits to supporting an Adaptive Management approach. The adaptive management approach includes the formation of a Stakeholder Group(s) and a Technical Advisory Committee (TAC).

The study work plan will be reviewed and approved by the TAC and subsequently approved by the Executive Officer. The Discharger shall immediately implement the work plan upon Executive Officer approval, and a progress report shall be submitted by **20 October 2015**.

The Study shall evaluate the feasibility of reducing sources more than the minimum amount needed to achieve the methylmercury allocation. The Study also may include an evaluation of innovative actions, watershed approaches, offsets projects, and other short and long-term actions that result in reducing inorganic (total) mercury and methylmercury to address the accumulation of methylmercury in fish tissue and to reduce methylmercury exposure. The Study may evaluate the effectiveness of using inorganic (total) mercury controls to control methylmercury discharges.

The Study shall include a description of methylmercury and/or inorganic (total) mercury management practices identified in Phase 1; an evaluation of the effectiveness, and costs, potential environmental effects, and overall feasibility of the control actions. The Study shall also include proposed implementation plans and schedules to comply with methylmercury allocations as soon as possible. The Study shall be submitted by **20 October 2018**.

The Executive Officer may authorize extending the Study due date. The Executive Officer may, after public notice, extend the due date up to 2 years if the Discharger demonstrates it is making significant progress towards developing, implementing and/or completing the Study and reasonable attempts

have been made to secure funding for the Study, but the Discharger has experienced severe budget shortfalls.

d. **Temperature Study.** The Thermal Plan requires that the maximum temperature of the discharge not exceed the natural receiving water temperature by more than 20°F. Effluent temperature exceeded the receiving water by more than 20°F 17 times out of 218 individual samples at Monitoring Location RSW-001 and 19 times out of 218 individual samples at Monitoring Location RSW-003 from July 2007 through March 2012. Additionally, the Thermal Plan prohibits the discharge from causing a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place. The receiving water upstream of the discharge (RSW-003) did not exceed the downstream receiving water temperature of the discharge (RSW-001) by more than 4°F in Old River. Based on this data, it appears the discharge may not be in compliance with the Thermal Plan. Therefore, a temperature study is required to evaluate whether the current and expanded discharge can fully comply with the Thermal Plan. By **1 February 2016**, the Discharger shall submit a Temperature Study to demonstrate compliance with temperature limitations in this Order and requirements in the Thermal Plan. The plan should also demonstrate that the Discharger will remain in compliance with temperature limits and objectives when the average dry weather flow of the Facility is increased to 5.4 MGD, as compliance with the Thermal Plan is a condition of expanding the discharge from the Facility.

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

a. **Pollution Prevention Plan for Mercury.** The Basin Plan's Delta Mercury Control Plan requires NPDES permitted facilities to submit and implement pollutant minimization programs for mercury. The Discharger submitted a pollution prevention plan for mercury dated 17 December 2007. The Discharger shall update and implement a pollution prevention plan for mercury in accordance with Water Code section 13263.3(d)(3), per the compliance schedule in this Order for methylmercury (Section VI.C.7). The minimum requirements for the pollution prevention plan are outlined in the Fact Sheet (Attachment F section VII.B.3.e). Progress reports shall be submitted annually in accordance with the Monitoring and Reporting Program (Attachment E section X.D.1.). The progress reports shall discuss the effectiveness of the PPP in the reduction of mercury in the discharge, include a summary of mercury and methylmercury monitoring results, and discuss updates to the PPP.

b. **Mercury Exposure Reduction Program.** The Basin Plan's Delta Mercury Control Program requires dischargers to participate in a Mercury Exposure Reduction Program. The Exposure Reduction Program is needed to address public health impacts of mercury in Delta fish, including activities that reduce actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in Delta caught fish, such as subsistence fishers and their families.

The Exposure Reduction Program must include elements directed toward:

i. Developing and implementing community-driven activities to reduce mercury exposure;

ii. Raising awareness of fish contamination issues among people and communities most likely affected by mercury in Delta-caught fish such as subsistence fishers and their families;

iii. Integrating community-based organizations that serve Delta fish consumers, tribes, and public health agencies in the design and implementation of an exposure reduction program;

iv. Identifying resources, as needed for community-based organizations and tribes to participate in the Program;

v. Utilizing and expanding upon existing programs and materials or activities in place to reduce mercury, and as needed, create new materials or activities; and

vi. Developing measures for program effectiveness.

This Order requires the Discharger participate in a Mercury Exposure Reduction Program in accordance with the Delta Mercury Control Program. The Discharger, either individually or collectively with other Delta dischargers, shall submit an exposure reduction work plan for Executive Officer approval by **20 October 2013.** The objective of the Exposure Reduction Program is to reduce mercury exposure of Delta fish consumers most likely affected by mercury. The work plan shall address the Exposure Reduction Program objective, elements, and the Discharger's coordination with other stakeholders. The Discharger shall integrate or, at minimum, provide good-faith opportunities for integration of community-based organizations, tribes, and consumers of Delta fish into planning, decision making, and implementation of exposure reduction activities. **The Discharger shall implement the work plan within 6 months of Executive Officer Approval of the work plan.**

c. Salinity Reduction Plan. The Discharger shall maintain the Salinity Reduction Plan, submitted on 5 December 2008, that describes the Discharger's approach to identify, evaluate, and implement measures to reduce salinity in the effluent discharge to Old River. The Discharger shall submit annual progress reports in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1). The Salinity Reduction Plan shall, at minimum, contain the following:

i. Pollution Prevention Plan (PPP). The Discharger submitted a PPP for salinity that meets the requirements of Water Code section 13263.3(d)(3). The Discharger shall evaluate and update the PPP for salinity annually. The annual progress repors for the Salinity Reduction Plan shall include a discussion of the effectiveness of the PPP and any updates to the PPP.

ii. **Salinity Reduction Goal.** The Central Valley Water Board finds that a calendar annual average of 500 µmhos/cm as electrical conductivity increase over the calendar annual weighted average electrical conductivity of the Discharger's water supply is a reasonable increase due to consumptive use in the community. The annual progress reports for the Salinity Reduction Plan shall include a discussion of the progress in meeting the salinity reduction goal.

iii. **Best Practicable Treatment or Control (BPTC) Evaluation for Salinity.** The Discharger submitted a BPTC evaluation dated 19 December 2007. By **1 September 2016**, the Discharger shall update and submit a BPTC evaluation for salinity that includes new information that was not available at the time the December 2007 BPTC evaluation was developed.

iv. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) Participation.** The Discharger shall participate in CV-SALTS. The annual progress reports for the Salinity Reduction Plan shall include a discussion of the Discharger's participation in CV-SALTS.

d. **Water Code Section 13263.3(d)(3) Pollution Prevention Plans.** Pollution prevention plans for mercury and salinity are required in this Order per Water Code section 13263.3(d)(1)(C). The minimum requirements for the pollution prevention plans include the following:

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.

4. Construction, Operation, and Maintenance Specifications

a. UV Disinfection System Operating Specifications. 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 NWRI and AWWARF'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 officers recommended that provisions be included in permits to water recycling treatment plants employing UV disinfection requiring dischargers to establish fixed cleaning frequency of quartz sleeves as well as include provisions that specify minimum delivered UV dose that must be maintained (as recommended by the NWRI/AWWARF UV Disinfection Guidelines).

This Order includes an operating specification for a minimum hourly average UV dose of 100 mJ/cm^2, which is recommended by the NWRI Guidelines for UV disinfection following cloth media filtration to achieve the virus inactivation equivalent to Title 22 disinfected tertiary recycled water. A minimum hourly average UV transmittance of 55% or greater at 254 nm, per the NWRI Guidelines, and operating specifications to require proper maintenance of the lamp sleeves are also required.

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.

Minimum UV dosage and turbidity specifications are included as operating criteria in section VI.C.4.a of this Order and section IX.C of the Monitoring and

Reporting Program (Attachment E) to ensure that adequate disinfection of wastewater is achieved.

b. **Emergency Storage Pond Operating Requirements.** Emergency storage pond operating requirements are required to protect public health and receiving waters from overflow of the emergency storage pond. This provision requires precluding public contact with wastewater, preventing mosquito breeding, and operating the ponds to prevent overflows and is retained from Order R5-2007-0039. The emergency storage pond is utilized during times when the effluent does not meet discharge requirements through diversion from the UV disinfection system. The emergency storage pond is drained once operational issues are resolved, which is typically within 24 hours during wet weather and within a week during dry weather. The emergency storage pond is lined with a high density polyethylene liner. The operation and maintenance specification for the pond in this Order is necessary to protect the public and the beneficial uses of the groundwater and to prevent nuisance conditions.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Pretreatment Requirements.** 40 CFR 403.8(a) requires POTWs with a total design flow greater than 5 MGD and receiving pollutants which pass through or interfere with the operation of the POTW to establish a POTW Pretreatment Program. Currently, the Discharger is permitted to discharge up to 3.0 MGD until compliance with Special Provision VI.C.6.a, at which time the Discharger is permitted to discharge up to 5.4 MGD. The Facility will not expand to 5.4 MGD during the term of this Order and the Facility does not receive wastes from any known industrial users. Therefore, this Order does not require the Discharger to develop a pretreatment program at this time pursuant to USEPA regulations at 40 CFR Part 403. This Order does, however, require the Discharger to implement the necessary legal authorities, programs, and controls to ensure that incompatible wastes are not introduced into the treatment system and to ensure that indirect discharges do not introduce pollutants into the sewerage system.

b. **Collection System.** The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 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.

c. **Continuous Monitoring Systems.** This Order, and the Monitoring and Reporting Program which is part of this Order, requires that certain parameters be monitored on a continuous basis. The Facility is not staffed 24 hours a day. Permit violations or system upsets can go undetected during the time when there is no staff on-site. The Discharger is required to establish an electronic system for operator notification based on continuous recording device alarms. For any future Facility upgrades, the Discharger shall upgrade the continuous monitoring and notification system simultaneously.

6. Other Special Provisions

a. **Discharge Flow Expansion (Phase III Improvements).** The Discharger has requested to be permitted to expand discharge flows up to 5.4 MGD to the Old River to accommodate future growth in the service area. This Order permits the Discharger to discharge up to 5.4 MGD to the Old River upon compliance with requirements listed in section VI.C.6.a of the Order.

7. Compliance Schedules

a. **Compliance Schedules for Methylmercury.** The State Water Board adopted the Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits (Resolution 2008 0025), which is the governing Policy for compliance schedules in NPDES permits (hereafter "Compliance Schedule Policy"). In accordance with the Compliance Schedule Policy and 40 C.F.R. § 122.47, a Discharger who seeks a compliance schedule must demonstrate additional time is necessary to implement actions to comply with a more stringent permit limitation. The Discharger must provide the following documentation as part of the application requirements:

i. Diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream, and the results of those efforts;

ii. Source control efforts are currently underway or completed, including compliance with any pollution prevention programs that have established;

iii. A proposed schedule for additional source control measures or waste treatment;

iv. Data demonstrating current treatment facility performance to compare against existing permit effluent limits, as necessary to determine which is the more stringent interim, permit effluent limit to apply if a schedule of compliance is granted;

v. The highest discharge quality that can reasonably be achieved until final compliance is attained;

vi. The proposed compliance schedule is as short as possible, given the type of facilities being constructed or programs being implemented, and industry experience with the time typically required to construct similar facilities or implement similar programs; and

vii. Additional information and analyses to be determined by the Regional Water Board on a case-by-case basis.

Based on information submitted with the Report of Waste Discharge, self-monitoring reports, pollution prevention plans, and other miscellaneous submittals, it has been demonstrated to the satisfaction of the Central Valley Water Board that the Discharger needs time to implement actions to comply with the new effluent limitations for methylmercury

The Delta Mercury Control Program is composed of two phases. Phase 1 spans from 20 October 2011 through the Phase I Delta Mercury Control Program Review, expected to conclude by October 2020. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. Phase 1 includes provisions for: implementing pollution minimization programs and interim mass limits for inorganic (total) mercury point sources in the Delta and Yolo Bypass; controlling sediment-bound mercury in the Delta and Yolo Bypass that may become methylated in agricultural lands, wetland, and open-water habitats; and reducing total mercury loading to San Francisco Bay, as required by the Water Quality Control Plan for the San Francisco Bay Basin.

At the end of Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations and/or the Final Compliance Date; implementation of management practices and schedules for methylmercury controls; and adoption of a mercury offset program for dischargers who cannot meet their load and waste load allocations after implementing all reasonable load reduction strategies. The review also will consider other potential public and environmental benefits and negative impacts (e.g., habitat restoration, flood protection, water supply, fish consumption) of attaining the allocations. The fish tissue objectives, the linkage analysis between objectives and sources, and the attainability of the allocations will be re-evaluated based on the findings of Phase 1 control studies and other information. The linkage analysis, fish tissue objectives, allocations, and time schedules shall be adjusted at the end of Phase 1, or subsequent program reviews, if appropriate.

Phase 2 begins after the Phase 1 Delta Mercury Control Program Review or by 20 October 2022, whichever occurs first, and ends in 2030. During Phase 2, dischargers shall implement methylmercury control programs and continue inorganic (total) mercury reduction programs. Compliance monitoring and implementation of upstream control programs also shall occur in Phase 2. Any

compliance schedule contained in an NPDES permit must be "…*an enforceable sequence of actions or operations leading to compliance with an effluent limitation…*" per the definition of a compliance schedule in CWA Section 502(17). *See also* 40 C.F.R. § 122.2 (definition of schedule of compliance). The compliance schedule for methylmercury meets these requirements.

Federal Regulations at 40 C.F.R. § 122.47(a)(1) requires that, "*Any schedules of compliance under this section shall require compliance as soon as possible*…" The Compliance Schedule Policy also requires that compliance schedules are as short as possible and may not exceed 10 years, except when *"…a permit limitation that implements or is consistent with the waste load allocations specified in a TMDL that is established through a Basin Plan amendment, provided that the TMDL implementation plan contains a compliance schedule or implementation schedule.*" As discussed above, the Basin Plan's Delta Mercury Control Program includes compliance schedule provisions and allows compliance with the waste load allocations for methylmercury by 2030. Until the Phase 1 Control Studies are complete and the Central Valley Water Board conducts the Phase 1 Delta Mercury Control Program Review, it is not possible to determine the appropriate compliance date for the Discharger that is as soon as possible. Therefore, this Order establishes a compliance schedule for the new, final, WQBELs for methylmercury with full compliance required by **31 December 2030**, which is consistent with the Final Compliance Date of the TMDL. At completion of the Phase 1 Delta Mercury Control Program Review, the final compliance date for this compliance schedule will be re-evaluated to ensure compliance is required as soon as possible. Considering the available information, the compliance schedule is as short as possible in accordance with federal regulations and the Compliance Schedule Policy.

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 publication of a Notice of Public Hearing (Notice) in the Tracy/Mountain House Press on 23 November 2012, and posting the Notice at the Facility, the Mountain House Community Services District main office, and the Tracy Main Post Office on 16 November 2012.

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 **17 December 2012.**

C. Public Hearing

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

Date:	31 January/1 February 2013
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 received by the State Water Board within 30 days of the Central Valley Water Board's action, and must be submitted to the following address:

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

E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the 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 Kari Holmes at (916) 464-4843.

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

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	67.9	2,400	200	750[1]	--	--	--	--	200	No
Ammonia Nitrogen, Total (as N)	mg/L	1.49	NA	2.14	2.14[1]	1.76 [2]/0.70[3]	--	--	--	--	Yes
Bis (2-Ethylhexyl) Phthalate	µg/L	2.58J	8.8	1.8	--	--	1.8	5.9	--	4.0	No
Bromoform	µg/L	3.5	<0.081	4.3	--	--	4.3	360	--	80	No
Chloride	µg/L	175	164	230	860[1]	230[2]	--	--	--	250	No
Chlorodibromomethane	µg/L	2.58	<0.1	0.41	--	--	0.41	34	--	80	Yes
Cyanide, Total (as CN)	µg/L	5	<1.0	5.2	22	5.2	700	220,000	10	150	No
Diazinon and Chlorpyrifos	µg/L	ND	NA	[4]	--	--	--	--	[4]	--	No
Dichlorobromomethane	µg/L	3.14	0.37	0.56	--	--	0.56	46	--	80	Yes
Electrical Conductivity @ 25°C	µmhos/cm	1,180	1,950	[5]	--	--	--	--	--	900	Indeterminant[5]
Iron, Total Recoverable	µg/L	53[7]	700[7]	300	--	--	--	--	--	300	No[5]
Manganese, Total Recoverable	µg/L	22[7]	110[7]	50	--	--	--	--	--	50	No[5]
Nitrate plus Nitrite Nitrogen, Total (as N)	mg/L	6.7	10.3	10	--	--	10	--	--	10	Yes[5]
Nitrite Nitrogen, Total (as N)	mg/L	0.2	<0.041	1.0	--	--	--	--	--	1.0	No
Total Dissolved Solids	mg/L	692	651	450[6]	--	--	--	--	--	500	Indeterminant

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

Footnotes:
(1) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour Average.
(2) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day Average.
(3) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day Average.
(4) The 1-hour average (acute) and 4-day average (chronic) objectives for chlorpyrifos are 0.025 µg/L and 0.015 µg/L, respectively. The 1-hour average (acute) and 4-day average (chronic) objectives for diazinon are 0.16 µg/L and 0.10 µg/L, respectively.
(5) See Section IV.C.3 of the Fact Sheet (Attachment F).
(6) Represents the maximum observed annual average concentration for comparison with the MCL.

ATTACHMENT H – CALCULATION OF WQBELS

Parameter	Units	Most Stringent Criteria			Dilution Factors			HH Calculations			Aquatic Life Calculations									Final Effluent Limitations	
		HH	CMC	CCC	HH	CMC	CCC	ECA_{HH} = $AMEL_{HH}$	AMEL/MDEL $Multiplier_{HH}$	$MDEL_{HH}$	ECA $Multiplier_{acute}$	LTA_{acute}	ECA $Multiplier_{chronic}$	$LTA_{chronic}$	Lowest LTA	AMEL $Multiplier_{95}$	$AMEL_{AL}$	MDEL $Multiplier_{99}$	$MDEL_{AL}$	Lowest AMEL	Lowest MDEL
Ammonia Nitrogen, Total (as N)	mg/L	--	2.14	0.70	--	--	--	--	--	--	0.19	0.41	0.65	0.45	0.41	2.03	0.82	5.27	2.14	0.8	2.14
Chlorodibromomethane	µg/L	0.41	--	--	7	--	--	1.8	2.48	4.4	--	--	--	--	--	--	--	--	--	2.6[1]	6.4[1]
Dichlorobromomethane	µg/L	0.56	--	--	5.6	--	--	2.0	2.36	4.7	--	--	--	--	--	--	--	--	--	3.2[1]	7.5[1]

[1] As described further in section IV.C.3.c of the Fact Sheet (Attachment F), because effluent limitations may only be as high as is justified under State and federal antidegradation policies, this Order allows dilution credits.

ATTACHMENT I – EFFLUENT AND RECEIVING WATER CHARACTERIZATION STUDY

I. Background. Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from http://www.waterboards.ca.gov/iswp/index.html). To implement the SIP, effluent and receiving water data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such as heavy metals) where the toxicity of the constituents varies with pH and/or hardness. Section 3 of the SIP prescribes mandatory monitoring of dioxin congeners. In addition to specific requirements of the SIP, the Central Valley Water Board is requiring the following monitoring:

A. Drinking water constituents. Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (Basin Plan). The Basin Plan defines virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plan further requires that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.

B. Effluent and receiving water temperature. This is both a concern for application of certain temperature-sensitive constituents, such as fluoride, and for compliance with the Basin Plan's thermal discharge requirements.

C. Effluent and receiving water hardness and pH. These are necessary because several of the CTR constituents are hardness and pH dependent.

II. Monitoring Requirements.

If the Discharger is participating in the Delta Regional Monitoring Program as described in Attachment E, Section VIII, the Receiving Water portion of this Characterization Study is not required. However, the Report of Waste Discharge for the next permit renewal shall include, at minimum, one representative ambient background characterization monitoring event for priority pollutant constituents during the term of the permit. Data from the Delta Regional Monitoring Program plus any receiving water characterization conducted by the Discharger will be utilized to characterize the receiving water in the permit renewal. The Discharger may request that the RMP perform sampling and laboratory analysis to address all or a portion of the monitoring under this Characterization Study with the understanding that the Discharger will provide funding to the RMP sufficient to reimburse all of the costs of this additional effort. Alternatively, the Discharger may conduct any site-specific receiving water monitoring deemed appropriate by the Discharger and submit that monitoring data with this Characterization Study. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point.

A. Monitoring. Samples shall be collected quarterly during the third or fourth year of the permit term from the effluent at Monitoring Location EFF-001 and upstream receiving water at Monitoring Location RSW-003 during outgoing tide and analyzed for the constituents listed in Table I-1. The results of such monitoring shall be submitted to the Central Valley Water Board in a final report 6 months following completion of the final monitoring event. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

B. Semi-annual Monitoring (dioxins and furans only). Semi-annual monitoring is required for dioxins and furans, as specified in Attachment J. The results of dioxin and furan monitoring shall be submitted to the Central Valley Water Board with the monitoring data discussed in subsection A, above.

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

C. Sample type. All effluent samples shall be taken as 24-hour flow proportioned composite samples, unless not appropriate to meet analytical holding time requirements per 40 CFR 136. Samples for bis (2-ethylhexyl) phthalate analysis shall be collected as a grab sample, due to the potential for sample contamination from composite sampler tubing. The effluent sample collection type and rationale shall be defined in the study work plan. All receiving water samples shall be taken as grab samples.

D. Additional Monitoring/Reporting Requirements. The Discharger shall conduct the monitoring and reporting in accordance with the General Monitoring Provisions and Reporting Requirements in Attachment E.

Table I-1. Priority Pollutants and Other Constituents of Concern

CTR #	Constituent	CAS Number	Maximum Reporting Level[27] µg/L or noted
28	1,1-Dichloroethane	75343	1
30	1,1-Dichloroethene	75354	0.5
41	1,1,1-Trichloroethane	71556	2
42	1,1,2-Trichloroethane	79005	0.5
37	1,1,2,2-Tetrachloroethane	79345	0.5
75	1,2-Dichlorobenzene	95501	2
29	1,2-Dichloroethane	107062	0.5
	cis-1,2-Dichloroethene	156592	
31	1,2-Dichloropropane	78875	0.5
101	1,2,4-Trichlorobenzene	120821	1

[27] The reporting levels required in these tables for priority pollutant constituents are established based on Section 2.4.2 and Appendix 4 of the SIP.

CTR #	Constituent	CAS Number	Maximum Reporting Level[27] µg/L or noted
76	1,3-Dichlorobenzene	541731	2
32	1,3-Dichloropropene	542756	0.5
77	1,4-Dichlorobenzene	106467	2
17	Acrolein	107028	2
18	Acrylonitrile	107131	2
19	Benzene	71432	0.5
20	Bromoform	75252	2
34	Bromomethane	74839	2
21	Carbon tetrachloride	56235	0.5
22	Chlorobenzene (mono chlorobenzene)	108907	2
24	Chloroethane	75003	2
25	2- Chloroethyl vinyl ether	110758	1
26	Chloroform	67663	2
35	Chloromethane	74873	2
23	Chlorodibromomethane	124481	0.5
27	Dichlorobromomethane	75274	0.5
36	Dichloromethane	75092	2
33	Ethylbenzene	100414	2
88	Hexachlorobenzene	118741	1
89	Hexachlorobutadiene	87683	1
91	Hexachloroethane	67721	1
94	Naphthalene	91203	10
38	Tetrachloroethene	127184	0.5
39	Toluene	108883	2
40	trans-1,2-Dichloroethylene	156605	1
43	Trichloroethene	79016	2
44	Vinyl chloride	75014	0.5
	Methyl-tert-butyl ether (MTBE)	1634044	
	Trichlorofluoromethane	75694	
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	
	Styrene	100425	
	Xylenes	1330207	
60	1,2-Benzanthracene	56553	5
85	1,2-Diphenylhydrazine	122667	1
45	2-Chlorophenol	95578	5
46	2,4-Dichlorophenol	120832	5

CTR #	Constituent	CAS Number	Maximum Reporting Level[27] µg/L or noted
47	2,4-Dimethylphenol	105679	2
49	2,4-Dinitrophenol	51285	5
82	2,4-Dinitrotoluene	121142	5
55	2,4,6-Trichlorophenol	88062	10
83	2,6-Dinitrotoluene	606202	5
50	2-Nitrophenol	25154557	10
71	2-Chloronaphthalene	91587	10
78	3,3'-Dichlorobenzidine	91941	5
62	3,4-Benzofluoranthene	205992	10
52	4-Chloro-3-methylphenol	59507	5
48	4,6-Dinitro-2-methylphenol	534521	10
51	4-Nitrophenol	100027	10
69	4-Bromophenyl phenyl ether	101553	10
72	4-Chlorophenyl phenyl ether	7005723	5
56	Acenaphthene	83329	1
57	Acenaphthylene	208968	10
58	Anthracene	120127	10
59	Benzidine	92875	5
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	2
63	Benzo(g,h,i)perylene	191242	5
64	Benzo(k)fluoranthene	207089	2
65	Bis(2-chloroethoxy) methane	111911	5
66	Bis(2-chloroethyl) ether	111444	1
67	Bis(2-chloroisopropyl) ether	39638329	10
68	Bis(2-ethylhexyl) phthalate	117817	5
70	Butyl benzyl phthalate	85687	10
73	Chrysene	218019	5
81	Di-n-butylphthalate	84742	10
84	Di-n-octylphthalate	117840	10
74	Dibenzo(a,h)-anthracene	53703	0.1
79	Diethyl phthalate	84662	10
80	Dimethyl phthalate	131113	10
86	Fluoranthene	206440	10
87	Fluorene	86737	10
90	Hexachlorocyclopentadiene	77474	5
92	Indeno(1,2,3-c,d)pyrene	193395	0.05
93	Isophorone	78591	1

CTR #	Constituent	CAS Number	Maximum Reporting Level[27] µg/L or noted
98	N-Nitrosodiphenylamine	86306	1
96	N-Nitrosodimethylamine	62759	5
97	N-Nitrosodi-n-propylamine	621647	5
95	Nitrobenzene	98953	10
53	Pentachlorophenol	87865	1
99	Phenanthrene	85018	5
54	Phenol	108952	1
100	Pyrene	129000	10
	Aluminum	7429905	
1	Antimony	7440360	5
2	Arsenic	7440382	10
15	Asbestos	1332214	
	Barium	7440393	
3	Beryllium	7440417	
4	Cadmium	7440439	0.5
5a	Chromium (III)	7440473	50
5b	Chromium (VI)	18540299	10
6	Copper	7440508	5
14	Cyanide	57125	5
	Fluoride	7782414	
	Iron	7439896	
7	Lead	7439921	0.5
8	Mercury	7439976	0.5
	Manganese	7439965	
	Molybdenum	7439987	
9	Nickel	7440020	20
10	Selenium	7782492	5
11	Silver	7440224	1
12	Thallium	7440280	1
	Tributyltin	688733	
13	Zinc	7440666	20
110	4,4'-DDD	72548	0.05
109	4,4'-DDE	72559	0.05
108	4,4'-DDT	50293	0.01
112	alpha-Endosulfan	959988	0.02
103	alpha-Hexachlorocyclohexane (BHC)	319846	0.01
	Alachlor	15972608	

CTR #	Constituent	CAS Number	Maximum Reporting Level[27] µg/L or noted
102	Aldrin	309002	0.005
113	beta-Endosulfan	33213659	0.01
104	beta-Hexachlorocyclohexane	319857	0.005
107	Chlordane	57749	0.1
106	delta-Hexachlorocyclohexane	319868	0.005
111	Dieldrin	60571	0.01
114	Endosulfan sulfate	1031078	0.05
115	Endrin	72208	0.01
116	Endrin Aldehyde	7421934	0.01
117	Heptachlor	76448	0.01
118	Heptachlor Epoxide	1024573	0.01
105	Lindane (gamma-Hexachlorocyclohexane)	58899	0.02
119	PCB-1016	12674112	0.5
120	PCB-1221	11104282	0.5
121	PCB-1232	11141165	0.5
122	PCB-1242	53469219	0.5
123	PCB-1248	12672296	0.5
124	PCB-1254	11097691	0.5
125	PCB-1260	11096825	0.5
126	Toxaphene	8001352	0.5
	Atrazine	1912249	
	Bentazon	25057890	
	Carbofuran	1563662	
	2,4-D	94757	
	Dalapon	75990	
	1,2-Dibromo-3-chloropropane (DBCP)	96128	
	Di(2-ethylhexyl)adipate	103231	
	Dinoseb	88857	
	Diquat	85007	4
	Endothal	145733	
	Ethylene Dibromide	106934	
	Glyphosate	1071836	
	Methoxychlor	72435	
	Molinate (Ordram)	2212671	
	Oxamyl	23135220	
	Picloram	1918021	

CTR #	Constituent	CAS Number	Maximum Reporting Level[27] µg/L or noted
	Simazine (Princep)	122349	
	Thiobencarb	28249776	
16	2,3,7,8-TCDD (Dioxin)	1746016	
	2,4,5-TP (Silvex)	93765	
	Diazinon	333415	
	Chlorpyrifos	2921882	
	Ammonia (as N)	7664417	
	Chloride	16887006	
	Dissolved Organic Carbon		
	Flow		
	Hardness (as $CaCO_3$)		
	Foaming Agents (MBAS)		
	Mercury, Methyl	22967926	-
	Nitrate (as N)	14797558	
	Nitrite (as N)	14797650	
	pH		
	Phosphorus, Total (as P)	7723140	
	Specific conductance (EC)		
	Sulfate		
	Sulfide (as S)		
	Sulfite (as SO_3)		
	Temperature		
	Total Dissolved Solids (TDS)		
	Total Organic Carbon		
	Total Organic Kjeldahl Nitrogen		

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ATTACHMENT J – DIOXIN AND FURAN SAMPLING

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

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

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

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

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.