CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER R5-2013-0127-01
NPDES NO. CA0079049

WASTE DISCHARGE REQUIREMENTS FOR THE CITY OF DAVIS WASTEWATER TREATMENT PLANT YOLO COUNTY

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

Table 1. Discharger Information

Discharger	City of Davis
Name of Facility	Wastewater Treatment Plant
Facility Address	45400 County Road 28H
	Davis, CA 95616
	Yolo County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by the City of Davis 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	Treated Municipal Wastewater	38º 35’ 24” N	121º 39’ 50” W	Willow Slough Bypass
002	Treated Municipal Wastewater	38º 34’ 33” N	121º 38’ 02” W	Conaway Ranch Toe Drain

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**4 October 2013**
This Order shall become effective on:	**23 November 2013**
This Order shall expire on:	**1 November 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:	**180 days prior to 1 November 2018**

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 **4 October 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	City of Davis
Name of Facility	City of Davis Wastewater Treatment Plant
Facility Address	45400 County Road 28H
	Davis, CA 95616
	Yolo County
Facility Contact, Title, and Phone	Stan Gryczko, Wastewater Treatment Plant Superintendent, (530) 747-8292
Mailing Address	23 Russell Blvd., Davis, CA 95616
Type of Facility	Publicly Owned Treatment Works (POTW)
Facility Design Flow	7.5 million gallons per day (MGD)

II. FINDINGS

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

A. Background. The City of Davis (hereinafter Discharger) was authorized to discharge pursuant to Order R5-2007-0132-02 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0079049. The Discharger submitted a Report of Waste Discharge, dated 4 April 2012, and applied for a NPDES permit renewal to discharge up to 7.5 MGD of treated wastewater from the City of Davis Wastewater Treatment Plant**,** hereinafter Facility. The application was deemed complete on 18 July 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 Discharger has the ability to discharge treated wastewater from two different discharge points (Discharge Point Nos. 001 and 002). The treatment system for both discharge points consists of a mechanical bar screen, aerated grit tank, three primary sedimentation tanks, three facultative oxidation ponds, two aerated ponds, a polishing pond, an overland flow system, disinfection, and dechlorination. However, prior to the discharge at Discharge Point No. 002, the disinfected effluent passes through treatment wetlands. Each discharge point is located in a different receiving water. Treated wastewater is discharged from Discharge Point No. 001 (see table on cover page) to the Willow Slough Bypass, a water of the United States and part of the Yolo Bypass flood protection structure within the Sacramento River Watershed. Treated wastewater is discharged from Discharge Point No. 002 to the Conaway Ranch Toe Drain, a water of the United States, and a part of the Yolo Bypass within the Sacramento River Watershed. 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, 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 Basin Plan does not specifically identify beneficial uses for the Willow Slough Bypass or Conaway Ranch Toe Drain; however, the Yolo Bypass is listed in Table II-1. The Willow Sough Bypass is part of the Yolo Bypass flood protection structure and the Conaway Ranch Toe Drain is located within the Yolo Bypass, and therefore, the beneficial uses for the Yolo Bypass listed in Table II-1 of the Basin Plan apply to the Willow Slough Bypass and the Conaway Ranch Toe Drain.

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. Resolution No. 88-63 also states, *"Any body of water which has current specific designation previously assigned to it by a Regional Board in Water Quality Control Plans may retain that designation at the Regional Board's discretion."* The Basin Plan does not specifically assign municipal and domestic supply as a beneficial use to the Yolo Bypass. Therefore, this Order does not apply the municipal and domestic water supply beneficial use to discharges from Discharge Point No. 001 to the Willow Slough Bypass or from Discharge Point No. 002 to the Conaway Ranch Toe Drain.

Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to Willow Slough Bypass and the Conaway Ranch Toe Drain are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 and 002	Willow Slough Bypass and Conaway Ranch Toe Drain	<u>Existing uses from Table II-1 of the Basin Plan:</u> Agricultural supply, including irrigation and stock watering (AGR); Water contact recreation (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Migration of aquatic organisms, warm and cold (MIGR); Spawning, reproduction, and/or early development, warm (SPWN); and Wildlife habitat (WILD). <u>Potential uses from Table II-1 of the Basin Plan:</u> Cold freshwater habitat (COLD).

Discharge Point	Receiving Water Name	Beneficial Use(s)
--	Groundwater	Municipal and domestic supply (MUN); Industrial service supply (IND); Industrial process supply (PRO); Agricultural supply, including irrigation and stock watering (AGR).

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 Willow Slough Bypass is listed in the 2010 303(d) List as a WQLS for boron, *Escherichia coli* (*E. coli*), and fecal coliform organisms; the Conaway Ranch Toe Drain and the Yolo Bypass are not listed. The northern legal boundary of the Sacramento-San Joaquin Delta bisects the Yolo Bypass south of the Facility and the Discharge Point Nos. 001 and 002. However, when the Yolo Bypass is flooded, the entire Yolo Bypass is considered a Delta Waterway. The northern portion of the Delta Waterway is listed as a WQLS for chlordane, chlorpyrifos, DDT (dichlorodiphenyltrichloroethane), diazinon, dieldrin, group A pesticides, invasive species, mercury, polychlorinated biphenyls (PCBs), and unknown toxicity. In accordance with the Sacramento-San Joaquin Delta Diazinon and Chlorpyrifos TMDL and the Sacramento-San Joaquin Delta Methylmercury TMDL, waste load allocations for diazinon and chlorpyrifos, and methylmercury are included in this Order.

Requirements of this Order specifically implement the Basin Plan.

I. National Toxics Rule (NTR) and California Toxics Rule (CTR). USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About 40 criteria in the NTR applied in California. On 18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.

J. State Implementation Policy. On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000 with respect to the priority pollutant criteria promulgated for California by USEPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by USEPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005 that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and

objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. Compliance Schedules and Interim Requirements. In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board's *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits* (Compliance Schedule Policy) allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a TMDL. All compliance schedules must be as short as possible, and may not exceed ten years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. 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.

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 includes compliance schedules and interim effluent limitations. A detailed discussion of the basis for the compliance schedules and interim effluent limitations 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 5-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS). The WQBELs for Discharge Point No. 001 consist of restrictions on aluminum, ammonia, BOD_5, cadmium, chlorine residual, copper, cyanide, diazinon and chlorpyrifos, electrical conductivity, mercury, pH, selenium, total coliform organisms, and TSS. The WQBELs for Discharge Point No. 002 consist of restrictions on aluminum, ammonia, BOD_5, chlorine residual, copper, diazinon and chlorpyrifos,

electrical conductivity, methylmercury, pH, selenium, 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 131.21I(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 R5-2007-0132-02. 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 Discharger owns and operates the Facility subject to this Order. 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 sections IV.B, IV.D, V.B, and VI.A.2.o 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 R5-2007-0132-02 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 Nos. 001 and 002

1. Final Effluent Limitations – Discharge Point No. 001 (Willow Slough Bypass)

a. The Discharger shall maintain compliance with the following effluent limitations when discharging at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-A or EFF-001 as described in sections IV.A. and B. of the Monitoring and Reporting Program, unless otherwise noted. Interim effluent limitations for Discharge Point No. 001 are found in section IV.A.3.

Table 6. Effluent Limitations – Discharge Point No. 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)[1]	mg/L	10	15	20	--	--
	lbs/day[2]	630	940	1,300	--	--
pH	standard units	--	--	--	6.5	8.0
Total Suspended Solids[1]	mg/L	10	15	20	--	--
	lbs/day[2]	630	940	1,300	--	--
Priority Pollutants						
Cadmium, Total Recoverable	µg/L	4.3	--	8.3	--	--
Copper, Total Recoverable	µg/L	23	--	49	--	--
Cyanide, Total Recoverable	µg/L	3.8	--	8.1	--	--
Selenium, Total Recoverable	µg/L	4.4	--	7.1	--	--
	lbs/day[2]	0.28	--	0.44	--	--
Non-Conventional Pollutants						
Aluminum, Total Recoverable	µg/L	392	--	750	--	--
Ammonia Nitrogen, Total (as N) 1 March – 31 October	mg/L	1.3	--	4.0	--	--
	lbs/day[2]	82	--	251	--	--
Ammonia Nitrogen, Total (as N) 1 November – 29 February	mg/L	1.8	--	3.3	--	--
	lbs/day[2]	113	--	207	--	--

[1] Compliance to be determined at Monitoring Location EFF-A, as described in the Monitoring and Reporting Program.
[2] Based upon an average dry weather flow of 7.5 MGD.

b. Percent Removal. Effective 25 October 2017, the average monthly percent removal of BOD_5 and 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. Total Residual Chlorine[1]. Effluent total residual chlorine shall not exceed:

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

e. Chronic Whole Effluent Toxicity. There shall be no chronic toxicity in the effluent discharge.

f. Total Coliform Organisms[1]

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. Average Dry Weather Flow. The average dry weather discharge flow shall not exceed 7.5 MGD as a total from Discharge Point Nos. 001 and 002.

h. 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

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

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

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

ii. Maximum Daily Effluent Limitation

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

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

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

i. Mercury, Total Recoverable. The total monthly mass discharge of total mercury shall not exceed 0.038 lbs/month.

j. Electrical Conductivity[1]. For a calendar year, the annual average effluent concentration shall not exceed 1,400 µmhos/cm.

[1] Compliance to be determined at Monitoring Location EFF-A, as described in the Monitoring and Reporting Program.

2. Final Effluent Limitations – Discharge Point No. 002 (Conaway Ranch Toe Drain)

a. The Discharger shall maintain compliance with the following effluent limitations when discharging at Discharge Point No. 002, with compliance measured at Monitoring Location EFF-A or EFF-002 as described in section IV.A. and C. of the Monitoring and Reporting Program, unless otherwise noted. Interim effluent limitations for Discharge Point No. 002 are found in section IV.A.4., below.

Table 7. Effluent Limitations – Discharge Point No. 002

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)[1]	mg/L	10	15	20	--	--
	lbs/day[2]	630	940	1,300	--	--
pH	standard units	--	--	--	6.5	8.0
Total Suspended Solids[1]	mg/L	10	15	20	--	--
	lbs/day[2]	630	940	1,300	--	--
Priority Pollutants						
Copper, Total Recoverable	µg/L	16	--	33	--	--
Selenium, Total Recoverable	µg/L	4.5	--	6.9	--	--
	lbs/day[2]	0.28	--	0.43	--	--
Non-Conventional Pollutants						
Aluminum, Total Recoverable	µg/L	400	--	750	--	--
Ammonia Nitrogen, Total (as N) 1 March – 31 October	mg/L	1.5	--	4.7	--	--
	lbs/day[2]	94	--	295	--	--
Ammonia Nitrogen, Total (as N) 1 November – 29 February	mg/L	2.3	--	5.6	--	--
	lbs/day[2]	144	--	352	--	--

[1] Compliance to be determined at Monitoring Location EFF-A
[2] Based upon an average dry weather flow of 7.5 MGD.

b. Percent Removal. Effective 25 October 2017, the average monthly percent removal of 5-day BOD_5 and 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. Total Residual Chlorine[1]. Effluent total residual chlorine shall not exceed:

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

e. Chronic Whole Effluent Toxicity. There shall be no chronic toxicity in the effluent discharge.

f. Total Coliform Organisms[1]

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. Average Dry Weather Flow. The average dry weather discharge flow shall not exceed 7.5 MGD as a total from Discharge Point Nos. 001 and 002.

h. 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

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

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

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

ii. Maximum Daily Effluent Limitation

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

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

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

i. Methylmercury. The effluent calendar annual methylmercury load shall not exceed 0.17 grams, in accordance with the Delta Mercury Control Program.

j. Electrical Conductivity. For a calendar year, the annual average effluent concentration shall not exceed 1,400 µmhos/cm.

[1] Compliance to be determined at Monitoring Location EFF-A, as described in the Monitoring and Reporting Program.

3. Interim Effluent Limitations – Discharge Point No. 001 (Willow Slough Bypass)

a. Effective immediately and ending on 25 October 2017, the Discharger shall maintain compliance with the interim effluent limitations shown in Table 8 and interim effluent limit b. Total Coliform Organisms below, with compliance measured at Monitoring Location EFF-001, unless otherwise noted, as described in the Monitoring and Reporting Program. These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated in this provision.

Table 8. Interim Effluent Limitations – Discharge Point No. 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)[1]	mg/L	30	45	90	--	--
	lbs/day[2]	1,876	2,815	5,633	--	--
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids[1]	mg/L	50	75	150	--	--
	lbs/day[2]	3129	4694	9388	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	--	--	20.5	--	--
	lbs/day[2]	--	--	1280	--	--

[1] Compliance to be determined at Monitoring Location EFF-A, as described in the Monitoring and Reporting Program.
[2] Based upon an average dry weather flow of 7.5 MGD.

b. Total Coliform Organisms[1]

i. 500 MPN/100 mL, at any time.

c. Electrical Conductivity. Effective immediately and until 1 January 2021, the annual average effluent concentration shall not exceed 2,050 µmhos/cm for a calendar year.

4. Interim Effluent Limitations – Discharge Point No. 002 (Conaway Ranch Toe Drain)

a. Effective immediately and ending on 25 October 2017, the Discharger shall maintain compliance with the interim effluent limitations shown in Table 9 and b. Total Coliform Organisms below, with compliance measured at Monitoring Location EFF-002, unless otherwise noted, as described in the Monitoring and Reporting Program. These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated in this provision.

Table 9. Interim Effluent Limitations – Discharge Point No. 002

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)[1]	mg/L	30	45	90	--	--
	lbs/day[2]	1,876	2,815	5,633	--	--
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids[1]	mg/L	50	75	150	--	--
	lbs/day[2]	3,129	4,694	9,388	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	--	--	13.2	--	--
	lbs/day[2]	--	--	826	--	--

[1] Compliance to be determined at Monitoring Location EFF-A, as described in the Monitoring and Reporting Program.

[2] Based upon an average dry weather flow of 7.5 MGD.

b. Total Coliform Organisms[1]

i. 500 MPN/100 mL, at any time.

c. Mercury, Total Recoverable. Effective immediately and until 31 December 2030, for a calendar year, the total annual mass discharge of total mercury at Discharge Point No. 002 shall not exceed 75 grams. This interim effluent limitation shall apply in lieu of the corresponding final effluent limitation specified for methylmercury (section IV.A.2.i).

d. Electrical Conductivity. Effective immediately, and until 1 January 2021, the annual average effluent concentration shall not exceed 2,050 µmhos/cm for a calendar year.

B. Land Discharge Specifications

The Discharger shall maintain compliance with the following land discharge specifications in the three facultative oxidation ponds, two aerated ponds, the polishing pond, and the overland flow system.

1. The discharge of waste classified as “hazardous” as defined in section 2521(a) of Title 23, California Code of Regulations (CCR), or “designated”, as defined in section 13173 of the Water Code, to the ponds is prohibited.

2. Objectionable odors shall not be perceivable beyond the limits of the Facility at an intensity that creates or threatens to create nuisance conditions.

3. As a means of discerning compliance with previous Land Discharge Specification 2 above, the dissolved oxygen (DO) content in the upper one foot of any wastewater treatment or storage pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Regional Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.

C. Reclamation Specifications – Not Applicable

D. Wetlands Specifications

1. If the geometric mean selenium concentration in avian eggs exceeds 4 µg/g (dry weight basis) in any one sampling period, the Discharger shall submit a remedial action workplan to reduce the concentrations in avian eggs.

2. If the geometric mean selenium concentration in avian eggs exceeds 8 µg/g (dry weight basis) in any one sampling period, the Discharger shall immediately cease the discharge of wastewater into the wetlands. Wastewater shall not be reintroduced until it can be shown that the concentrations have been sufficiently reduced to protect wildlife and maintain the mean avian egg selenium concentration below 8 µg/g.

3. Toxic pollutants shall not be present in the water column, sediments, or biota in concentrations that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in concentrations that are harmful to human health and aquatic resources. The discharge into the wetlands shall not cause aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded as determined by acute and chronic toxicity analysis, or wetlands monitoring.

4. The wetlands must be managed so as not to create vector problems and to minimize the occurrence of avian botulism and other infectious diseases. The local mosquito abatement district or Yolo County Environmental Health Department shall be consulted annually to determine if changes need to be made in procedures in managing the wetlands for vector control.

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 Willow Slough Bypass or Conaway Ranch Toe Drain:

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:**

   a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;

   b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor

   c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.

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

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

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

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;

   d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR 131.12.); nor,

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

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.

11. Suspended Sediments. The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

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

13. Suspended Material. Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

14. Taste and Odors. Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

15. Temperature. The natural temperature to be increased by more than 5°F. Compliance to be determined based on the difference in temperature at Monitoring Locations RSW-001U and RSW-001D when discharging at Discharge Point No. 001 and at Monitoring Locations RSW-002U and RSW-002D when discharging at Discharge Point No. 002.

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

17. Turbidity.

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

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

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

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

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

Compliance shall be determined based on the difference in turbidity at RSW-001U and RSW-001D when discharging at Discharge Point No. 001, and the difference in turbidity at RSW-002U and RSW-002D when discharging at Discharge Point No. 002.

B. Groundwater Limitations. Release of waste constituents from any storage, treatment, or disposal component associated with the facility, in combination with other sources, shall not cause the underlying groundwater to contain waste constituents greater than background quality or water quality objectives, whichever is greater.

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.

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 and Methylmercury. 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. 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.

e. Water Effects Ratios (WER) and Metal Translators. A default WER of 1.0 has been used in this Order for calculating criteria for applicable 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, except copper, lead and nickel for Discharge Point No. 001. 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. Electrical Conductivity, Boron, Sodium, and Chloride Study. The Discharger may elect to complete and submit a report on the results of a site-specific investigation of appropriate electrical conductivity, boron, sodium, and chloride levels to protect agricultural beneficial use in areas irrigated with water from the Willow Slough Bypass, Conaway Ranch Toe Drain, and/or Yolo Bypass diverted downstream from the discharge. If the Discharger completes a site-specific study, this Order may be reopened to revise the final effluent limitations for electrical conductivity and/or add final effluent limitations for boron, sodium, and chloride.

g. Drinking Water Policy. On 26 July 2013, the Central Valley Water Board adopted Resolution No. R5-2013-0098 amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board will consider

adoption of the Drinking Water Policy at a future meeting. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.

h. 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.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

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

i. Toxicity Reduction Evaluation (TRE) Workplan. Within 90 days of the effective date of this Order, the Discharger shall submit to the Central Valley Water Board a TRE Workplan for approval by the Executive Officer. Resubmission of a prior approved TRE Workplan, updated as necessary, is an acceptable means of complying with this requirement. The TRE Workplan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Workplan must be developed in accordance with USEPA guidance[1] and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision.

ii. Accelerated Monitoring and TRE Initiation. If 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

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

effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.

iii. 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.

iv. 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. **Electrical Conductivity, Boron, Sodium, and Chloride Study.** The Discharger may complete and submit a report on the results of a site-specific investigation of appropriate electrical conductivity, boron, sodium, and chloride levels to protect agricultural beneficial use in areas irrigated with water from the Willow Slough Bypass, Conaway Ranch Toe Drain, and/or Yolo Bypass diverted downstream from the discharge. If the Discharger decides that a study is appropriate, it shall determine the sodium adsorption ratio of soils in the affected area, the effects of rainfall and flood-induced leaching, and background water quality. The study shall evaluate how climate, soil chemistry, background water quality, rainfall, and flooding affect electrical conductivity, boron, sodium, and chloride requirements. Based on these factors, the study shall recommend site-specific numeric values for electrical conductivity, boron, sodium, and chloride that fully protect agricultural uses.

c. **Phase I 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.d), the Discharger shall continue to 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.

   The Discharger shall implement the Study in accordance with the workplan submitted to the Central Valley Water Board in April 2012. By **20 October 2015**, the Discharger shall submit a progress report to the Central Valley Water Board that documents progress towards complying with the Study workplan. The progress report must include an amended workplan for any additional studies needed to address methymercury reductions.

   By **20 October 2018**, the Discharger shall complete the Study and submit a final report to the Central Valley Water Board that presents the results and descriptions of the methylmercury control options, the preferred methylmercury controls, and proposed methylmercury management plan(s) (including implementation schedules), for achieving methylmercury allocations. 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. As feasible implementation measures are determined, the Discharger shall take action to reduce sources of methylmercury in the discharge.

3. Best Management Practices and Pollution Prevention

a. **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 workplan 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 workplan shall address the Exposure Reduction Program objective, elements, and the Discharger's coordination with the stakeholders. The minimum requirements for the exposure reduction workplan are outlined in the Fact Sheet (Attachment F, section VII.B.3.b). The Discharger shall integrate or, at 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 workplan within six months of Executive Officer approval.**

b. Salinity Evaluation and Minimization Plan. The Discharger shall update the salinity evaluation and minimization plan submitted to the Central Valley Water Board on 12 September 2008 to identify and address sources of salinity from the Facility. The updated plan shall include progress made regarding the recommendations included in the submitted plan for reducing salinity loading to the Facility by source control measures. Specifically, the updated plan shall report on education and outreach regarding use of water softeners in the community, removal or retrofit of existing water softeners, adoption of an ordinance to ban installation of water softeners in new construction, and any other measures to reduce sources of salinity. The updated plan shall be submitted to the Central Valley Water Board by **1 January 2014**. The Discharger shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to the Willow Slough Bypass and the Conaway Ranch Toe Drain. The annual reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, section IX.D.1).

4. Construction, Operation and Maintenance Specifications

a. Turbidity. Effective 25 October 2017, the Discharger shall operate the treatment system to ensure that turbidity prior to disinfection shall not exceed any of the following:

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

b. 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. Ponds may be used for short term storage of partially treated wastewater. A study modeling the effects of washout or inundation of the ponds may be completed to determine if constructing additional flood protection for ponds used for short term storage is necessary.

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. Ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the non-irrigation season. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Pretreatment Requirements

i. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 CFR Part 403, including any subsequent regulatory revisions to 40 CFR Part 403. Where 40 CFR Part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within 6 months from the issuance date of this permit or the effective date of the 40 CFR Part 403 revisions, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by USEPA or other appropriate parties, as provided in the CWA. USEPA may initiate enforcement action against a nondomestic user for noncompliance with applicable standards and requirements as provided in the CWA.

ii. The Discharger shall enforce the requirements promulgated under sections 307(b), 307(c), 307(d), and 402(b) of the CWA with timely, appropriate and effective enforcement actions. The Discharger shall cause all nondomestic users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements or, in the case of a new nondomestic user, upon commencement of the discharge.

iii. The Discharger shall perform the pretreatment functions as required in 40 CFR Part 403 including, but not limited to:

(a) Implement the necessary legal authorities as provided in 40 CFR 403.8(f)(1);

(b) Enforce the pretreatment requirements under 40 CFR 403.5 and 403.6;

(c) Implement the programmatic functions as provided in 40 CFR 403.8(f)(2); and

(d) Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3).

iv. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:

(a) Wastes which create a fire or explosion hazard in the treatment works;

(b) Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;

(c) Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;

(d) Any waste, including oxygen demanding pollutants (BOD, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;

(e) Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Central Valley Water Board approves alternate temperature limits;

(f) Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

(g) Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and

(h) Any trucked or hauled pollutants, except at points predesignated by the Discharger.

v. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage

system that, either alone or in conjunction with a discharge or discharges from other sources:

(a) Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or

(b) Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

b. Sludge/Biosolids 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 sewage 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 a mass or concentration that will violate groundwater limitations in section V.B. of this Order. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in section V.B. of this Order.

iv. The use, disposal, storage, and transportation of biosolids shall comply with existing federal and state laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503. If the State Water Board and the Central Valley Water Board are given the authority

to implement regulations contained in 40 CFR Part 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR Part 503 whether or not they have been incorporated into this Order.

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

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

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. Collection System. On 2 May 2006, the State Water Board adopted State Water Board Order 2006-0003-DWQ, Statewide General 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.

6. Other Special Provisions – Not Applicable

7. Compliance Schedules

a. Title 22, or Equivalent, Disinfection Requirements. By **25 October 2017**, wastewater discharged to Willow Slough Bypass and the Conaway Ranch Toe Drain shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the Department of Public Health (DPH) reclamation criteria, Title 22 CCR, Division 4, Chapter 3, (Title 22), or equivalent. Until final compliance, the Discharger shall submit progress reports in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1).

b. Compliance Schedules for Final Effluent Limitations for Ammonia, BOD_5, pH, Total Coliform Organisms, and TSS. This Order requires compliance with the final effluent limitations for ammonia, BOD_5, pH, total coliform organisms, and TSS by **25 October 2017**. The Discharger shall comply with the following time schedule to ensure compliance with the final effluent limitations:

Task	Date Due
i. Prepare CEQA for City Council approval for upgrade project	**1 November 2013**
ii. Request qualifications from Design Build teams	**1 November 2013**
iii. Publish Request for Proposals to selected Design Build teams	**1 December 2013**
iv. Award Design Build contract	**1 August 2014**
v. Initiate Construction Upgrade project	**1 October 2014**
vi. Complete Construction Upgrade project	**1 October 2017**
vii. Progress Reports[1]	**1 January**, annually
viii. Full Compliance	**25 October 2017**

[1] 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.

c. Compliance Schedule for Final Effluent Limitations for Electrical Conductivity. This Order requires compliance with the final effluent limitations for electrical conductivity by **1 January 2021**. The Discharger shall comply with the following time schedule to ensure compliance with the final effluent limitations.

Task	Date Due
i. Projected construction of Regional surface water supply project	**1 April 2014**
ii. Anticipated acceptance of new surface water supply source water	**1 April 2017**
iii. Evaluate effectiveness of surface water supply source water in reducing salinity in the Facility effluent discharge	**31 December 2018**
iv. Implement additional source control measures proposed in Salinity Minimization and Evaluation Plan	**1 June 2019**
v. Annual Progress Reports	**1 January, annually**
vi. Full Compliance	**1 January 2021**

d. 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. Implement CVCWA Coordinated Methylmercury Control Study Workplan	**Immediately following adoption of this Order**
ii. Submit CVCWA Coordinated Methylmercury Control Study Progress Report (per section VI.C.2.c)	**20 October 2015**
iii. Submit Mercury Exposure Reduction Workplan (per section VI.C.3.a)	**20 October 2013**
iv. Implement Mercury Exposure Reduction Workplan (per section VI.C.3.a)	**6 months following Executive Officer Approval**
v. Annual Progress Reports[1]	**20 October 2014** **20 October 2015** **20 October 2016** **20 October 2017**
vi. Submit Final CVCWA Coordinated Methylmercury Control Study	**20 October 2018[2]**
Phase 2	
vii. Implement Methylmercury Control Program	**TBD[3]**
viii. Full Compliance	**31 December 2030[3]**

[1] 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, sources of funding, and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.

[2] The Executive Officer may, after public notice, extend the due date for the Final CVCWA Coordinated Methylmercury Control Study 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.

[3] 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 (Section IV.A.1.a, IV.A.1.b, IV.A.2.a, and IV.A.2.b). Compliance with the final effluent limitations for BOD_5 and TSS required in Limitations and Discharge Requirements section IV.A.1.a and IV.A.2.a shall be ascertained by 24-hour composite samples. Compliance with effluent limitations required in Limitations and Discharge Requirements section IV.A.1.b and IV.A.2.b for percent removal shall be calculated using the arithmetic mean of BOD_5 and TSS in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

B. Aluminum Effluent Limitations (Section IV.A.1.a and IV.A.2.a). Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

C. Total Mercury Mass Loading Effluent Limitations (Section IV.A.1.i and IV.A.4.b). The procedures for calculating mass loadings are as follows :

1. The total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow. All 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 months.

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

D. Average Dry Weather Flow Effluent Limitations (Section IV.A.1.g and IV.A.2.g). The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitations will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).

E. Total Coliform Organisms Effluent Limitations (Section IV.A.1.f and IV.A.2.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.

F. Total Residual Chlorine Effluent Limitations (Section IV.A.1.d and IV.A.2.d). Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. A positive residual dechlorination agent in the effluent indicates that chlorine is not present in the discharge, which demonstrates compliance with the effluent limitations. This type of monitoring can also be used to prove that some chlorine residual exceedances are false positives. Continuous monitoring data showing either a positive dechlorination agent residual or a chlorine residual at or below the prescribed limit are sufficient to show compliance with the total residual chlorine effluent limitations, as long as the instruments are maintained and calibrated in accordance with the manufacturer's recommendations.

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

G. Mass Effluent Limitations. The mass effluent limitations contained in the Final Effluent Limitations IV.A.1.a and IV.A.2.a, and Interim Effluent Limitations IV.A.3.a, IV.A.4.a, and IV.A.4.b are based on the permitted average dry weather flow and calculated as follows:

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

If the effluent flow exceeds the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations contained in Final Effluent Limitations IV.A.1.a and IV.A.2.a, and Interim Effluent Limitations IV.A.3.a, IV.A.4.a, and IV.A.4.b shall not apply. If the effluent flow is below the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations do apply.

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 not detected (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.

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 <u>not</u> be deemed out of compliance.

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

J. Reporting Due Dates. Reporting requirements shall be in accordance with due dates specified in this Order. If the due date is on a Saturday, Sunday, State holiday, or a day the corresponding Water Board(s) office(s) is(are) closed, the due date shall be on the next business day.

K. Chlorpyrifos and Diazinon Effluent Limitations (Section IV.A.1.h and IV.A.2.h). 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.

L. 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

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 Resource s 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 Water Code 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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Method Detection Limit (MDL)
MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR Part 136, Appendix B, revised as of 14 May 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)
Pollutant minimization 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 PMP shall be prepared in accordance with section 2.4.5.1 of the SIP. 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 of the SIP.

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.

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.

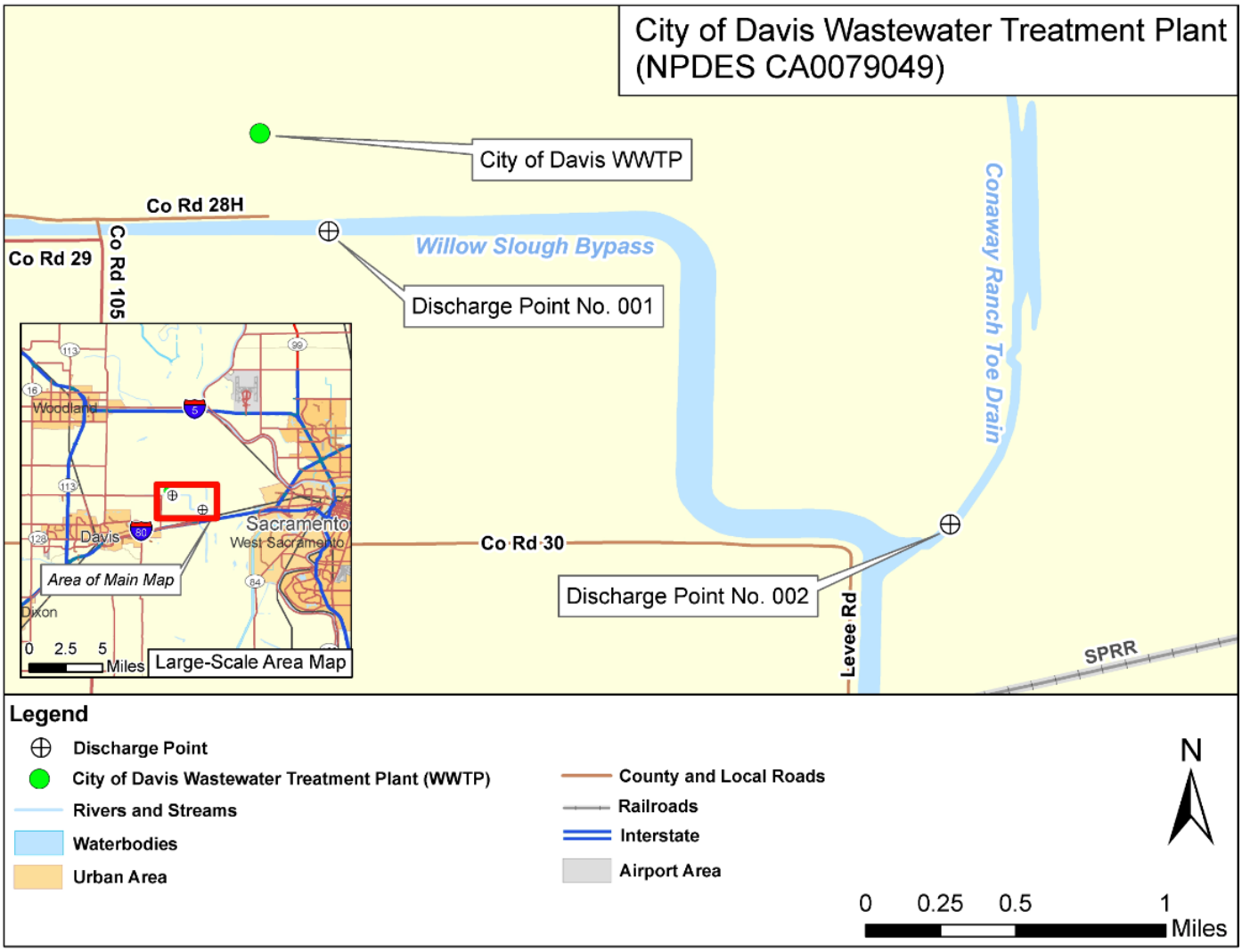
Standard Deviation (σ)
Standard Deviation is a measure of variability that is calculated as follows:

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

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

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

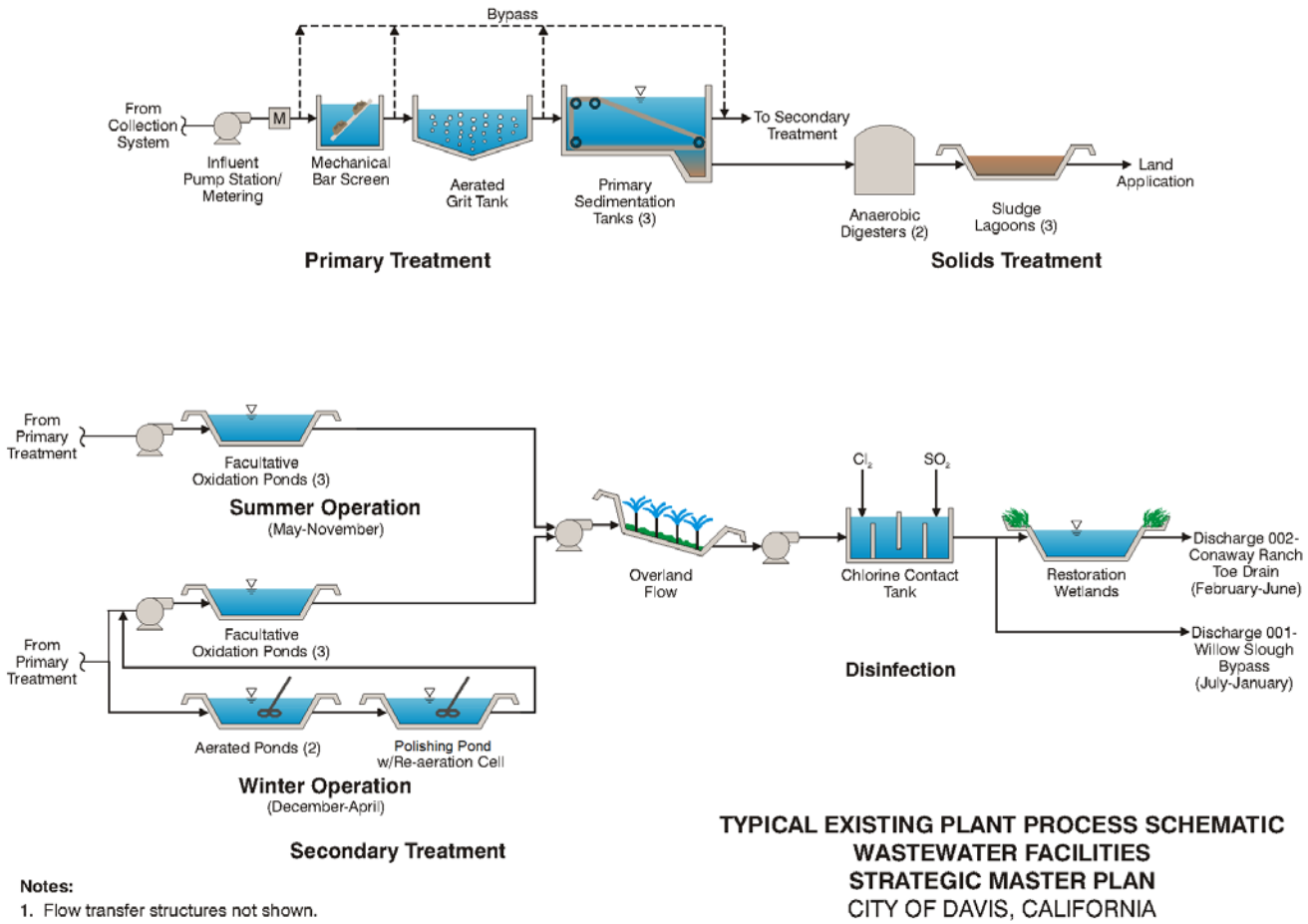
ATTACHMENT B – MAPS



SITE LOCATION MAP

CITY OF DAVIS
CITY OF DAVIS WASTEWATER TREATMENT PLANT
YOLO COUNTY

ATTACHMENT C – FLOW SCHEMATIC



Notes:
1. Flow transfer structures not shown.

TYPICAL EXISTING PLANT PROCESS SCHEMATIC
WASTEWATER FACILITIES
STRATEGIC MASTER PLAN
CITY OF DAVIS, CALIFORNIA

dav805f18-7011.cdr

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 122.41I)

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 122.41I.)

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 122.5I)

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)I)

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); Water 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 122.22I)

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))

The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under 40 CFR 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 CFR 122.41(l)(1)(ii))

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the previous 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. If discharge is not conducted at

either Discharge Point No. 001 or 002 for the entire year then calibration is required upon resumption of discharge.

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, after screening, where a representative sample of the influent into the Facility can be collected.
001 and 002	EFF-A	A location after effluent disinfection, prior to effluent being discharged to Discharge Point No. 001 or 002.
001	EFF-001	Downstream from the last connection through which wastes can be admitted to the outfall before being discharged to Willow Slough Bypass.
002	EFF-002	Downstream from the last connection through which wastes can be admitted to the outfall before being discharged to the Conaway Ranch Toe Drain.
--	RSW-001U	Willow Slough Bypass, 30 feet upstream of Discharge Point No. 001.
--	RSW-001D	Willow Slough Bypass, 200 feet downstream of Discharge Point No. 001.

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	RSW-002U	Conaway Ranch Toe Drain, 30 feet upstream of Discharge Point No. 002.
--	RSW-002D	Conaway Ranch Toe Drain, 375 feet downstream of Discharge Point No. 002.
--	RGW-001	Groundwater Monitoring Well 1
--	RGW-002	Groundwater Monitoring Well 2
--	RGW-003	Groundwater Monitoring Well 3
--	RGW-004	Groundwater Monitoring Well 4
--	RGW-005	Groundwater Monitoring Well 5
--	RGW-006	Groundwater Monitoring Well 6
--	RGW-XXX	Additional Groundwater Monitoring Wells subsequently installed per section VIII.B. of this Monitoring and Reporting Program
--	PND-INF	A location where a representative sample of the wastewater flow can be collected following primary sedimentation and prior to entering the pond system.
--	PND-EFF	A location where a representative sample of the wastewater flow can be collected following the pond system and prior to entering the overland flow system.
--	PND-001	Facultative Oxidation Pond 1
--	PND-002	Facultative Oxidation Pond 2
--	PND-003	Facultative Oxidation Pond 3
--	PND-004	Aeration Pond 1
--	PND-005	Aeration Pond 2
--	PND-006	Polishing Pond
--	SED-001	A location where a representative sample of the wetlands sediment can be obtained. Multiple samples may be taken and composited to provide a representative sample.
--	SPL-001	A composite of locations where representative samples of the municipal water supply can be obtained.
--	BIO-001	A composite of locations where representative samples of the biosolids 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	[1]
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[2]	3/Week	[1]
Total Suspended Solids	mg/L	24-hr Composite[2]	3/Week	[1]

[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] 24-hour flow proportional composite.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-A

1. The Discharger shall monitor disinfected effluent at Monitoring Location EFF-A as follows, when discharging to Discharge Point Nos. 001 or 002. 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. Where a CTR constituent is listed in Appendix 4 of the SIP, the reporting level specified in Attachment I must be achieved by the laboratory conducting the analysis.

Table E-3. Effluent Monitoring – Monitoring Location EFF-A

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)[1]	mg/L	24-hr Composite[2]	3/Week	[3]
	lbs/day	Calculate	3/Week	--
Total Suspended Solids[1]	mg/L	24-hr Composite[2]	3/Week	[3]
	lbs/day	Calculate	3/Week	--
Non-Conventional Pollutants				
Chlorine, Total Residual	mg/L	Meter	Continuous	[3,4]
Electrical Conductivity @ 25°C[1]	µmhos/cm	24-hr Composite[2]	3/Week	[3]
Total Coliform Organisms	MPN/100 mL	Grab	3/Week[5]	[3]
Turbidity[1, 6]	NTU	Meter	Continuous	[3]

[1] Prior to completion of the upgraded tertiary facility, BOD_5, TSS, and electrical conductivity may be monitored at EFF-001 and EFF-002 in lieu of EFF-A.
[2] 24-hour flow proportional composite.
[3] 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.
[4] Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L.
[5] Samples shall be collected downstream of the last chlorine addition, prior to dechlorination.
[6] Turbidity not required to be monitored until 25 October 2017. Turbidity shall be measured after tertiary filtration and prior to disinfection.

B. Monitoring Location EFF-001

1. The Discharger shall monitor treated wastewater at Monitoring Location EFF-001 when discharging to Discharge Point No. 001, as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level. Where a CTR constituent is listed in Appendix 4 of the SIP, the reporting level specified in Attachment I must be achieved by the laboratory conducting the analysis.

Table E-4. Effluent Monitoring – Monitoring Location EFF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	[1]
Conventional Pollutants				
pH	standard units	Meter	Continuous[2,3]	[1]
Priority Pollutants				
Cadmium, Total Recoverable	µg/L	Grab	1/Quarter	[1,4,5]
Copper, Total Recoverable	µg/L	Grab	1/Month	[1,4,5]
Cyanide, Total (as CN)	µg/L	Grab	1/Month	[1,4,5]
Mercury, Total Recoverable	µg/L	Grab	1/Month	[1,4,5,6]
Selenium, Total Recoverable	µg/L	Grab	1/Month	[1,4,5]
	lbs/day	Calculate	1/Month	--
Priority Pollutants and Other Constituents of Concern	µg/L	See Att. I	See Att. I	[1,4,5]
Non-Conventional Pollutants				
Aluminum, Total Recoverable	µg/L	Grab	1/Month	[1]
Ammonia Nitrogen, Total (as N)	mg/L	Grab	3/Week[2,7]	[1]
	lbs/day	Calculate	3/Week[2,7]	[1]
Chlropyrifos	mg/L	Grab	1/Year	[1]
Diazinon	mg/L	Grab	1/Year	[1]
Dissolved Oxygen	mg/L	Grab	1/Month	[1]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month[8]	[1]
Temperature	°C	Grab	1/Week[2,3]	[1]

[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] pH and temperature shall be recorded at the time of ammonia sample collection.
[3] 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.
[4] For priority pollutant constituents the reporting level shall be consistent with sections 2.4.2 and 2.4.3 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (See Attachment I, Table I-1).
[5] The maximum required Reporting Level is specified in Attachment I, Table I-1, Priority Pollutants and Other Constituents of Concern.
[6] Unfiltered methylmercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in USEPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by USEPA method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/L for methylmercury and 0.2 ng/L for total mercury.
[7] Concurrent with whole effluent toxicity monitoring.
[8] Hardness samples shall be collected concurrently with metals samples.

C. Monitoring Location EFF-002

1. The Discharger shall monitor treated wastewater at Monitoring Location EFF-002 when discharging to Discharge Point No. 002, as follows. If more than one analytical

test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level. Where a CTR constituent is listed in Appendix 4 of the SIP, the reporting level specified in Attachment I must be achieved by the laboratory conducting the analysis.

Table E-5. Effluent Monitoring – Monitoring Location EFF-002

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	[1]
Conventional Pollutants				
pH	standard units	Meter	Continuous[2,3]	[1]
Priority Pollutants				
Copper, Total Recoverable	µg/L	Grab	1/Month	[1,4,5]
Mercury, Total Recoverable	µg/L	Grab	1/Month	[1,4,5,6]
Selenium, Total Recoverable	µg/L	Grab	1/Month	[1,4,5]
	lbs/day	Calculate	1/Month	--
Priority Pollutants and Other Constituents of Concern	µg/L	See Att. I	See Att. I	[1,4,5]
Non-Conventional Pollutants				
Aluminum, Total Recoverable	µg/L	Grab	1/Month	[1]
Ammonia Nitrogen, Total (as N)	mg/L	Grab	3/Week[2,7]	[1]
	lbs/day	Calculate	3/Week[2,7]	[1]
Chlorpyrifos	mg/L	Grab	1/Year	[1]
Diazinon	mg/L	Grab	1/Year	[1]
Dissolved Oxygen	mg/L	Grab	1/Month	[1]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month[8]	[1]
Methylmercury	µg/L	Grab	1/Quarter	[1,6]
Temperature	°C	Grab	1/Week[2,3]	[1]

[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] pH and temperature shall be recorded at the time of ammonia sample collection.
[3] 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.
[4] The maximum required Reporting Level is specified in Attachment I, Table I-1, Priority Pollutants and Other Constituents of Concern.
[5] For priority pollutant constituents the reporting level shall be consistent with sections 2.4.2 and 2.4.3 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (See Attachment I, Table I-1).
[6] Unfiltered methylmercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in USEPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by USEPA method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/L for methylmercury and 0.2 ng/L for total mercury.
[7] Concurrent with whole effluent toxicity monitoring.
[8] Hardness samples shall be collected concurrently with metals samples.

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* – The Discharger may use flow-through, static non-renewal, or static renewal testing. For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001 or EFF-002 when discharging at Discharge Point No. 001 or 002, respectively.

3. *Test Species* – Test species shall be rainbow trout (*Oncorhynchus mykiss*).

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

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

6. *Ammonia Toxicity* – The acute toxicity testing may be modified to eliminate ammonia-related toxicity until 25 October 2017, at which time the Discharger shall be required to implement the test without modifications to eliminate ammonia toxicity.

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 grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001 or EFF-002 when discharging at Discharge Point No. 001 or 002, respectively. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001U when discharging at Discharge Point No. 001 and from Monitoring Location RSW-002U when discharging at Discharge Point No. 002, 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-6, below, unless use of an alternative diluent is detailed in the submitted TRE Action Plan, or when the receiving water is toxic.

Table E-6. Chronic Toxicity Testing Dilution Series

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

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

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

   b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not

exceed the monitoring trigger specified in the Special Provision at section VI.C.2.a.iii. of the Order.)

9. *Ammonia Toxicity* – The chronic toxicity testing may be modified to eliminate ammonia-related toxicity until 25 October 2017, at which time the Discharger shall be required to implement the test without modifications to eliminate ammonia toxicity.

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. 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 included in this Monitoring and Reporting Program that is any or part of the receiving water monitoring 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. 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, 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-001U, RSW-001D, RSW-002U, and RSW-002D

1. The Discharger shall monitor Willow Slough Bypass at Monitoring Locations RSW-001U and RSW-001D when discharging to Discharge Point No. 001, and shall monitor Conaway Ranch Toe Drain at Monitoring Locations RSW-002U and RSW-002D when discharging to Discharge Point No. 002, as follows:

Table E-7. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Conventional Pollutants				
pH	standard units	Grab	1/Week[1]	[2,3]
Priority Pollutants				
Priority Pollutants and	µg/L	See Att. I	See Att. I[4]	[2,5,6]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Other Constituents of Concern				
Non-Conventional Pollutants				
Dissolved Oxygen	mg/L	Grab	1/Week	[2,3]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[2,3]
Fecal Coliform Organisms	MPN/100 mL	Grab	1/Month	[2]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Quarter	[2,3]
Temperature	°F (°C)	Grab	1/Week[1]	[2,3]
Turbidity	NTU	Grab	1/Month	[2,3]

[1] pH and temperature shall be recorded at the time of ammonia sample collection.
[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] 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.
[4] Monitoring is only required at Monitoring Locations RSW-001U and RSW-002U.
[5] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 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.
[6] 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 reaches bounded by Monitoring Locations RSW-001U and RSW-001D for Willow Slough Bypass, and RSW-002U and RSW-002D for Conaway Ranch Toe Drain. Attention shall be given to the presence or absence of:

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

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

B. Monitoring Locations RGW-001, RGW-002, RGW-003, RGW-004, RGW-005, and RGW-006, and Subsequent Locations RGW-XXX

1. Prior to construction and/or beginning a sampling program of any new or replacement groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for approval. Once installed, all new

wells shall be added to the monitoring network (which currently consists of Monitoring Well Nos. RGW-001, RGW-002, RGW-003, RGW-004, RGW-005, and RGW-006) and shall be sampled and analyzed according to the schedule below. All samples shall be collected using approved EPA methods. Water table elevations shall be calculated to determine groundwater gradient and direction of flow.

2. Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Groundwater monitoring at the existing six wells, and any new groundwater monitoring wells shall include, at a minimum, the following:

Table E-8. Groundwater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Depth to Groundwater	±0.01 feet	Measurement	1/Quarter	--
Groundwater Elevation[1]	±0.01 feet	Calculated	1/Quarter	--
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Quarter	[2]
Total Dissolved Solids	mg/L	Grab	1/Quarter	[2]
pH	standard units	Grab	1/Quarter	[2]
Fecal Coliform Organisms	MPN/100 mL	Grab	1/Quarter	[2]
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Quarter	[2]
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Quarter	[2]
Metals and Minerals[3]	mg/L	Grab	1/Year	[2]
Total Trihalomethanes[4]	µg/L	Grab	1/Year	[2]

[1] Groundwater elevation shall be determined based on depth-to-water measurements from a surveyed measuring point elevation on the well. The groundwater elevation shall be used to calculate the direction and gradient of groundwater flow, which must be reported.

[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] Metals sampling shall include the following: aluminum, antimony, arsenic, cadmium, chromium III, chromium IV, copper, lead, mercury, nickel, silver, and zinc. Minerals shall include the following standard minerals: 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).

[4] Total trihalomethanes include bromoform, chloroform, chlorodibromomethane, and dichlorobromomethane.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

a. A composite sample of sludge shall be collected annually at Monitoring Location BIO-001 in accordance with EPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for all constituents necessary for acceptance at disposal site, and reported to EPA in the annual report.

b. Biosolids monitoring shall be conducted using the methods in T*est Methods for Evaluating Solid Waste, Physical/Chemical Methods* (EPA publication SW-846), as required in 40 CFR 503.8(b)(4). All results must be reported on a 100% dry weight basis. Records of all analyses must state on each page of the laboratory report whether the results are expressed in "100% dry weight" or "as is".

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. Pond Monitoring Requirements

1. The Discharger shall monitor the influent and effluent from the treatment ponds at Monitoring Locations PND-INF and PND-EFF as follows:

Table E-9. Pond Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Month	[1]
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Month	[1]
Nitrite Nitrogen, Total (as N)	mg/L	Grab	1/Month	[1]
Total Kjeldahl Nitrogen (as N)	mg/L	Grab	1/Month	[1]

[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. The Discharger shall record the freeboard (measured in feet) and the levee condition (by observation) on a weekly basis, for each of the three facultative oxidation ponds, two aerated ponds, and the polishing pond (PND-001 through PND-006). Additionally, the Discharger shall record the dissolved oxygen concentration (in mg/L) on a weekly basis; the Discharger may obtain a sample from one pond, which will be representative of PND-001 through PND-006, with a sampling protocol to obtain a representative sample from PND-001 through PND-006 at least once during the term of this Order. Finding must be reported in the monthly self-monitoring reports required in section X.B of this Monitoring and Reporting Program.

C. Wetlands Sediment and Wildlife Monitoring

1. Composite sediment samples shall be taken during the winter bird nesting season (February through June) from the upper 2 to 3 inches of wetlands sediments. Sediment samples shall be collected from the wastewater and stormwater tracts every year during February through June. The odd numbered tracts shall be sampled in odd numbered years and the even numbered tracts shall be sampled in even numbered years. The Discharger shall monitor sediment at Monitoring Location SED-001 as follows:

Table E-10. Wetlands Sediment Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Selenium, Total Recoverable	mg/kg	Grab	1/Year	[1]
Nitrate, Nitrogen Total (as N)	mg/kg	Grab	1/Year	[1]
Nitrite, Nitrogen Total (as N)	mg/kg	Grab	1/Year	[1]
Metals[2]	mg/kg	Grab	1/Year	[1]

[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] Metal sampling shall include aluminum, antimony, arsenic, cadmium, chromium III, chromium VI, copper, lead, mercury, nickel, silver, and zinc.

2. Wildlife monitoring shall consist of a wildlife census and avian egg monitoring. The census shall be conducted on an established transect that is representative of the wetlands. The survey's focus shall be on aquatic birds, but incidental observations of other wildlife species shall also be recorded. The census shall be conducted every month throughout the year. Avian eggs shall be collected and evaluated for selenium content annually from February through June. The program shall monitor at least one shorebird and one waterfowl species. A minimum of 10 eggs per species shall be collected unless there are fewer than 10 nests per species. In no case shall more than one egg per sample nest be collected. Egg sampling shall take place in representative locations throughout the wetlands. The Discharger shall report the geometric mean selenium concentration in avian eggs in µg/g (dry weight basis).

D. Municipal Water Supply Monitoring

1. Monitoring Location SPL-001

The Discharger shall monitor the municipal water supply at Monitoring Location SPL-001 as follows. Publicly available data may be used in lieu of the monitoring established in Table E-11 below to demonstrate the average quality of the water supply.

Table E-11. 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 all major cations and anions and include verification that the analysis is complete (i.e., cation/anion balance).

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

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

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

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

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-12. 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	First day of calendar month through last day of	First day of second

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
	date	calendar month	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 (of following year)

3. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current laboratory's 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 Minimum Level (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 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 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, 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, 002, 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. Annual Average Limitations. For constituents with effluent limitations specified as “annual average” (aluminum and electrical conductivity) the Discharger shall report the annual average in the Annual SMR. The annual average shall be calculated as the average of the samples gathered for the calendar year.

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

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

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

c. 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.

d. **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.E of the Limitations and Discharge Requirements.

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

f. **Turbidity Receiving Water Limitations.** The Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in section V.A.17.a-e. of the Limitations and Discharge Requirements.

g. **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-001U and RSW-001D when discharging at Discharge Point No. 001 and Monitoring Locations RSW-002U and RSW-002D when discharging at Discharge Point No. 002.

h. **Chlorpyrifos and Diazinon Effluent Limitations.** 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 and consistent with the Compliance Determination language specified in section VII.K.

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

7. **The Discharger shall submit eSMRs 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 include a cover letter with the eSMR. 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. 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-13. Reporting Requirements for Special Provisions Reports

Special Provision	Reporting Requirements
Mercury Exposure Reduction Workplan (Section VI.C.3.a)	**20 October 2013**
Mercury/Methylmercury Controls, Progress Reports (Sections VI.C.7.d of this Order)	**20 October 2014** **20 October 2015** **20 October 2016** **20 October 2017**
Salinity Evaluation and Minimization Plan, Submit Plan (Section VI.C.3.b of this Order)	**1 January 2014**

Special Provision	Reporting Requirements
Salinity Evaluation and Minimization Plan, Progress Reports (Section VI.C.3.b of this Order)	**1 January**, annually
Compliance Schedule for Title 22, or Equivalent, Disinfection Requirements, Progress Reports (Section VI.C.7.a of this Order)	**1 January**, annually, until final compliance
Central Valley Clean Water Association Coordinated Methylmercury Control Study, Progress Report (Section VI.C.7.d of this Order)	**20 October 2015**

2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, PMP, and Pollution Prevention Plan 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 (RLs), method detection limits, and analytical methods for approval. The Discharger shall comply with the monitoring and reporting requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP. The maximum required reporting levels for priority pollutant constituents shall be based on the Minimum Levels (MLs) contained in Appendix 4 of the SIP, determined in accordance with section 2.4.2 and section 2.4.3 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 next permit renewal. The Discharger shall conduct bi-monthly monitoring of the effluent during the third year of the permit term at Monitoring Locations EFF-001 and EFF-002 and of the receiving water at Monitoring Locations RSW-001U and RSW-002U 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.

Task	Compliance Date
i. Submit Workplan and Time Schedule	No later than 2 years 6 months from adoption of this Order
ii. Conduct effluent and receiving water monitoring in accordance with Attachment I of this Order	Bimonthly (i.e., January, March, May, July, September, and November) during the third year of the permit term
iii. Submit Final Report	6 months following completion of final monitoring event

5. **Annual Operations Report.** By 30 January of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

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

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

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

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

   e. The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

6. **Annual Pretreatment Reporting Requirements.** The Discharger shall submit annually a report to the Central Valley Water Board, with copies to USEPA Region 9 and the State Water Board, describing the Discharger's pretreatment activities over the previous 12 months (1 January through 31 December). In the event that the Discharger is not in compliance with any conditions or requirements of this Order, including noncompliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements.

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

   a. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent for those pollutants USEPA has identified under section 307(a) of the CWA which are known or suspected to be discharged by nondomestic users. This will consist of an annual full priority pollutant scan. The Discharger is not required to sample and analyze for asbestos. The Discharger shall submit the results of the annual priority pollutant scan electronically to the Central Valley Water Board using the State Water Board's CIWQS Program Website.

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

   b. A discussion of Upset, Interference, or Pass-Through incidents, if any, at the treatment plant, which the Discharger knows or suspects were caused by nondomestic users of the POTW. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of, nondomestic user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent Pass-Through, Interference, or noncompliance with sludge disposal requirements.

   c. The cumulative number of nondomestic users that the Discharger has notified regarding Baseline Monitoring Reports and the cumulative number of nondomestic user responses.

d. An updated list of the Discharger's significant industrial users (SIUs) including their names and addresses, or a list of deletions, additions, and SIU name changes keyed to a previously submitted list. The Discharger shall provide a brief explanation for each change. The list shall identify the SIUs subject to federal categorical standards by specifying which set(s) of standards are applicable to each SIU. The list shall indicate which SIUs, or specific pollutants from each industry, are subject to local limitations. Local limitations that are more stringent than the federal categorical standards be identified.

e. The Discharger shall characterize the compliance status through the year of record of each SIU by employing the following descriptions:

i. complied with baseline monitoring report requirements (where applicable);

ii. consistently achieved compliance;

iii. inconsistently achieved compliance;

iv. significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);

v. complied with schedule to achieve compliance (include the date final compliance is required);

vi. did not achieve compliance and not on a compliance schedule; and

vii. compliance status unknown.

f. A report describing the compliance status of each SIU characterized by the descriptions in items iii. through vii. above shall be submitted for each calendar quarter by the **first day of the second month of the end of the quarter**. The report shall identify the specific compliance status of each such SIU and shall also identify the compliance status of the POTW with regards to audit/pretreatment compliance inspection requirements. If none of the aforementioned conditions exist, at a minimum, a letter indicating that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter must be submitted. The information required in the fourth quarter report shall be included as part of the annual report due every **28 February**. This quarterly reporting requirement shall commence upon issuance of this Order.

g. A summary of the inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding the SIUs. The summary shall include:

i. The names and addresses of the SIUs subjected to surveillance and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and

ii. The conclusions or results from the inspection or sampling of each industrial user.

h. The Discharger shall characterize the compliance status of each SIU by providing a list or table which includes the following information:

i. Name of SIU;

ii. Category, if subject to federal categorical standards;

iii. The type of wastewater treatment or control processes in place;

iv. The number of samples taken by the POTW during the year;

v. The number of samples taken by the SIU during the year;

vi. For an SIU subject to discharge requirements for total toxic organics, whether all required certification were provided;

vii. A list of the standards violated during the year. Identify whether the violations were for categorical standards or local limits;

viii. Whether the facility is in significant noncompliance (SNC) as defined at 40 CFR 403.8(f)(2)(viii) at any time during the year;

ix. A summary of enforcement or other actions taken during the year to return the SIU to compliance. Describe the type of action (e.g., warning letters or notices of violation, administrative orders, civil actions, and criminal actions), final compliance date, and the amount of fines and penalties collected, if any. Describe any proposed actions for bringing the SIU into compliance;

x. Restriction of flow to the POTW; and

xi. Disconnection from discharge to the POTW.

i. A brief description of any programs the POTW implements to reduce pollutants from nondomestic users that are not classified as SIUs.

j. A brief description of any significant changes in operating the pretreatment program which differ from the previous year, including but not limited to, changes concerning: the program's administrative structure, local limits, monitoring program or monitoring frequencies, legal authority, enforcement policy, funding levels, or staffing levels.

k. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.

l. A summary of activities to involve and inform the public of the program including a copy of the newspaper notice, if any, required under 40 CFR 403.8(f)(2)(viii).

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

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

and the

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

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	5A570100001
Discharger	City of Davis
Name of Facility	Wastewater Treatment Plant
Facility Address	45400 County Road 28H
	Davis, CA 95616
	Yolo County
Facility Contact, Title and Phone	Stan Gryczko, Wastewater Treatment Plant Superintendent, (530) 747-8292
Authorized Person to Sign and Submit Reports	Stan Gryczko, Wastewater Treatment Plant Superintendent, (530) 747-8292
Mailing Address	23 Russell Blvd., Davis, CA 95616
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	Yes
Reclamation Requirements	Not Applicable
Facility Permitted Flow	7.5 million gallons per day (MGD) (average dry weather flow)
Facility Design Flow	7.5 MGD (average dry weather flow)
Watershed	Sacramento Watershed
Receiving Water	Willow Slough Bypass and Conaway Ranch Toe Drain
Receiving Water Type	Inland Surface Water

A. The City of Davis (hereinafter Discharger) is the owner and operator of the City of Davis Wastewater Treatment Facility (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.

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 Willow Slough Bypass and Conaway Ranch Toe Drain, both waters of the United States, and was regulated by Order R5-2007-0132-02 which was adopted on 25 October 2007, amended on 5 February 2009 and 23 September 2010, and expired on 1 October 2012. The terms and conditions of Order R5-2007-0132-02 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 4 April 2012. Supplemental information was submitted on 25 September 2012. A site visit was conducted on 13 June 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 Davis and serves a population of approximately 66,000. The design daily average dry weather flow capacity of the Facility is 7.5 MGD.

A. Description of Wastewater and Biosolids Treatment or Controls

The treatment system at the Facility includes a headworks with a mechanical bar screen, an aerated grit tank, three primary sedimentation tanks, three facultative oxidation ponds, two aerated ponds, a polishing pond, an overland flow system, disinfection, and dechlorination for both Discharge Point Nos. 001 and 002. Discharge Point No. 002 additionally passes through treatment wetlands after disinfection and dechlorination.

Operation of the treatment system varies depending on season. During the summer, wastewater from the primary sedimentation tanks is discharged to the facultative oxidation ponds, which are operated in parallel. During the winter, a portion of the wastewater from the sedimentation tanks is discharged to the aerated ponds, operated in series, and then to the polishing pond. Effluent from the polishing pond is then blended with the remainder of the wastewater from the primary sedimentation tanks and routed to the facultative oxidation ponds, with Ponds 2 and 3 operated in parallel and Pond 1 receiving effluent from the other two. Effluent from the oxidation ponds is then pumped to the overland flow system. The overland flow system consists of 160 acres divided into 15 cells. Wastewater is sprayed onto the vegetation in the overland flow system, which is sloped toward a common return channel and routed to the chlorine contact tank. Wastewater collected in the return channel flows through a mesh screen prior to entering the chlorine contact tank. During the summer months, effluent from the chlorine contact chamber is then discharged to the Willow Slough Bypass at Discharge Point No. 001. During the winter months, effluent from the chlorine contact chamber is discharged to the Conaway Ranch Toe Drain, via the restoration wetlands, at Discharge Point No. 002.

The wetlands include a wastewater tract, a stormwater tract, and seven numbered tracts, each constructed with flexibility to flow to adjacent downgradient cells. The routine wastewater treatment flow is through the wastewater tract, tract 6, and tract 7 before being discharged at Discharge Point No. 002. The wetlands have the ability to recirculate the treated flow.

Sludge is anaerobically digested in two anaerobic digesters and dewatered in one of three sludge lagoons. Dried biosolids are hauled to a landfill.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 29 and 30, T9N, R3E, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated municipal wastewater is discharged at Discharge Point No. 001 to Willow Slough Bypass, a water of the United States, at a point latitude 38° 35' 24" N and longitude 121° 39' 50" W. Willow Slough Bypass is part of the Yolo Bypass.

3. Treated municipal wastewater is discharged at Discharge Point No. 002 to the Conaway Ranch Toe Drain, a water of the United States, at a point latitude 38° 34' 33" N and longitude 121° 38' 02" W. The Conaway Ranch Toe Drain is within the Yolo Bypass.

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

Effluent limitations contained in Order R5-2007-0132-02 for discharges from Discharge Point Nos. 001 (Monitoring Locations EFF-A and EFF-001) and 002 (Monitoring Locations EFF-A and EFF-002) and representative monitoring data from the term of Order R5-2007-0132-02 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data – Discharge Point No. 001

Parameter	Units	Effluent Limitation			Monitoring Data (From December 2007 To December 2012)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	--	--	7.5[1]	--	--	8.7
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30[2]	45[2]	90[2]	24	34	39
	mg/L	10[3]	15[3]	20[3]	NA	NA	NA
	lbs/day[4]	1,876[2]	2,815[2]	5,633[2]	983	1,160	1,525
	lbs/day[4]	630[3]	940[3]	1,300[3]	NA	NA	NA
	% Removal	85[3]	--	--	NR	--	--
Total Suspended Solids	mg/L	50[2]	75[2]	150[2]	55	64	82
	mg/L	10[3]	15[3]	20[3]	NA	NA	NA
	lbs/day[4]	3,129[2]	4,694[2]	9,388[2]	2,797	2,589	3,384

Parameter	Units	Effluent Limitation			Monitoring Data (From December 2007 To December 2012)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
	lbs/day[4]	630[3]	940[3]	1,300[3]	NA	NA	NA
	% Removal	85[3]	--	--	NR	--	--
pH	standard units	--	--	6.5 – 8.5[2]	--	--	6.8 – 8.0
		--	--	6.5 – 8.0[3]	--	--	NA
Settleable Solids	mL/L	0.1	--	0.2	<0.1	--	0.2
Turbidity	NTU	--	5[3,5]	10[3,6]/2[3,7]	--	NA	NA
Total Coliform Organisms	MPN/100mL	--	--	500[2,6]	--	--	900[8]
	MPN/100mL	23[3,9]	2.2[3,10]	240[3,6]	NA	NA	NA
Aluminum, Total Recoverable	µg/L	--	--	2,200[2]	--	--	1,270
	µg/L	71[3]	--	140[3]	NA	--	NA
Ammonia Nitrogen, Total (as N)	mg/L	--	--	20.5[2]	--	--	12
	mg/L	1.6[11]	--	3.8[11]	NA	--	NA
	mg/L	2.2[12]	--	3.3[12]	NA	--	NA
	lbs/day[4]	--	--	1,280[2]	--	--	532
	lbs/day[4]	100[11]	--	240[11]	NA	--	NA
	lbs/day[4]	140[12]	--	210[12]	NA	--	NA
Cyanide	µg/L	--	--	9.6[13]	--	--	6.7
	µg/L	3.8[14]	--	9.5[14]	NA	--	NA
Iron, Total Recoverable	mg/L	--	--	4.0[2]	--	--	2.7
	mg/L	0.8[3]	--	2.0[3]	NA	--	NA
Selenium, Total Recoverable	mg/L	--	--	7.1[13]	--	--	6.0
	mg/L	4.4[14]	--	7.1[14]	NA	--	NA
	lbs/day[4]	--	--	0.44[13]	--	--	
	lbs/day[4]	0.28[14]	--	0.44[14]	NA	--	NA
Mercury	lbs/month	0.038[15]	--	--	NR	--	--
Temperature	°F	--	--	20[16]	--	--	4.1[17]
Total Residual Chlorine	mg/L	--	0.01[18]	0.02[19]	--	--	<0.01[8]
Electrical Conductivity @ 25°C	µmhos/cm	2,050[20]	--	--	1,820[21]	--	--
Acute Toxicity	% Survival	--	--	[22]	--	--	100[23]

Parameter	Units	Effluent Limitation			Monitoring Data (From December 2007 To December 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] The average dry weather flow shall not exceed 7.5 MGD as a total from Discharge Point Nos. 001 and 002.
[2] Interim effluent limitation effective until 25 October 2017.
[3] Final effluent limitation effective on 26 October 2017.
[4] Based upon a design treatment capacity of 7.5 MGD.
[5] Not to be exceeded more than 5 percent of the time within a 24-hour period.
[6] Not to be exceeded at any time.
[7] Applied as a daily average effluent limitation.
[8] Reported at Monitoring Location EFF-A
[9] Not to be exceeded more than once in any 30-day period.
[10] Applied as a 7-day median effluent limitation.
[11] Final effluent limitation effective from 1 March through 31 October starting on 26 October 2017.
[12] Final effluent limitation effective from 1 November through 29 February starting on 26 October 2017.
[13] Interim effluent limitation effective until 18 May 2010.
[14] Final effluent limitation effective on 19 May 2010.
[15] The total monthly mass discharge shall not exceed 0.038 lbs/month.
[16] The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.
[17] Represents the maximum observed temperature difference between the effluent and upstream receiving water.
[18] Applied as a 4-day average effluent limitation.
[19] Applied as a 1-hour average effluent limitation.
[20] Applied as an interim annual average effluent limitation.
[21] Represents the maximum reported annual average.
[22] 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%
[23] Represents the minimum value reported.

Table F-3. Historic Effluent Limitations and Monitoring Data – Discharge Point No. 002

Parameter	Units	Effluent Limitation			Monitoring Data (From December 2007 To December 2012)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	--	--	7.5[1]	--	--	9.4
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30[2]	45[2]	90[2]	14	21	22
	mg/L	10[3]	15[3]	20[3]	NA	NA	NA
	lbs/day[4]	1,876[2]	2,815[2]	5,633[2]	806	1,239	1,286
	lbs/day[4]	630[3]	940[3]	1,300[3]	NA	NA	NA
	% Removal	85[3]	--	--	NR	--	--

Parameter	Units	Effluent Limitation			Monitoring Data (From December 2007 To December 2012)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Total Suspended Solids	mg/L	50[2]	75[2]	150[2]	34	54	59
	mg/L	10[3]	15[3]	20[3]	NA	NA	NA
	lbs/day[4]	3,129[2]	4,694[2]	9,388[2]	1,549	2,619	2,906
	lbs/day[4]	630[3]	940[3]	1,300[3]	NA	NA	NA
	% Removal	85[3]	--	--	NR	--	--
pH	standard units	--	--	6.5 – 8.0[2]	--	--	6.5 – 8.4
		--	--	6.5 – 8.0[3]	--	--	NA
Settleable Solids	mL/L	0.1	--	0.2	<0.1	--	0.1
Turbidity	NTU	--	5[3,5]	10[3,6]/2[3,7]	--	NA	NA
Total Coliform Organisms	MPN/100mL	--	--	500[2,6]	--	--	900[8]
	MPN/100mL	23[3,9]	2.2[23,10]	240[3,6]	NA	NA	NA
Aluminum, Total Recoverable	µg/L	--	--	6,500[2]	--	--	2,500
	µg/L	71[3]	--	140[3]	NA	--	NA
Ammonia Nitrogen, Total (as N)	mg/L	--	--	13.2[2]	--	--	7.7
	mg/L	2.1[11]	--	7.8[11]	NA	--	NA
	mg/L	2.9[12]	--	5.6[12]	NA	--	NA
	lbs/day[4]	--	--	826[2]	--	--	387
	lbs/day[4]	130[11]	--	300[11]	NA	--	NA
	lbs/day[4]	180[12]	--	350[12]	NA	--	NA
Copper	µg/L	16	--	34	13	--	40
Iron, Total Recoverable	mg/L	--	--	14.0[2]	--	--	4.2
	mg/L	0.8[3]	--	2.0[3]	NA	--	NA
Selenium, Total Recoverable	mg/L	--	--	7.2[13]	--	--	3.8
	mg/L	4.4[14]	--	7.2[14]	NA	--	NA
	lbs/day[4]	--	--	0.45[13]	--	--	
	lbs/day[4]	0.28[14]	--	0.45[14]	NA	--	NA
Mercury	lbs/month	0.038[15]	--	--	NR	--	--
Temperature	°F	--	--	20[16]	--	--	5.58[17]
Total Residual Chlorine	mg/L	--	0.01[18]	0.02[19]	--	--	<0.01[8]
Electrical Conductivity @ 25°C	µmhos/cm	2,050[20]	--	--	2,080[21]	--	--
Acute Toxicity	% Survival	--	--	[22]	--	--	100[23]

Parameter	Units	Effluent Limitation			Monitoring Data (From December 2007 To December 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] The average dry weather flow shall not exceed 7.5 MGD as a total from Discharge Point Nos. 001 and 002.
[2] Interim effluent limitation effective until 25 October 2017.
[3] Final effluent limitation effective on 26 October 2017.
[4] Based upon a design treatment capacity of 7.5 MGD.
[5] Not to be exceeded more than 5 percent of the time within a 24-hour period.
[6] Not to be exceeded at any time.
[7] Applied as a daily average effluent limitation.
[8] Reported at Monitoring Location EFF-A
[9] Not to be exceeded more than once in any 30-day period.
[10] Applied as a 7-day median effluent limitation.
[11] Final effluent limitation effective from 1 March through 31 October starting on 26 October 2017.
[12] Final effluent limitation effective from 1 November through 29 February starting on 26 October 2017.
[13] Interim effluent limitation effective until 18 May 2010.
[14] Final effluent limitation effective on 19 May 2010.
[15] The total monthly mass discharge shall not exceed 0.038 lbs/month.
[16] The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.
[17] Represents the maximum observed temperature difference between the effluent and upstream receiving water
[18] Applied as a 4-day average effluent limitation.
[19] Applied as a 1-hour average effluent limitation.
[20] Applied as an interim annual average effluent limitation.
[21] Represents the maximum reported annual average.
[22] 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%
[23] Represents the minimum value reported.

D. Compliance Summary

1. The Central Valley Water Board issued Administrative Civil Liability (ACL) Complaint No. R5-2010-0550 on 4 November 2010 which proposed to assess a civil liability of $3,000 against the Discharger for one chlorine residual effluent violation which occurred during the period from 1 April 2008 through 31 July 2010. The Discharger paid the mandatory minimum penalty of $3,000.

2. The Central Valley Water Board issued ACL Complaint No. R5-2008-0601 on 12 December 2008 which proposed to assess a civil liability of $12,000 against the Discharger for four effluent violations for chlorine residual, total suspended solids (TSS), total coliform organisms, and selenium from 1 January 2000 through 31 March 2008. The Discharger paid the mandatory minimum penalty of $12,000.

3. A compliance inspection of the Facility was conducted on 30 May 2012. There were no major findings from the inspection.

4. A compliance inspection of the Facility was conducted on 22 April 2011. There were no major findings from the inspection.

5. A compliance inspection of the Facility was conducted on 25 November 2009. There were no major findings from the inspection.

6. A compliance inspection of the Facility was conducted on 22 January 2009. Major findings from the inspection include the following:

   a. The Discharger reported dissolved oxygen concentrations below the minimum of 7.0 mg/L required by section V.A.5.c in Order R5-2007-0132 seven times at both Monitoring Locations RSW-001U and RSW-001D from September through November 2008.

   b. The Discharger reported receiving water fecal coliform concentrations based on a minimum of no less than five samples for any 30-day period above the geometric mean of 200 MPN/100 mL, as required by section V.A.1 in Order R5-2007-0132. The Discharger reported that on 7 October 2008 and 5 November 2008, the fecal coliform concentrations exceeded the effluent limitation.

   c. The Discharger failed to report total ammonia samples on 7 October and 26 October 2008, resulting in less than five samples in a week as required by section IV.B in Order R5-2007-0132. The Discharger explained in the self-monitoring report (SMR) cover letter that the missing samples were due to laboratory error.

E. Planned Changes

Currently, the Discharger is in the process of upgrading the Facility to provide a tertiary level of treatment to wastewater. The proposed upgrade will include activated sludge and tertiary filters to achieve compliance with final effluent limitations. The Facility upgrades are expected to be online by 25 October 2017. The capacity of the planned upgrades may be constructed in a phased approach due to reductions in inflow/infiltration and water conservation efforts. If the upgrades are constructed in phases, the Design Flow may be less than the Permitted Flow, and the Permitted Flow of 7.5 MGD ADWF (as shown in Table F-1) will be preserved for future phases.

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)

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. 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 (RPA) 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. The State Water Board Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities, does not require facilities to obtain coverage if storm water is captured and treated and/or disposed of with the facility's NPDES permitted process wastewater or if storm water is disposed of to evaporation ponds, percolation ponds, or combined sewer systems. The Discharger indicated during a 24 May 2012 site visit that the Facility captures and treats all storm water that falls on-site. Therefore, coverage under the General Storm Water Permit is not required.

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 Willow Slough Bypass is listed as a WQLS for boron, *Escherichia coli* (*E. coli*), and fecal coliform organisms. The Conaway Ranch Toe Drain and the Yolo Bypass are not listed as impaired on the 2010 303(d) List. The northern boundary of the legal Delta crosses the Yolo Bypass to the south of the Facility and Discharge Point Nos. 001 and 002. However, when the Yolo Bypass is flooded, it is considered part of the Delta Waterways (northern portion) WQLS. The listing for the Delta Waterways (northern portion) includes: chlordane, chlorpyrifos, DDT, diazinon, dieldrin, group A pesticides, invasive species, mercury, polychlorinated biphenyls (PCBs), and unknown toxicity. In accordance with the Sacramento-San Joaquin Delta Diazinon and Chlorpyrifos TMDL and the Sacramento-San Joaquin Delta Methylmercury TMDL, waste load allocations for diazinon and chlorpyrifos, and methylmercury are included in this Order for Discharge Point Nos. 001 and 002.

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-4 and F-5, below, for each specific pollutant. The proposed TMDL completion date will be updated when the next 303(d) list is updated.

Table F-4. 303(d) List for Willow Slough Bypass – Discharge Point No. 001

Pollutant	Potential Sources	Proposed TMDL Completion
Boron	Agricultural; Natural	2021
Escherichia coli (*E. coli*)	Agricultural; Source Unknown	2021
Fecal Coliform Organisms	Source Unknown	2021

Table F-5. 303(d) List for Delta Waterways (northern portion) including Willow Slough Bypass and Conaway Ranch Toe Drain

Pollutant	Potential Sources	Proposed TMDL Completion
Chlordane	Agriculture	2011
Chlorpyrifos	Agriculture/ Urban Runoff	Approved 10 October 2007
DDT (Dichlorodiphenyltrichloroethane)	Agriculture	2011
Diazinon	Agriculture/ Urban Runoff	Approved 10 October 2007
Dieldrin	Agriculture	2011

Pollutant	Potential Sources	Proposed TMDL Completion
Invasive Species	Unknown	2019
Organo-chlorine Group A Pesticides	Agriculture	2011
Mercury	Resource Extraction	Approved 20 October 2011
Polychlorinated Biphenyls (PCBs)	Unknown	2019
Unknown Toxicity	Unknown	2019

3. The 303(d) listings and TMDLs have been considered in the development of this 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. The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 *et seq* (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:

a. The waste consists primarily of domestic sewage and treated effluent;

b. The waste discharge requirements are consistent with water quality objectives; and

c. The oxidation ponds, aerated ponds, polishing pond, overland flow system, and wetlands are necessary treatment components of the Facility's wastewater treatment plant.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the 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 R5-2007-0132-02.

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 R5-2007-0132-02.

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 R5-2007-0132-02.

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. This prohibition is retained from Order R5-2007-0132-02.

B. Technology-Based Effluent Limitations

1. Scope and Authority

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

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

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

Based on this statutory requirement, USEPA developed secondary treatment regulations, which are specified in 40 CFR Part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of 5-day biochemical oxygen demand (BOD_5), 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. This Order establishes WQBELs that are more stringent than the secondary technology-based treatment described in 40 CFR Part 133 and are necessary to protect the beneficial uses of the receiving stream. (See section IV.C.3.c.x. of this Fact Sheet for the discussion on WQBELs for BOD_5 and TSS.) 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. The Facility was designed to provide an equivalent to secondary level of treatment for up to an average dry weather design flow of 7.5 MGD. Therefore, this Order contains an average dry weather discharge flow effluent limit of 7.5 MGD as a total from Discharge Point Nos. 001 and 002.

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 Nos. 001 and 002

Table F-6. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	--	--	7.5[1]	--	--
Biochemical Oxygen Demand (5-day @ 20°C)[2]	mg/L	30	45	--	--	--
	lbs/day[3]	1,877	2,815	--	--	--
	% Removal	85	--	--	--	--
pH[2]	standard units	--	--	--	6.0	9.0

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Suspended Solids[2]	mg/L	30	45	--	--	--
	lbs/day[3]	1,877	2,815	--	--	--
	% Removal	85	--	--	--	--

1 The average dry weather discharge flow shall not exceed 7.5 MGD as a total from Discharge Point Nos. 001 and 002.

2 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 of this Fact Sheet).

3 Based on an average daily discharge of 7.5 MGD.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. 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.c 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 131.3I, 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

Willow Slough Bypass and the Yolo Bypass were constructed together as part of the Sacramento River Flood Control Project by the US Army Corps of Engineers between 1947 and 1950. Willow Slough Bypass does not alter the natural course of Willow Slough. Willow Slough Bypass was built to contain and route flood water from the Willow Slough watershed system to the larger Yolo Bypass, and the levees that comprise the Willow Slough Bypass are continuous extensions of the levees that form the west side of the Yolo Bypass. At the diversion point of Willow Slough Bypass from Willow Slough, an earthen fill control structure was built, with two 48 inch corrugated metal pipes carrying the flow along the natural course of Willow Slough, and an overflow weir to allow excess flows to flow into the Willow Slough Bypass. There are no obstructions or other impediments between the water in the Willow Slough Bypass and the Yolo Bypass, and thus, Willow Slough Bypass is a part of the Yolo Bypass flood protection structure. The Conaway Ranch Toe Drain is located within the west levee of the Yolo Bypass.

Table II-1 of the Basin Plan identifies beneficial uses of certain specific water bodies. The Basin Plan does not specifically identify beneficial uses for the Willow Slough Bypass or Conaway Ranch Toe Drain; however, the Yolo Bypass is listed in Table II-1. The Willow Sough Bypass is part of the Yolo Bypass flood protection structure and the Conaway Ranch Toe Drain is within the Yolo Bypass ; therefore, the beneficial uses for the Yolo Bypass listed in Table II-1 of the Basin Plan apply

to the Willow Slough Bypass and Conaway Ranch Toe Drain. 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. Resolution No. 88-63 also states, *"Any body of water which has current specific designation previously assigned to it by a Regional Board in Water Quality Control Plans may retain that designation at the Regional Board's discretion."* The Basin Plan does not specifically assign municipal and domestic supply as a beneficial use to the Yolo Bypass. Therefore, this Order does not apply the municipal and domestic water supply beneficial use to discharges from Discharge Point No. 001 to the Willow Slough Bypass and from Discharge Point No. 002 to the Conaway Ranch Toe Drain.

Thus, beneficial uses applicable to Willow Slough Bypass and Conaway Ranch Toe Drain are as shown in Table F-7.

Table F-7. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 and 002	Willow Slough Bypass and Conaway Ranch Toe Drain	<u>Existing uses from Table II-1 of the Basin Plan:</u> Agricultural supply, including irrigation and stock watering (AGR); Water contact recreation (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Migration of aquatic organisms, warm and cold (MIGR); Spawning, reproduction, and/or early development, warm (SPWN); and Wildlife habitat (WILD). <u>Potential uses from Table II-1 of the Basin Plan:</u> Cold freshwater habitat (COLD).
--	Groundwater	Municipal and domestic supply (MUN); Industrial service supply (IND); Industrial process supply (PRO); Agricultural supply, including irrigation and stock watering (AGR).

b. Effluent and Ambient Background Data. The RPA, as described in section IV.C.3 of this Fact Sheet, was based on data from December 2007 through June 2012 for Discharge Points Nos. 001 and 002, which includes effluent and ambient background data submitted in SMRs. The Discharger was not required to do routine receiving water monitoring for priority pollutants. Therefore, there is limited receiving water monitoring data available from the term of Order No. R5-2007-0132-02.

c. Assimilative Capacity/Mixing Zone. The Central Valley Water Board finds that based on the available information and on the Discharger's application, that Willow

Slough Bypass and the Conaway Ranch Toe Drain, absent the discharge, is an ephemeral stream. The ephemeral nature of Willow Slough Bypass and the Conaway Ranch Toe Drain means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within Willow Slough Bypass and the Conaway Ranch Toe Drain help support the aquatic life. Both conditions may exist within a short time span, where Willow Slough Bypass and the Conaway Ranch Toe Drain would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the Sacramento River. Dry conditions occur primarily in the summer months, but dry conditions may also occur throughout the year, particularly in low rainfall years. Significant dilution may occur during and immediately following high rainfall events. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life.

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. For priority pollutant metals, the SIP requires the use of USEPA conversion factors contained in Appendix 3 to convert the applicable dissolved criteria to total recoverable criteria. Alternatively, the SIP allows the use of site-specific metal translators that *"…can be developed from field data by either direct determination of the fraction dissolved, or by development of a site-specific partition coefficient that relates the fraction dissolved to ambient background conditions such as pH, suspended load, or organic carbon."*

i. Discharge Point No. 001. The Discharger submitted a January 2007 *Metals Translator Monitoring Study – Copper, Lead, and Nickel* (Translator Study), developed in accordance with SIP and USEPA guidance. In the Study, the Discharger requested the use of site-specific metals translators for copper, nickel, and lead for Discharge Point No. 001. The Central Valley Water Board reviewed and approved the Translator Study and Order R5-2007-0132-02 includes the following site-specific metals translators for copper, lead, and nickel at Discharge Point No. 001.

Table F-8. Site-Specific Metal Translators for Discharge Point No. 001

Constituent	Acute Translator	Chronic Translator
Copper	0.68	0.58
Lead	0.81	0.65
Nickel	0.78	0.71

The default USEPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria for the remaining metals at Discharge Point No. 001.

ii. **Discharge Point No. 002.** The Discharger has not conducted site-specific translator studies for the discharge to the Conaway Ranch Toe Drain. Therefore, the default USEPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria at Discharge Point No. 002.

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[1], the CTR[2] 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, section 1.2; 40 CFR 131.38I(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 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[3]. This ensures that effluent limitations are fully protective of aquatic life in all areas of the receiving water affected by the

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

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

[3] 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.

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 maximum effluent concentration (MEC) and maximum ambient background concentration to the applicable criterion that has been properly adjusted for hardness. Unless otherwise noted, for the hardness-dependent CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.

(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[1]. 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.

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.

[1] The pollutant must also be detected in the effluent.

A 2006 Study[1] developed procedures for calculating the effluent concentration allowance (ECA)[2] for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g., high and low flow conditions) and the hardness 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[3], is as follows:

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

Where:

H = hardness (as $CaCO_3$)[4]
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:

$$\text{ECA} = C \quad (\text{when } C \leq B)^{5} \quad \text{(Equation 2)}$$

Where:

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

[1] Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill.
[2] The ECA is defined in Appendix 1 of the SIP (page Appendix 1-2). The ECA is used to calculate WQBELs in accordance with section 1.4 of the SIP.
[3] 40 CFR § 131.38(b)(2).
[4] For this discussion, all hardness values are in mg/L as $CaCO_3$.
[5] The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e., C ≤ B).

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[1]. 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)[2]. Consequently, for Concave Down Metals, the CTR criteria have been calculated using the downstream ambient hardness under this condition.

For Discharge Point No. 001, the effluent hardness ranged from 260 mg/L to 630 mg/L, based on 107 samples collected between December 2007 and June 2012. The upstream receiving water hardness varied from 140 mg/L to 590 mg/L, based on 57 samples collected between December 2007 and June 2012, and the downstream receiving water hardness varied from 180 mg/L to 560 mg/L, during the same period. Under the effluent dominated condition, the reasonable worst-case downstream ambient hardness is 260 mg/L.

For Discharge Point No. 002, the effluent hardness ranged from 250 mg/L to 740 mg/L, based on 74 samples collected between December 2007 and June 2012. The upstream receiving water hardness varied from 140 mg/L to 480 mg/L, based on 15 samples collected between December 2007 and June 2012, and the downstream receiving water hardness varied from 180 mg/L to 430 mg/L, during the same period. Under the effluent dominated condition, the reasonable worst-case downstream ambient hardness is 250 mg/L.

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[1] 2006 Study, p. 5700

[2] 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.

As demonstrated in the example for copper at Discharge Point No. 001 shown in Table F-7, below, using the reasonable worst-case scenario downstream ambient hardness during an effluent dominated condition at Discharge Point No. 001 of 260 mg/L to calculate the ECA for all 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 at Discharge Point No. 001 assumes the following conservative conditions for the upstream receiving water:

- Upstream receiving water always at the lowest observed upstream receiving water hardness (i.e., 140 mg/L)
- Upstream 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} = Upstream 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 downstream ambient copper concentration is in compliance with the CTR criteria[1].

[1] This method considers the actual lowest observed upstream 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-7 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-9. Copper ECA Evaluation

Lowest Observed Effluent Hardness					**260 mg/L (as $CaCO_3$)**
Lowest Observed Upstream Receiving Water Hardness					**140 mg/L (as $CaCO_3$)**
Highest Assumed Upstream Receiving Water Copper Concentration					**12 µg/L[1]**
Copper $ECA_{chronic}$[2]					**21 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%	141	13	13	**Yes**
	5%	146	13	13	**Yes**
	15%	158	14	14	**Yes**
	25%	170	15	15	**Yes**
	50%	200	17	17	**Yes**
	75%	230	19	19	**Yes**
Low Flow	100%	260	21	21	**Yes**

1 Highest assumed upstream receiving water copper concentration calculated using Equation 1 for chronic criterion at a hardness of 140 mg/L.

2 ECA calculated using Equation 1 for chronic criterion at a hardness of 260 mg/L.

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

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

5 Fully mixed downstream 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 upstream 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 downstream of the discharge at all discharge and flow conditions to ensure the ECA is protective (e.g., see Table F-8).

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

Where:

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

An example similar to the Concave Down Metals is shown for lead at Discharge Point No. 001, a Concave Up Metal, in Table F-8, below. As previously mentioned, the lowest effluent hardness at Discharge Point No. 001 is 260 mg/L, while the upstream receiving water hardness ranged from 140 mg/L to 590 mg/L, and the downstream receiving water hardness ranged from 180 mg/L to 560 mg/L. At Discharge Point No. 002, the lowest effluent hardness was 250 mg/L, while the upstream receiving water hardness ranged from 140 mg/L to 480 mg/L, and the downstream receiving water hardness ranged from 180 mg/L to 430 mg/L. In this example for Discharge Point No. 001, the reasonable worst-case receiving water hardness to use in Equation 4 to calculate the ECA is 590 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-8, for lead.

Table F-10. Lead ECA Evaluation

Lowest Observed Effluent Hardness					**260 mg/L**
Reasonable Worst-case Receiving Water Hardness					**590 mg/L**
Reasonable Worst-case Receiving Water Lead Concentration					**4.9 µg/L[1]**
Lead $ECA_{chronic}$[2]					**8.8 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%	587	30	30	**Yes**
	5%	574	29	29	**Yes**
	15%	541	27	27	**Yes**
	25%	508	25	25	**Yes**
	50%	425	20	20	**Yes**
Low Flow	75%	343	15	14	**Yes**
	100%	260	11	8.8	**Yes**

1 Reasonable worst-case receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 590 mg/L.

2 ECA calculated using Equation 4 for chronic criteria.

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

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

5 Fully mixed downstream 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-9 lists all the CTR hardness-dependent metals and the associated ECA used in this Order.

Table F-11. Summary of ECA Evaluations for CTR Hardness-dependent Metals

CTR Metals	ECA (µg/L, Total Recoverable)			
	Discharge Point No. 001		Discharge Point No. 002	
	Acute	Chronic	Acute	Chronic
Copper	49[1]	35[1]	33	20
Chromium III	3,798	453	3,678	438
Cadmium	12	5.2	12	5.1
Lead	181[1]	8.8[1]	235	9.1
Nickel	1,347[1]	164	1,019	113
Silver	3.3	--	11	--
Zinc	269	269	260	260

1 ECA calculated using site-specific translators.

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

b. Constituents with No Reasonable Potential. WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential (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.

i. Iron – Discharge Point Nos. 001 and 002

(a) WQO. USEPA recommended National Ambient Water Quality Criteria (NAWQC) for iron for the protection of freshwater aquatic life in the *Quality Criteria for Water* of 1976 (commonly known as the "Red Book") at 1 mg/L, based on information gathered between 1937 and 1974. The 1976 Red Book does not clearly state whether the criteria concentration is as dissolved iron or total iron. USEPA updated the 1976 Red Book for certain constituents in the document titled, *Quality Criteria for Water 1986*, commonly known as the "Gold Book", however, iron was not updated. Nevertheless, USEPA clarifies the intent and usage of the recommended NAWQC in the Gold Book which states, *"These criteria are not rules and they do not have regulatory impact. Rather, these criteria present scientific data and guidance of the environmental effects of pollutants which can be useful to derive regulatory requirements based on considerations of water quality impacts."*

The recommended NAWQC for iron of 1.0 mg/L applicable to freshwater aquatic life was based on a 1964 European Inland Fisheries Advisory Commission recommendation for waters managed for aquatic life, but the 1976 Red Book also cited scientific data for iron from other studies. One study conducted on the toxicity of Industrial wastes stated that *"trout (species not known) died at iron concentrations of 1 – 2 mg/L* [unknown whether in the form of dissolved or total iron]. In another study conducted in iron polluted waters in Colorado (1967) indicated that *"trout was not observable until the waters were diluted or the iron had precipitated to effect a concentration of less than 1.0 mg/L."* Also field studies regarding stream pollution in a report from 1937 showed "*that in 69 of 75 study sites with good fish fauna, the iron concentration was less than 10 mg/L.*" The 1976

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

Red Book also suggests the water quality characteristics of the receiving water effect the toxicity of iron, *"Ambient natural waters will vary with respect to alkalinity, pH, hardness, temperature and the presence of ligands which change the valence state and solubility, and therefore the toxicity of the metal."*

Based on the scientific data and information presented in the 1976 Red Book, Central Valley Water Board determined that the recommended NAWQC for iron is not applicable to the receiving waters, and thus, is not appropriate to determine compliance with the Basin Plan's narrative toxicity objective.

The California Department of Public Health (DPH) has established Secondary MCLs to assist public drinking water systems in managing their drinking water for aesthetic conditions such as taste, color, and odor. However, Municipal and Domestic Supply beneficial use does not apply to the Willow Slough Bypass or Conaway Ranch Toe Drain, and therefore, the DPH Secondary MCL does not apply at the discharge.

(b) RPA Results

To determine compliance with federal anti-backsliding requirements this reasonable potential analysis was conducted with the 1976 NAWQC recommended criterion that was used in Order R5-2007-0132-02 to determine compliance with the Basin Plan's narrative toxicity objective.

The Discharger conducted a study between September 2010 and December 2012 at Discharge Point 001 to determine dissolved versus total concentrations in the effluent discharge, and then at Discharge Point 002 between February 2011 and April 2013. Upstream receiving water samples were not obtained from Conaway Toe Drain, but two samples were obtained from Willow Slough Bypass on 13 September 2011 and 10 January 2012; however, analytical results for dissolved concentrations were not quantifiable, and therefore, reasonable potential based on the receiving waters cannot be determined. The following table summarizes the analytical results both for total and dissolved concentrations in the effluent at both discharge points:

Table F-12 City of Davis Iron Study Results

Parameter	Number of Samples	Minimum Effluent Concentration (mg/L)	Maximum Effluent Concentration (mg/L)	Average Effluent Concentration (mg/L)
Discharge Point No. 001				
Dissolved Iron	29	0.03	0.20	0.10
Total Iron	28	0.55	2.46	1.20

Parameter	Number of Samples	Minimum Effluent Concentration (mg/L)	Maximum Effluent Concentration (mg/L)	Average Effluent Concentration (mg/L)
Discharge Point No. 002				
Dissolved Iron	9	0.01	0.16	0.04
Total Iron	9	1.46	3.69	2.23

The 1976 Red Book cited a study by the Federal Water Pollution Control Administration (1967) conducted in iron polluted waters of Colorado River (a Western State water that should have water quality characteristics similar to waters within the Central Valley Region) that observed trout when "*waters were diluted or the iron had precipitated to effect a concentration of less than 1.0 mg/L,*" implying dissolved concentrations. Because, in general, iron's bioavailability to aquatic life is greater in dissolved form than total, staff used the data for dissolved iron concentrations in the RPA. Based on the data shown in Table F-12, the MEC at Discharge Point 001 was 0.03 mg/L and 0.01 mg/L at Discharge Point 002, which is below the Colorado River scientific data of 1.0 mg/L and used in Order R5-2007-0132-02 to interpret compliance with the Basin Plan's narrative toxicity objective. Therefore, the effluent discharges do not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective. Thus, the WQBELs in Order R5-2010-0132-02 for iron have not been retained in this Order, and removal of these effluent limitations is in accordance with federal anti-backsliding requirements (see section IV.D.3 of the Fact Sheet).

ii. Manganese – Discharge Point Nos. 001 and 002

(a) WQO. The Basin Plan contains a narrative chemical constituent objective. According to the Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1 (Ayers and Westcot 1985 Study), manganese is "toxic to a number of crops at a few-tenths to a few mg/L, but usually only in acid soils." Further, when using the Ayers and Westcot 1985 Study to interpret narrative objectives, the State Water Board has directed the Central Valley Water Board to consider site-specific conditions. (In the Matter of Own Motion Review of City of Woodland, Order WQO 2004-0010.) To interpret the narrative chemical constituent objective, the previous permit (Order No. R5-2007-0132-02) required the Discharger to conduct a site-specific study for Manganese to determine the appropriate manganese level to protect beneficial uses of the area.

(b) RPA Results. Accordingly, the Discharger prepared an initial study workplan that was submitted on October 24, 2008. Based on Central Valley

Water Board comments sent June 4, 2009, the study objectives were revised and a revised study workplan was submitted on January 10, 2010. On January 25, 2011, the City submitted the Manganese Study Addendum prepared by NewFields Agricultural & Environmental Resources, which satisfied the Manganese Study requirements. This study was an addendum to the previously submitted study titled: The Application of Water Quality Goals for Manganese and Fluoride in the Yolo Bypass (Stephen R. Grattan, 2007). Specifically, as part of the 2011 Manganese Study Addendum, NewFields conducted soil sampling analysis in response to the Central Valley Water Board's request for site-specific soil data. Based on these soil sample results, NewFields reached the following conclusions with respect to the potential for manganese toxicity to develop in local soils: (1) All soil pH levels were well above 5.5 (actually above 7.0 [neutral]), which is the threshold for toxic manganese conditions; (2) All soil manganese levels were below the toxic levels for crops grown within the study area; (3) Although the majority of the soil mapping units were temporarily water-logged due to flooding for rice, they did not have any other characteristics that cause manganese toxicity; (4) In general, all soils had a high clay content and resultant higher cation exchange capacity, which can bind with manganese ions to make them unavailable to plants; and (5) All soils had sufficient levels of calcium, magnesium and sulfur such that these nutrients cause manganese to become unavailable to the plant. Because the soils are not conducive to manganese toxicity, the Manganese Study Addendum found no basis or literature examples for a recommended level of manganese in irrigation water.

Based on the site-specific study results, the Central Valley Water Board finds that there are not appropriate or applicable water quality criteria for manganese that would apply to Discharge Points No. 001 and No. 002 and the beneficial uses of the receiving waters. Accordingly, the Central Valley Water Board finds that there is no reasonable potential for manganese and water quality based effluent limitations are not necessary.

iii. Settleable Solids – Discharge Point Nos. 001 and 002

(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 R5-2007-0132-02 established an average monthly effluent limitation (AMEL) of 0.1 ml/L and a maximum daily effluent limitation (MDEL) of 0.2 ml/L for settleable solids at Discharge Point Nos. 001 and 002 to implement the narrative settleable solids objective.

(b) RPA Results

(1) Discharge Point No. 001. The maximum observed effluent settleable solids concentration was 0.2 ml/L and settleable solids exceeded the effluent limitations only once based on 416 samples collected at

Discharge Point No. 001 between December 2007 and June 2012. Because settleable solids were detected above the existing effluent limitations only once, 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 anti-backsliding requirements (see section IV.D.3 of the Fact Sheet).

(2) Discharge Point No. 002. The maximum observed effluent settleable solids concentration was 0.1 ml/L and settleable solids did not exceed the effluent limitations based on 225 samples collected at Discharge Point No. 002 between December 2007 and June 2012. Because settleable solids were not detected above existing effluent limitations, 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 anti-backsliding requirements (see section IV.D.3 of the Fact Sheet).

iv. Temperature – Discharge Points Nos. 001 and 002

(a) WQO. The Thermal Plan contains water quality objectives for coastal and interstate water and enclosed bays and estuaries, including the Sacramento – San Joaquin Delta. For existing discharges of elevated temperature waste to these waterbodies, the Thermal Plan requires that, "*The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.*" Order R5-2007-0132-02 contained temperature effluent limitations. However, Willow Slough Bypass and Conaway Ranch Toe Drain are not within the legal boundaries of the Sacramento – San Joaquin Delta and are not coastal or interstate water, enclosed bay, or estuary. Therefore, the Thermal Plan is not applicable to Discharge Points Nos. 001 and 002.

(b) RPA Results

(1) Discharge Point No. 001. The effluent temperature at Discharge Point No. 001 did not exceed the receiving water temperature by more than 4.1 F based on 183 samples. Therefore, the discharge at Discharge Point No. 001 does not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives for temperature and the effluent limitations for temperature at Discharge Point No. 001 are not retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding requirements (see section IV.D.3 of the Fact Sheet). This Order retains receiving water limitations for temperature based on the Basin Plan objective, as well as effluent and receiving water monitoring for temperature.

(2) Discharge Point No. 002. The effluent temperature at Discharge Point No. 002 did not exceed the receiving water temperature by more than 5.6 F based on 51 samples. Therefore, the discharge at Discharge Point No. 002 does not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives for temperature and the effluent limitations for temperature at Discharge Point No. 002 are not retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding requirements (see section IV.D.3 of the Fact Sheet). This Order retains receiving water limitations for temperature based on the Basin Plan objective, as well as effluent and receiving water monitoring for temperature.

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 at Discharge Point No. 001 for aluminum, ammonia, BOD_5, chlorine residual, copper, cyanide, diazinon and chlorpyrifos, mercury, pH, salinity, selenium, total coliform organisms, and TSS and at Discharge Point No. 002 for aluminum, ammonia, BOD_5, chlorine residual, copper, diazinon and chlorpyrifos, methylmercury, pH, salinity, selenium, 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. Aluminum – Discharge Point Nos. 001 and 002

Aluminum is the third most abundant element in the earth's crust and is ubiquitous in both soils and aquatic sediments. When mobilized in surface waters, aluminum has been shown to be toxic to various fish species. However, the potential for aluminum toxicity in surface waters is directly related to the chemical form of aluminum present, and the chemical form is highly dependent on water quality characteristics that ultimately determine the mechanism of aluminum toxicity. Surface water characteristics, including pH, temperature, colloidal material, fluoride and sulfate concentrations, and total organic carbon, all influence aluminum speciation and its subsequent bioavailability to aquatic life. Calcium [hardness] concentrations in surface water may also reduce aluminum toxicity by competing with monomeric aluminum (Al^{3+}) binding to negatively charged fish gills.

(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. However, aluminum criteria were not promulgated as part of the CTR. Absent numeric aquatic life criteria for aluminum, WQBEL's in the Central Valley Region's NPDES permits are based on the Basin Plans' narrative toxicity objective. The Basin Plans' *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, should be used in determining compliance with the narrative objective."* Relevant information includes, but is not limited to (1) USEPA National Ambient Water Quality Criteria (NAWQC) and subsequent Correction, (2) site-specific conditions of Willow Slough Bypass and the Conaway Ranch Toe Drain, and (3) 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).)

USEPA National Ambient Water Quality Criteria (NAWQC). USEPA recommended the NAWQC aluminum chronic criterion at 87 µg/L based upon the follow two toxicity tests. All test waters contained hardness at 12 mg/L as $CaCO_3$.

(1) Acute toxicity tests at various aluminum doses were conducted in various acidic waters (pH 6.0 – 7.2) on 159- and 160-day old striped bass. The 159-day old striped bass showed no mortality in waters with pH at 6.5 and aluminum doses at 390 µg/L, and the 160-day old striped bass showed 58 percent mortality at a dose of 174.4 µg/L in same pH waters. However, the 160-day old striped bass showed 98 percent mortality at aluminum dose of 87.2 µg/L in waters with pH at 6.0, which is USEPA's basis for the 87 µg/L chronic criterion. The varied results of this study draw into question the applicability of the NAWQC chronic criterion of 87 µg/L.

(2) Chronic toxicity effects on 60-day old brook trout were evaluated in acidic pH waters (6.5-6.9 pH) in five cells at various aluminum doses (4, 57, 88, 169, and 350 µg/L). Chronic evaluation started upon hatching of eyed eggs of brook trout, and their weight and length were measured after 45 days and 60 days. The 60-day old brook trout showed 24 percent weight loss at 169 µg/L of aluminum and 4 percent weight loss at 88 µg/L of aluminum, which is the basis for USEPA's chronic criteria. Though this test study shows chronic toxic effects 4% reduction in weight after exposure for 60-days, the chronic criterion is based on 4-day exposure; so again, the applicability of the NAWQC chronic criterion of 87 µg/L is questionable.

Site-specific Conditions. Effluent and receiving water monitoring data indicate that the pH and hardness values are not similar to the low pH and hardness conditions under which the chronic criterion for aluminum was developed, as shown in the table below, and therefore, aluminum is not

expected to be as reactive in Willow Slough Bypass or Conaway Ranch Toe Drain as in the previously described toxicity tests. The pH of Willow Slough Bypass upstream of Discharge Point No. 001 ranged from 7.2 to 9.2 based on 194 monitoring results obtained between December 2007 and June 2012. The hardness of Willow Slough Bypass upstream of Discharge Point No. 001 ranged from 140 mg/L to 590 mg/L based on 57 samples collected between December 2007 and June 2012. The pH of the Conaway Ranch Toe Drain upstream of Discharge Point No. 002 ranged from 7.3 to 9.0 based on 53 monitoring results obtained between December 2007 and June 2012. The hardness of the Conaway Ranch Toe Drain upstream of Discharge Point No. 002 ranged from 140 mg/L to 480 mg/L based on 15 samples collected between December 2007 and June 2012.

Parameter	Units	Test Conditions for Applicability of Chronic Criterion	Discharge Point No. 001 Effluent	Willow Slough Bypass	Discharge Point No. 002 Effluent	Conaway Ranch Toe Drain
pH	standard units	6.0 – 6.5	6.8 – 8.0	7.2 – 9.2	6.5 – 8.4	7.3 – 9.0
Hardness, Total (as $CaCO_3$)	mg/L	12	260 – 630	140 – 590	250 – 740	140 – 480

Local Environmental Conditions and Studies. Twenty-one site-specific aluminum toxicity tests have been conducted within the Central Valley Region. The pH and hardness of Willow Slough Bypass and Conaway Ranch Toe Drain are similar, as shown in the table below, and thus the results of these site-specific aluminum toxicity tests is relevant and appropriate for Willow Slough Bypass and Conaway Ranch Toe Drain.

As shown in the following table, all EC50 toxicity study result values are at concentrations of aluminum above 5,000 µg/L. Thus, the toxic effects of aluminum in surface waters within the Central Valley Region, including Willow Slough Bypass and the Conaway Ranch Toe Drain, is less toxic (or less reactive) to aquatic species than demonstrated in the toxicity tests that USEPA used for the basis of establishing the chronic criterion of 87 µg/L. This new information, and review of the toxicity tests USEPA used to establish the chronic criterion, indicates that 87 µg/L is overly stringent and not applicable to Willow Slough Bypass or the Conaway Ranch Toe Drain.

Table F-13. Central Valley Region Site-Specific Toxicity Data

Discharger (City)	Species	Test Waters	Hardness Value	Total Aluminum EC_{50} Value	pH	WER
Auburn	*Ceriodaphnia dubia*	Effluent	99	>5270	7.44	>19.3
	“ “	Surface Water	16	>5160	7.44	>12.4
Manteca	“ “	Surface Water/Effluent	124	>8800	9.14	N/C
	“ “	Effluent	117	>8700	7.21	>27.8
	“ “	Surface Water	57	7823	7.58	25.0
	“ “	Effluent	139	>9500	7.97	>21.2
	“ “	Surface Water	104	>11000	8.28	>24.5

Discharger (City)	Species	Test Waters	Hardness Value	Total Aluminum EC_{50} Value	pH	WER
	" "	Effluent	128	>9700	7.78	>25.0
	" "	Surface Water	85	>9450	7.85	>25.7
	" "	Effluent	106	>11900	7.66	>15.3
	" "	Surface Water	146	>10650	7.81	>13.7
Modesto	" "	Surface Water/Effluent	120/156	31604	8.96	211
Yuba City	" "	Surface Water/Effluent	114/164[1]	>8000	7.60/7.46	>53.5
Placer County	" "	Effluent	150	>5000	7.4 – 8.7	>13.7
Manteca	*Daphnia magna*	Surface Water/Effluent	124	>8350	9.14	N/C
Modesto	" "	Surface Water/Effluent	120/156	>11900	8.96	>79.6
Yuba City	" "	Surface Water/Effluent	114/164[1]	>8000	7.60/7.46	>53.5
Manteca	*Oncorhynchus mykiss* (rainbow trout)	Surface Water/Effluent	124	>8600	9.14	N/C
Auburn	" "	Surface Water	16	>16500	7.44	N/C
Modesto	" "	Surface Water/Effluent	120/156	>34250	8.96	>229
Yuba City	" "	Surface Water/Effluent	114/164[1]	>8000	7.60/7.46	>53.5

[1] Hardness values may be biased high because the EDTA titrimetic method is subject to interferences that measure as hardness (barium, cadmium, lead, manganese, strontium, and zinc will be measured as hardness) producing hardness numbers that are likely to be greater than the calculation of hardness based upon the ICP analysis of calcium and magnesium. Upstream receiving water hardness ranged from 30 to 50.9 mg/L as $CaCO_3$ between January 2008 and August 2011. Furthermore, the upstream receiving water hardness was 37 mg/L as $CaCO_3$ on 4 October 2005, 7 days prior to the Feasibility Assessment (first phase of a Water Effects Ratio study) sample collection date of 11 October 2005. It is likely that matrix interferences from other metals were responsible for the unexpected hardness values reported by Pacific EcoRisk.

USEPA has also adopted an NAWQC acute criterion of 750 µg/L for the protection of aquatic life and is applicable to the discharge at Discharge Point Nos. 001 and 002.

(b) RPA Results

(1) Discharge Point No. 001. The maximum observed effluent aluminum concentration at Discharge Point No. 001 was 1,270 µg/L based on 59 samples collected between December 2007 and June 2012. The maximum observed upstream receiving water concentration was 8,200 µg/L based on 11 samples collected between December 2007 and June 2012. Therefore, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC acute criterion at Discharge Point No. 001.

(2) Discharge Point No. 002. The maximum observed effluent aluminum concentration at Discharge Point No. 002 was 2,500 µg/L based on 26 samples collected between December 2007 and June 2012. The maximum upstream receiving water concentration for aluminum was 5,300 µg/L based on three samples collected between December 2007 and June 2012. Therefore, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC acute criterion at Discharge Point No. 002.

(c) WQBELs

(1) Discharge Point No. 001. This Order contains a final AMEL and MDEL of 392 µg/L and 750 µg/L, respectively, based on the NAWQC acute criterion for protection of aquatic life to implement the Basin Plan's narrative toxicity objective.

(2) Discharge Point No. 002. This Order contains a final AMEL and MDEL for aluminum at Discharge Point No. 002 of 400 µg/L and 750 µg/L, respectively, based on the NAWQC acute criterion for protection of aquatic life to implement the Basin Plan's narrative toxicity objective.

(d) Plant Performance and Attainability. Based on the sample results for the effluent at Discharge Point Nos. 001 and 002, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for aluminum are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the aluminum effluent limitations is established in Time Schedule Order (TSO) R5-2013-0128 in accordance with Water Code section 13300 that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

ii. Ammonia – Discharge Point Nos. 001 and 002

(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 Willow Slough Bypass and Conaway Ranch Toe Drain have the potential beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages in the Willow Slough Bypass and Conaway Ranch Toe Drain is well-documented, the recommended criteria for waters where salmonids and early life stages are present were used.

The maximum permitted effluent pH is 8.0 at Discharge Point Nos. 001 and 002, respectively. In order to protect against the worst-case short-term

exposure of an organism, a pH value of 8.0 was used to derive the acute criterion. The resulting acute criterion is 5.6 mg/L.

A chronic criterion was calculated at each discharge point for each day when paired temperature and pH data were measured using receiving water data for temperature and pH recorded in the Discharger's SMRs. Rolling 30-day average criteria were calculated from Monitoring Locations RSW-001D and RSW-002D data, respectively, using the criteria calculated for each day and the minimum observed 30-day average criterion was established as the applicable 30-day average chronic criterion, or 30-day CCC. The resulting 30-day CCC is 1.4 mg/L (as N) for Discharge Point No. 001 and 1.6 mg/L (as N) for Discharge Point No. 002. The 4-day average concentration is derived in accordance with the USEPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 1.4 mg/L (as N), the 4-day average concentration that should not be exceeded is 3.4 mg/L (as N) at Discharge Point No. 001. Based on the 30-day CCC of 1.6 mg/L, the 4-day average concentration that should not be exceeded is 4.0 mg/L (as N) at Discharge Point No. 002.

(b) RPA Results. The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that, without treatment, would be harmful to aquatic life and would violate the Basin Plan's narrative toxicity objective if discharged to the receiving water. Reasonable potential therefore exists and WQBELs are required.

Federal regulations at 40 CFR 122.44(d)(1)(i) require 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, USEPA 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 Facility is not currently designed to provide nitrification, though some nitrification is achieved in the aerated ponds. 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. 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.

(1) Discharge Point No. 001. The maximum observed effluent ammonia concentration at Discharge Point No. 001 was 12 mg/L based on 775 samples collected between December 2007 and June 2012. The maximum observed upstream receiving water concentration was 5.5 mg/L based on 93 samples collected between December 2007 and June 2012.

(2) Discharge Point No. 002. The maximum observed effluent ammonia concentration at Discharge Point No. 002 was 7.7 mg/L based on 393 samples collected between December 2007 and June 2012. The maximum observed upstream receiving water concentration was 2.4 mg/L based on 14 samples collected between December 2007 and June 2012.

(c) WQBELs. Applying 40 CFR section 122.44(d)(1)(vi)(B), effluent limitations for ammonia are included in this Order and are based on U.S. EPA's Ambient Water Quality Criteria for the protection of the beneficial use of freshwater aquatic habitat and the effluent limits established in Order No. R5-2007-0132-02.

The temperature of the effluent and receiving water varies based on the

season. Therefore, this Order establishes seasonal effluent limitations for ammonia from 1 March through 31 October and 1 November through 29 February.

(1) Discharge Point No. 001. This Order contains a final AMEL and MDEL for ammonia at Discharge Point No. 001 of 1.3 mg/L and 4.0 mg/L, respectively, from 1 March through 31 October each year, and a final AMEL and MDEL of 1.8 mg/L and 3.3 mg/L, respectively, from 1 November through 29 February of each year at Discharge Point No. 001, based on the NAWQC criteria.

(2) Discharge Point No. 002. This Order contains a final AMEL and MDEL for ammonia at Discharge Point No. 002 of 1.5 mg/L and 4.7 mg/L, respectively, from 1 March through 31 October each year, and a final AMEL and MDEL of 2.3 mg/L and 5.6 mg/L, respectively, from 1 November through 29 February of each year at Discharge Point No. 002, based on the NAWQC criteria.

(d) Plant Performance and Attainability. Based on the sample results for the effluent at each discharge location, the limitations appear to put the Discharger in immediate non-compliance. Order R5-2007-0132-02 included a compliance schedule and interim effluent limitations for ammonia at Discharge Point Nos. 001 and 002, and required compliance by 25 October 2017. Consistent with Order R5-2007-0132-02, this Order includes a compliance schedule for ammonia at Discharge Point Nos. 001 and 002, as discussed in section IV.E of this Fact Sheet.

iii. Cadmium – Discharge Point No. 001

(a) WQO. The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for cadmium. These criteria for cadmium are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. USEPA default cadmium metal translators were used in this Order for cadmium.

(b) RPA Results. Section IV.C.2.e of this Fact Sheet includes procedures for conducting the RPA for cadmium. As discussed in section IV.C.2.e, for comparing the MEC to the criteria, the reasonable worst-case downstream ambient hardness should be used. Based on the reasonable worst-case downstream hardness, the applicable total recoverable criteria are 5.2 µg/L and 12 µg/L, for the chronic and acute criteria, respectively. The MEC for cadmium (total recoverable) was 0.1 µg/L (minimum MDL 0.04 µg/L, minimum RL 0.1 µg/L), based on 15 samples collected between December 2007 and June 2012.

Based on the lowest observed upstream receiving water hardness of 140 mg/L (as $CaCO_3$), the applicable total recoverable criteria for evaluating the ambient background concentration are 3.2 µg/L and 6.6 µg/L, for the

chronic and acute criteria, respectively. Cadmium was detected in the upstream receiving water in one sample and estimated in two out of the 11 samples collected between December 2007 and June 2012. The upstream receiving water cadmium concentration exceeded the CTR criterion only once on 26 January 2011, at a concentration of 8.3 µg/L (MDL 0.04 µg/L, RL 0.1 µg/L).

Therefore, the Central Valley Water Board has determined that cadmium in the discharge from Discharge Point No. 001 has a reasonable potential to cause or contribute to an in-stream excursion above the CTR freshwater aquatic life criterion.

(c) WQBELS. This Order contains a final AMEL and MDEL for cadmium at Discharge Point No. 001 of 4.3 µg/L and 8.3 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 0.1 µg/L is less than the applicable WQBELs. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iv. Chlorine Residual – Discharge Point Nos. 001 and 002

(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 mg/L and 0.019 mg/L, respectively. These criteria are protective of the Basin Plan's narrative toxicity objective.

(b) RPA Results. The concentrations of chlorine used to disinfect wastewater are high enough to harm aquatic life and violate the Basin Plan's narrative toxicity objective if discharged to the receiving water. Reasonable potential therefore exists and WQBELs are required.

Federal regulations at 40 CFR 122.44(d)(1)(i) require 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. Chlorine 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, USEPA recommends that, "POTWs should also be characterized for the possibility of chlorine and ammonia problems." (TSD, p. 50)

The Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. Although the Discharger uses a sulfur dioxide process to dechlorinate the effluent prior to discharge to Willow Slough Bypass and Conaway Ranch Toe Drain, the existing chlorine use and the potential for chlorine to be discharged provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC.

(c) WQBELs. The USEPA *Technical Support Document for Water Quality-Based Toxics Control* [EPA/505/2-90-001] contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average 1-hour limitation is considered more appropriate than an average daily limitation. This Order contains a 4-day average effluent limitation and 1-hour average effluent limitation for chlorine residual of 0.011 mg/L and 0.019 mg/L, at Discharge Point Nos. 001 and 002, respectively, based on USEPA's NAWQC, which implements the Basin Plan's narrative toxicity objective for protection of aquatic life.

(d) Plant Performance and Attainability. The Discharger uses a sulfur dioxide process to dechlorinate the effluent prior to discharge to the Feather River. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. Copper – Discharge Point Nos. 001 and 002

(a) WQO. The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. These criteria for copper are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. As discussed in section IV.C.2.d of this Fact Sheet, site-specific translators were used to adjust criteria for copper for Discharge Point No. 001 and USEPA default translators were used to adjust criteria for copper for Discharge Point No. 002.

(b) RPA Results

(1) Discharge Point No. 001. The maximum observed upstream receiving water copper concentration was 9.7 µg/L (total recoverable), based on 18 samples collected between December 2007 and June 2012. Based on the lowest observed upstream receiving water hardness of 140 mg/L (as $CaCO_3$) and site-specific metals translators for copper, the applicable total recoverable criteria for evaluating the ambient background concentration are 21 µg/L and 27 µg/L, for the chronic and acute criteria, respectively. Based on this data, the maximum ambient copper concentration does not exceed the applicable CTR criteria.

As discussed in section IV.C.2.e for comparing the MEC to the criteria, the reasonable worst-case downstream ambient hardness should be used. Based on a hardness of 260 mg/L (as $CaCO_3$) and site-specific metals translators, the applicable total recoverable criteria are 35 µg/L and 49 µg/L, for the chronic and acute criteria, respectively. The MEC for copper (total recoverable) was 50 µg/L, based on 45 samples collected between December 2007 and June 2012. The effluent exceeded the chronic criterion of 35 µg/L on four occasions. The Discharger indicated in the ROWD and a 25 September 2012 *City of Davis Wastewater Treatment Plant Supplemental Information to Report of Waste Discharge (Submitted on April 4, 2012) for National Pollutant Discharge Elimination System (NPDES) Permit Renewal* (ROWD Supplement) that the elevated copper concentrations are related to the cleaning of the overland flow return ditch, and stated that the overland flow system would not likely be cleaned again prior to upgrading the Facility in October 2017. The Discharger indicated that the overland flow return ditch was last cleaned between 22 August 2010 and 3 September 2010 and that "*high copper values persist during the period following cleaning, especially during the winter months when weather conditions can create a higher flow velocity in the overland flow ditch which may lead to more sediment being washed into the chlorine contact basin*." However, as shown below in the table of effluent concentrations collected after the cleaning between October 2010 and July 2011, two of the four exceedances occurred during the summer of 2011 after the winter rainy season and after a period of lower copper concentrations.

Thus, the correlation between the cleaning of the overland flow return ditch and the elevated copper concentrations is not clearly defined.

Table F-14. Effluent Copper Data After Overland Flow Return Ditch Cleaning

Date	Copper Concentration (µg/L)
11 October 2010	16
25 October 2010	46 (exceedance)
9 November 2010	42 (exceedance)
16 December 2010	7.9
27 December 2010	8.2
11 January 2011	30
3 May 2011	6.5
3 May 2011	9.4
10 May 2011	13
16 May 2011	18
24May 2011	31
1 June 2011	4.1
7 June 2011	41 (exceedance)
7 June 2011	22
14 June 2011	15
21 June 2011	14
28 June 2011	10
5 July 2011	50 (exceedance)
12 July 2011	14
12 July 2011	6.6
26 July 2011	13

Therefore, the Central Valley Water Board has determined that copper in the discharge from Discharge Point No. 001 has a reasonable potential to cause or contribute to an in-stream excursion above the CTR freshwater aquatic life criterion.

(2) Discharge Point No. 002. Based on the lowest observed upstream receiving water hardness of 140 mg/L (as $CaCO_3$), the applicable total recoverable criteria for evaluating the ambient background concentration are 12 µg/L and 19 µg/L, for the chronic and acute criteria, respectively. The maximum observed upstream receiving water copper concentration was 16.9 µg/L (total recoverable), based on nine samples collected between December 2007 and June 2012. Based on this data, the maximum ambient copper concentration exceeds the applicable CTR criteria.

As discussed in section IV.C.2.e for comparing the MEC to the criteria, the reasonable worst-case downstream ambient hardness should be used. Based on a hardness of 250 mg/L (as $CaCO_3$), the applicable total recoverable criteria are 20 µg/L and 33 µg/L, for the chronic and acute criteria, respectively. The MEC for copper (total recoverable) was 40 µg/L, based on 39 samples collected between December 2007 and June 2012. The Central Valley Water Board has determined, therefore, that copper in the discharge from Discharge Point No. 002 has a

reasonable potential to cause or contribute to an in-stream excursion above the CTR freshwater aquatic life criterion.

(c) WQBELs

(1) Discharge Point No. 001. This Order contains a final AMEL and MDEL for copper at Discharge Point No. 001 of 23 µg/L and 49 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life.

(2) Discharge Point No. 002. This Order contains a final AMEL and MDEL for copper at Discharge Point No. 002 of 16 µg/L and 33 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life.

(d) Plant Performance and Attainability

(1) Discharge Point No. 001. Analysis of the effluent data shows that the MEC of 50 µg/L is greater than the applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for copper are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the copper effluent limitations is established in TSO R5-2013-0128 with compliance final effluent limitations required by 25 October 2017, in accordance with Water Code section 13300 that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

(2) Discharge Point No. 002. TSO R5-2010-0029-02 provides a compliance schedule to achieve compliance with the final effluent limitations for copper by 30 September 2014.

vi. Cyanide – Discharge Point Nos. 001 and 002

(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.

(b) RPA Results

(1) Discharge Point No. 001. The MEC for cyanide was 6.7 µg/L at Discharge Point No. 001 based on 51 samples collected between

December 2007 and June 2012. Upstream receiving water data for cyanide is not available. Therefore, cyanide in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life at Discharge Point No. 001.

(2) Discharge Point No. 002. The MEC for cyanide was 2.9 µg/L at Discharge Point No. 002 based on two samples collected between December 2007 and June 2012. Upstream receiving water data for cyanide is not available. 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 at Discharge Point No. 002.

(c) WQBELs. This Order contains a final AMEL and MDEL for cyanide of 3.8 µg/L and 8.1 µg/L at Discharge Point No. 001, respectively, based on the CTR criterion for the protection of freshwater aquatic life and the effluent limits contained in Order No. R5-2007-0132-02.

(d) Plant Performance and Attainability. TSO R5-2010-0029-02 provides a compliance schedule to achieve compliance with the final effluent limitations for cyanide at Discharge Point No. 001 by 1 February 2015.

vii. Diazinon and Chlorpyrifos – Discharge Point Nos. 001 and 002

(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."

Appendix A to the Diazinon and Chlorpyrifos TMDL lists Delta waterways subject to the TMDL and includes the Yolo Bypass. Footnote 2 of Appendix A states that "*When flooded, the entire Yolo Bypass is a Delta Waterway. When the Delta is not flooded, the Toe Drain is the only Delta Waterway within the Yolo Bypass."* The Willow Slough Bypass and the Conaway Ranch Toe Drain are part of the Yolo Bypass. Therefore, the Diazinon and Chlorpyrifos TMDL is applicable at Discharge Point Nos. 001 and 002.

(b) RPA Results. Effluent and receiving water monitoring data for diazinon and chlorpyrifos are not available; therefore, there is insufficient information to conduct an RPA. However, the TMDL waste load allocation applies to all NPDES dischargers to the Delta waterways and serves as the basis for WQBELs at Discharge Point Nos. 001 and 002.

(c) WQBELs. Although there is insufficient data to conduct the reasonable potential analysis, the waste load allocations are applicable to all NPDES dischargers to the Sacramento-San Joaquin Delta waterways, which includes the Yolo Bypass. 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

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

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

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

(d) Plant Performance and Attainability. Although monitoring data for diazinon and chlorpyrifos is not available, they are not expected to be present in the discharges from the Facility. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

viii. Mercury and Methylmercury – Discharge Point Nos. 001 and 002

(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 waste load 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 Delta Mercury Control Program contains waste load allocations for discharges from the Facility to Conaway Ranch Toe Drain through Discharge Point No. 002.

The Delta Mercury Control Program assigned a waste load allocation for methylmercury that applies to the Willow Slough watershed, but it does not specify the amounts allocated to individual waterways in the watershed, including the Willow Slough Bypass. The allocation does not specify individual methylmercury sources upstream of the legal Delta boundary, nor does it assign waste load allocations for any point sources. Therefore, the waste load allocations included in the Delta Mercury Control Program for methylmercury are not applicable at Discharge Point No. 001. The total monthly mass load effluent limitation from the existing Order is retained to the cap on discharge of total mercury.

The CTR contains a human health criterion (based on a threshold dose level causing neurological effects in infants) of 51 ng/L for total mercury for waters from which only aquatic organisms are consumed, which is applicable to Discharge Point Nos. 001 and 002. 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

(1) Discharge Point No. 001. The MEC for mercury at Discharge Point No. 001 was 0.017 µg/L, based on 50 samples collected between December 2007 and June 2012. The maximum upstream receiving water concentration was 0.002 µg/L based on one sample collected between December 2007 and June 2012. Effluent and receiving water methylmercury data was not available for Discharge Point No. 001. Mercury bioaccumulates in fish tissue and, therefore, the discharge of mercury to the receiving water may contribute to exceedances of the narrative toxicity objective and impact beneficial uses. The discharge of mercury to surface waters in the Central Valley draining to the Sacramento-San Joaquin Delta are being limited in order to protect the beneficial uses of the Delta.

(2) Discharge Point No. 002. Section 1.3 of the SIP states, "*The RWQCB shall conduct the analysis in this section for each priority pollutant with an applicable criterion or objective,* ***excluding priority pollutants for which a Total Maximum Daily Load (TMDL) has been developed****, to determine if a water quality-based effluent limitation is required in the discharger's permit.*" (emphasis added) Although a RPA is not required, based on the available effluent and receiving water methylmercury data, it appears the discharge is causing or contributing to an exceedance of the concentration of methylmercury in water to meet the site-specific fish tissue objectives in the Basin Plan. The MEC for mercury at Discharge Point No. 002 was 0.01 µg/L based on 24 samples collected between December 2007 and June 2012. Receiving water data for mercury is not available. Effluent and receiving water methylmercury data was not available at Discharge Point No. 002. However, the TMDL waste load allocation applies to all NPDES dischargers to the Delta waterways and serves as the basis for WQBELs at Discharge Point No. 002.

(c) WQBELs

(1) Discharge Point No. 001. This Order retains the performance-based mass effluent limitation of 0.038 lbs/month for mercury from Order R5-2007-0132-02. This limitation is based on maintaining the mercury loading at the current level until a TMDL can be established specifically to the Willow Slough Bypass.

(2) Discharge Point No. 002. The Basin Plan's Delta Mercury Control Program includes wasteload allocations for POTWs in the Delta,

including discharges to the Conaway Ranch Toe Drain via Discharge Point No. 002. The Discharger states that the wasteload allocation of 0.17 g/yr presented in the Basin Plan for the City of Davis was erroneously calculated using a number of discharge days per year of 149, and instead, should have been calculated using 365 days. The Basin Plan states "*By 20 October 2020, at a public hearing, and after scientific peer review and public review process, the Regional Water Board shall review the Delta Mercury Control Program and* ***may*** *[emphasis added] consider modification of objectives, allocations, implementation provisions and schedules, and the Final Compliance Date.*" (Phase 1 Delta Mercury Control Program Review, p. IV-33.17) Therefore, the calculation of the wasteload allocation may be reviewed during the Phase 1 Delta Mercury Control Program Review, prior to final adoption of the Delta Mercury Control Program waste load allocations. However, in accordance with 40 CFR 122.44(d)(1)(vii)(B) and the SIP, this Order contains final WQBELs for methylmercury based on the wasteload allocation in the Basin Plan. The total calendar annual methylmercury load shall not exceed 0.17 grams at Discharge Point No. 002.

(d) Plant Performance and Attainability

(1) Discharge Point No. 001. The effluent limitation for mercury at Discharge Point No. 001 is based on the performance of the Facility. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

(2) Discharge Point No. 002. The Central Valley Water Board finds the Discharger is unable to immediately comply with the final WQBELs for methylmercury at Discharge Point No. 002. 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 for Discharge Point No. 002.

ix. Pathogens – Discharge Point Nos. 001 and 002

(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 do not exceed 2.2 MPN/100 mL as a 7-day median, 23 MPN/100mL more than once in a 30-day period, and 240 MPN/100mL 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. Raw domestic wastewater inherently contains human pathogens that threaten human health, and constitute a threatened pollution and nuisance under Water Code section 13050 if discharged untreated to the receiving water. Reasonable potential therefore exists and WQBELs are required.

Federal regulations at 40 CFR 122.44(d)(1)(i) require 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 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 staff 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 the Willow Slough Bypass and the Conaway Ranch Toe Drain include water contact recreation and agricultural irrigation supply. There is, at times, less than 20:1 dilution in Willow Slough Bypass and the Conaway Ranch Toe Drain. 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. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DPH. In 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. As coliform organisms are living and mobile, it is impracticable to quantify an exact number of coliform organisms and to establish weekly average limitations. Instead, coliform organisms are measured as a most probable number and regulated based on a 7-day median limitation.

In addition to coliform limitations, an operational specification for turbidity has been included to monitor the effectiveness of treatment filter performance, and to assure compliance with the required level of treatment.

The Title 22 tertiary treatment process utilized at the Facility is capable of reliably treating wastewater to a turbidity level of 2 nephelometric turbidity units (NTU). 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. In accordance with DPH recommendations, this Order includes operational specifications for turbidity of 2 NTU as a daily average, 5 NTU not to be exceeded more than 5 percent of the time within a 24-hour period; and 10 NTU as an instantaneous maximum.

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

Final WQBELs for BOD_5 and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD_5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD_5 and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is the daily BOD_5 and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for BOD_5 and TSS than the secondary standards currently prescribed. Therefore, this Order requires compliance with AMELs for BOD_5 and TSS of 10 mg/L and compliance with average weekly effluent limitations of 15 mg/L, which is based on the technical 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.

(d) Plant Performance and Attainability. The Facility is currently designed to provide only a secondary level of treatment and cannot consistently comply with the effluent limitations for BOD_5, total coliform organisms, and TSS based on the Title 22 requirements. Order R5-2007-0132-02 included a compliance schedule and interim effluent limitations for BOD_5, total coliform organisms, and TSS at Discharge Point Nos. 001 and 002, and required compliance with the final effluent limitations by 25 October 2017. Consistent with Order R5-2007-0132-02 and as discussed in section IV.E of this Fact Sheet, a compliance schedule has been included in this Order at Discharge Point No. 002 for BOD_5, total coliform organisms, and TSS.

x. pH – Discharge Point Nos. 001 and 002

(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. Raw domestic wastewater inherently has variable pH that if not properly controlled would violate the Basin Plan's numeric objective for pH in the receiving water. Therefore, reasonable potential exists and WQBELs for pH are required.

Federal regulations at 40 CFR 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. 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 staff 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. 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. Order R5-2007-0132-02 contained a minimum and maximum effluent limitation of 6.5 and 8.0, respectively, at Discharge Point Nos. 001 and 002, to become effective 25 October 2017. The more stringent maximum effluent limit of 8.0 was included in Order R5-2007-0132-02 as requested by the Discharger when the Facility is upgraded to tertiary treatment. The maximum pH at Discharge Point No. 001 (non-wetlands treatment) was 8.0 based on 852 samples collected between December 2007 and June 2012. The maximum pH at Discharge Point No. 002 (wetlands treatment) was 8.4 based on 481 samples collected between December 2007 and June 2012, which included 34 samples greater than the instantaneous maximum limitation of 8.0. Consistent with Order R5-2007-0132-02, effluent limitations for pH of 6.5 as an instantaneous minimum and 8.0 as an instantaneous maximum are included in this Order at Discharge Point Nos. 001 and 002 based on protection of the Basin Plan objectives for pH.

(d) Plant Performance and Attainability. Based on 852 samples at Discharge Point No. 001, the minimum pH was 6.8 and the maximum pH was 8.0. Although monitoring data indicates that the effluent pH at

Discharge Point No. 001 is below the maximum limitation, the Discharger's proposed facility upgrades include more conventional treatment methods that will allow for more consistent control for pH. Based on 481 samples at Discharge Point No. 002, the minimum pH was 6.5 and the maximum pH was 8.4, which is greater than the maximum pH WQBEL of 8.0. Treatment within the wetlands elevates the pH of the effluent. Order R5-2007-0132-02 included a compliance schedule and interim effluent limitations for pH at Discharge Point Nos. 001 and 002, and required compliance with the final effluent limitations by 25 October 2017. Consistent with Order R5-2007-0132-02 and as discussed in section IV.E of this Fact Sheet, a compliance schedule has been included in this Order for Discharge Point Nos. 001 and 002, respectively.

xi. Salinity – Discharge Point Nos. 001 and 002

(a) WQO. The Basin Plan contains a chemical constituent objective that 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. There are no USEPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. There are, however, USEPA aquatic life criteria for chloride, as listed in the tables below. Additionally, there are no USEPA numeric water quality criteria for the protection of agricultural, livestock, and industrial uses. Numeric values for the protection of these uses are typically based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The Central Valley Water Board is currently implementing the Central Valley Salinity Alternatives for Long-term Sustainability (CV-SALTS) initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort, the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and be consistent with the efforts currently underway by CV-SALTS.

Table F-15. Salinity Water Quality Criteria/Objectives – Discharge Point No. 001

Parameter	USEPA NAWQC	Effluent	
		Average	Maximum
Electrical Conductivity (µmhos/cm)	N/A	1,715[1]	2,349
Total Dissolved Solids (mg/L)	N/A	1,098[1]	1,492
Sulfate (mg/L)	N/A	132	230
Chloride (mg/L)	860 1-hr 230 4-day	230	360

Parameter	USEPA NAWQC	Effluent	
		Average	Maximum

[1] Maximum calendar annual average.

Table F-16. Salinity Water Quality Criteria/Objectives – Discharge Point No. 002

Parameter	USEPA NAWQC	Effluent	
		Average	Maximum
Electrical Conductivity (µmhos/cm)	N/A	1,635[1]	3,157
Total Dissolved Solids (mg/L)	N/A	1,051[1]	1,741
Sulfate (mg/L)	N/A	99	110
Chloride (mg/L)	860 1-hr 230 4-day	199	350

[1] Maximum calendar annual average.

Order R5-2007-0132-02 contained interim performance based EC limits based on current treatment plant performance. The interim limits allow the Discharger time to conduct a site-specific study. The California Sportfishing Protection Alliance filed a petition against Order R5-2007-0132 claiming, in part, that the interim effluent limitation for EC as an annual average does not adequately protect resources from instantaneous high levels of EC. The State Water Board issued Order WQ 2008-0008 Corrected (Remand) remanding Order R5-2007-0132 to the Central Valley Water Board. The Remand concluded that the interim EC limitation was appropriately established; but directed the Central Valley Water Board to consider the City of Woodland's EC site-specific study as appropriate findings for calculating a final EC effluent limitation without requiring additional studies by the Discharger.

The City of Woodland's EC site-specific study developed site-specific criteria for electrical conductivity, boron, and fluoride for irrigated agriculture both inside and outside the Yolo Bypass. These site-specific criteria were developed to protect the agricultural beneficial use by taking into account soil type, irrigation management practices, water quality, crop evapotranspiration, and inputs from irrigation and rainfall, while protecting the most sensitive crops in that area. The study found that a maximum electrical conductivity concentration of 1,400 µmhos/cm was protective of the dominant crops both inside and outside the Yolo Bypass, and therefore protective of agricultural beneficial uses.

In a letter to the Central Valley Water Board's NPDES Permitting Section dated 19 October 2011, the CV-SALTS Technical Advisory Committee (TAC) evaluated the applicability of the Woodland data to the Discharger's study and recommended that the City of Davis must clearly delineate the areas that utilize the downstream receiving waters as agricultural supply, confirm the types of crops grown in these areas, investigate cropping patterns and growth cycles of crops, and identify the most salt sensitive

crop(s) to be protected. CV-SALTS made several other recommendations to the Discharger regarding the development of a site-specific study.

(b) RPA Results

(1) Chloride. Chloride concentrations in the effluent from Discharge Point No. 001 ranged from 130 mg/L to 360 mg/L, with an average of 230 mg/L. Receiving water data upstream of Discharge Point No. 001 ranged from 23 mg/L to 310 mg/L. Chloride concentrations in the effluent from Discharge Point No. 002 ranged from 94 mg/L to 350 mg/L with an average of 199 mg/L. Receiving water data upstream of Discharge Point No. 002 ranged from 94 mg/L to 180 mg/L. These levels exceed the aquatic life criteria for chloride.

(2) Electrical Conductivity. As described above, the City of Woodland's EC site-specific study found that an EC concentration of 1,400 µmhos/cm was protective of the agricultural beneficial use both inside and outside the Yolo Bypass. A review of the Discharger's monitoring reports show an average effluent EC concentration of 1,715 µmho/cm at Discharge Point No. 001, with a range of 897 µmhos/cm to 2,349 µmhos/cm. A review of the Discharger's monitoring reports show an average effluent EC concentration of 1,635 µmhos/cm at Discharge Point No. 002, with a range of 913 µmhos/cm to 3,157 µmhos/cm. The average EC concentrations at Discharge Point Nos. 001 and 002 were compared to the site-specific EC water quality objective of 1,400 µmhos/cm in this RPA. These levels exceed the site-specific EC water quality objective at Discharge Point Nos. 001 and 002. Receiving water data upstream of Discharge Point No. 001 averaged 1,005 µmhos/cm. Receiving water data upstream of Discharge Point No. 002 averaged 826 µmhos/cm.

(3) Sulfate. Sulfate concentrations in the effluent at Discharge Point No. 001 ranged from 64 mg/L to 230 mg/L, with an average of 132 mg/L. Upstream receiving water data was not available. Sulfate concentrations in the effluent at Discharge Point No. 002 ranged from 92 mg/L to 110 mg/L, with an average of 99 mg/L. There are no applicable water quality criteria for sulfate at Discharge Point Nos. 001 and 002; thus no RPA was required.

(4) Total Dissolved Solids. The average TDS effluent concentration at Discharge Point No. 001 was 1,098 mg/L with concentrations ranging from 824 mg/L to 1,492 mg/L. Upstream receiving water data is not available for TDS. The average TDS effluent concentration at Discharge Point No. 002 was 1,051 mg/L with concentrations ranging from 716 mg/L to 1,741 mg/L. There are no applicable water quality criteria for TDS at Discharge Point No. 002; thus, no RPA was required.

(c) WQBELs. The Central Valley Water Board, with cooperation of the State Water Board, has begun the process to develop a new policy for the regulation of salinity in the Central Valley. In a statement issued at the 16 March 2006, Central Valley Water Board meeting, Board Member Dr. Karl Longley recommended that the Central Valley Water Board continue to exercise its authority to regulate discharges of salt to minimize salinity increases within the Central Valley. Dr. Longley stated, "*The process of developing new salinity control policies does not, therefore, mean that we should stop regulating salt discharges until a salinity Policy is developed. In the meantime, the Board should consider all possible interim approaches to continue controlling and regulating salts in a reasonable manner, and encourage all stakeholder groups that may be affected by the Regional Board's policy to actively participate in policy development.*"

At Discharge Point No. 001, the average EC concentration was 1,715 µmhos/cm while the average upstream receiving water concentration was 1,005 µmhos/cm. At Discharge Point No. 002, the average EC concentration was 1,635 µmhos/cm while the average upstream receiving water concentration was 826 µmhos/cm. Therefore, EC in the discharge at Discharge Point Nos. 001 and 002 have a reasonable potential to cause or contribute to an in-stream excursion above the site-specific objective for the protection of the agricultural beneficial use, as determined in the City of Woodland's site-specific EC study.

Until the Central Valley Water Board completes development of a new salinity policy for the Central Valley, this Order includes an annual average effluent limitation of 1,400 µmhos/cm for EC at Discharge Point Nos. 001 and 002. This effluent limitation is based on the City of Woodlands site-specific EC study and is considered to be protective of the agriculture beneficial use. Including effluent limitations for EC will reduce the salt contribution to the receiving water and will ensure compliance for all salinity parameters (i.e., chloride, sulfate, total dissolved solids, and EC).

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the limitations appear to put the Discharger in immediate non-compliance at Discharge Point Nos. 001 and 002. Order R5-2007-0132-02 included interim effluent limitations for EC at Discharge Point Nos. 001 and 002. Consistent with Order R5-2007-0132-02 and as discussed in section IV.E of this Fact Sheet, interim effluent limitations and a compliance schedule have been included in this Order at Discharge Point Nos. 001 and 002 for EC.

xii. Selenium – Discharge Point Nos. 001 and 002

(a) WQO. The CTR includes maximum 1-hour average and 4-day average criteria of 5.0 µg/L and 20 µg/L, respectively, for total recoverable selenium for the protection of freshwater aquatic life.

(b) RPA Results

(1) Discharge Point No. 001. The MEC for selenium at Discharge Point No. 001 was 6.0 µg/L (as total recoverable) based on 90 samples collected between December 2007 and June 2012. The maximum observed upstream receiving water concentration was 13 µg/L (as total recoverable), based on 19 samples collected between December 2007 and June 2012. Therefore, selenium in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life at Discharge Point No. 001.

(2) Discharge Point No. 002. The MEC for selenium at Discharge Point No. 002 was 3.8 µg/L (as total recoverable) based on 39 samples collected between December 2007 and June 2012. The maximum observed upstream receiving water concentration was 12 µg/L (as total recoverable), based on nine samples collected between December 2007 and June 2012. Since the maximum upstream receiving water selenium concentration exceeded the water quality criteria and selenium was detected in the effluent, selenium in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life at Discharge Point No. 002.

(c) WQBELs

(1) Discharge Point No. 001. This Order contains a final AMEL and MDEL for selenium at Discharge Point No. 001 of 4.4 µg/L and 7.1 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life.

(2) Discharge Point No. 002. This Order contains a final AMEL and MDEL for selenium at Discharge Point No. 002 of 4.5 µg/L and 6.9 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life.

(d) Plant Performance and Attainability. TSO R5-2010-0029-02 provides a compliance schedule to achieve compliance with the final effluent limitations for selenium at Discharge Point Nos. 001 and 002 by 1 February 2015.

4. WQBEL Calculations

a. This Order includes WQBELs at Discharge Point No. 001 for aluminum, ammonia, BOD_5, cadmium, chlorine residual, copper, cyanide, diazinon and chlorpyrifos, electrical conductivity, mercury, pH, selenium, total coliform organisms, and TSS. This Order includes WQBELs at Discharge Point No. 002 for aluminum, ammonia, BOD_5, chlorine residual, copper, diazinon and chlorpyrifos, electrical conductivity, methylmercury, pH, selenium, 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:

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

where:

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

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

c. Basin Plan Objectives and MCLs. For WQBELs based on site-specific numeric Basin Plan objectives or MCLs, the effluent limitations are applied directly as the ECA as either an MDEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.

d. Aquatic Toxicity Criteria. WQBELs based on acute and chronic aquatic toxicity criteria are calculated in accordance with section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e., 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 Nos. 001 and 002

Table F-17. Summary of WQBELs – Discharge Point No. 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--
	lbs/day[1]	630	940	1,300	--	--
pH	standard units	--	--	--	6.5	8.0
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	630	940	1,300	--	--
Priority Pollutants						
Cadmium, Total Recoverable	µg/L	4.3	--	8.3	--	--
Copper, Total Recoverable	µg/L	23	--	49	--	--
Cyanide, Total (as CN)	µg/L	4.4	--	8.1	--	--
Mercury, Total Recoverable	lbs/month	0.038[2]	--	--	--	--
Selenium, Total Recoverable	µg/L	4.4	--	7.1	--	--
	lbs/day[1]	0.28	--	0.44	--	--
Non-Conventional Pollutants						
Aluminum, Total Recoverable	µg/L	392	--	750	--	--
Ammonia Nitrogen, Total (as N) 1 March – 31 October	mg/L	1.3	--	4.0	--	--
	lbs/day[1]	82	--	251	--	--
Ammonia Nitrogen, Total (as N) 1 November – 29 February	mg/L	1.8	--	3.3	--	--
	lbs/day[1]	113	--	207	--	--
Chlorine, Total Residual	mg/L	--	0.011[4]	0.019[5]	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Diazinon and Chlorpyrifos	µg/L	[8]	--	[9]	--	--
Electrical Conductivity @ 25°C	µmhos/cm	1,400[3]	--	--	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2[6]	23[7]	--	240

1 Based upon an average dry weather flow of 7.5 MGD.
2 The total monthly mass discharge of total mercury shall not exceed 0.038 lbs/month.
3 Applied as an annual average effluent limitation.
4 Applied as a 4-day average effluent limitation.
5 Applied as a 1-hour average effluent limitation.
6 Applied as a 7-day median effluent limitation.
7 Not to be exceeded more than once in any 30-day period.
8 $$S_{avg} = \frac{C_{D\ avg}}{0.079} + \frac{C_{C\ avg}}{0.012} \leq 1.0$$
$C_{D\text{-}avg}$ = average monthly diazinon effluent concentration in µg/L
$C_{C\text{-}avg}$ = average monthly chlorpyrifos effluent concentration in µg/L
9 $$S_{max} = \frac{C_{D\ max}}{0.16} + \frac{C_{C\ max}}{0.025} \leq 1.0$$
$C_{D\text{-}avg}$ = maximum daily diazinon effluent concentration in µg/L
$C_{C\text{-}avg}$ = maximum daily chlorpyrifos effluent concentration in µg/L

Table F-18. Summary of WQBELs – Discharge Point No. 002

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--
	lbs/day[1]	630	940	1,300	--	--
pH	standard units	--	--	--	6.5	8.0
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	630	940	1,300	--	--
Priority Pollutants						
Copper, Total Recoverable	µg/L	16	--	33	--	--
Selenium, Total Recoverable	µg/L	4.5	--	6.9	--	--
	lbs/day[1]	0.28	--	0.43	--	--
Non-Conventional Pollutants						
Aluminum, Total Recoverable	µg/L	400	--	750	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Ammonia Nitrogen, Total (as N) 1 March – 31 October	mg/L	1.4	--	5.1	--	--
	lbs/day[1]	88	--	300	--	--
Ammonia Nitrogen, Total (as N) 1 November – 29 February	mg/L	2.2	--	5.5	--	--
	lbs/day[1]	138	--	344	--	--
Chlorine, Total Residual	mg/L	--	0.011[2]	0.019[3]	--	--
Diazinon and Chlorpyrifos	µg/L	[4]	--	[5]	--	--
Electrical Conductivity @ 25°C	µmhos/cm	1,400[6]	--	--	--	--
Methylmercury	grams	0.17[7]	--	--	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2[8]	23[9]	--	240

1 Based upon an average dry-weather flow of 7.5 MGD.
2 Applied as a 4-day average effluent limitation.
3 Applied as a 1-hour average effluent limitation.
4 $$S_{avg} = \frac{C_{D\ avg}}{0.079} + \frac{C_{C\ avg}}{0.012} \leq 1.0$$
$C_{D\text{-}avg}$ = average monthly diazinon effluent concentration in µg/L
$C_{C\text{-}avg}$ = average monthly chlorpyrifos effluent concentration in µg/L
5 $$S_{max} = \frac{C_{D\ max}}{0.16} + \frac{C_{C\ max}}{0.025} \leq 1.0$$
$C_{D\text{-}avg}$ = maximum daily diazinon effluent concentration in µg/L
$C_{C\text{-}avg}$ = maximum daily chlorpyrifos effluent concentration in µg/L
6 Applied as an annual average effluent limitation.
7 The total calendar annual load for methylmercury shall not exceed 0.17 grams.
8 Applied as a 7-day median effluent limitation.
9 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 II-8.00) The Basin Plan also states that,

"…effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate…". USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc.*" Consistent with Order R5-2007-0132-02, 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 February 2008 through June 2012 at Discharge Point Nos. 001 and 002, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective at Discharge Point Nos. 001 and 002, as shown in the table below.

Table F-19. Whole Effluent Chronic Toxicity Testing Results

Date	Fathead Minnow *Pimephales promelas*		Water Flea *Ceriodaphnia dubia*		Green Algae *Selenastrum capricornutum*
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
Discharge Point No. 001					
3 June 2008	1	1	1	1	--
5 August 2008	1	1	1	1	>1
11 November 2008	>1	>1	1	>1	2
10 February 2009	>1	>1	1	1	>1
14 July 2009	1	1	1	1	1
6 October 2009	1	>1	1	1	1
9 June 2010	1	1	1	1	2
11 August 2010	1	1	1	1	1
Discharge Point No. 002					
19 February 2008	1	1	1	>1	--
1 April 2008	1	1	1	1	--

Date	Fathead Minnow *Pimephales promelas*		Water Flea *Ceriodaphnia dubia*		Green Algae *Selenastrum capricornutum*
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
3 March 2009	1	1	1	1	1
7 April 2009	>1	1	1	1	>1
5 May 2009	1	1	--	--	--
2 June 2009	1	1	--	--	--
13 January 2010	1	>1	1	>1	1
7 April 2010	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[1] that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, "*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

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

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 and selenium because they are bioaccumulative pollutants and because the TMDL for mercury includes mass-based WLAs. Mass-based effluent limitations were calculated based upon the average dry weather flow of 7.5 MGD.

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 MDELs in lieu of average weekly effluent limitations at Discharge Point No. 001 for aluminum, ammonia, cadmium, copper, cyanide, and selenium, and at Discharge Point No. 002 for aluminum, ammonia, copper, diazinon and chlorpyrifos, and selenium 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, chlorine residual, pH, total coliform organisms, and TSS at both Discharge Point Nos. 001 and 002, 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 R5-2007-0132-02, with the exception of effluent limitations for aluminum, iron, settleable solids, temperature, and turbidity at Discharge Point Nos. 001and 002. The effluent limitations for these pollutants are less stringent than those in Order R5-2007-0132-02. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

c. 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, iron, settleable solids, temperature, and turbidity at Discharge Point Nos. 001 and 002 established in Order R5-2007-0132-02 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. 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 applicable to Willow Slough Bypass and Conaway Ranch Toe Drain, as described in section III.D.1 of this Fact Sheet, do not include aluminum, iron, settleable solids, temperature, or turbidity. Thus, the receiving waters are attainment waters for these constituents. The removal or relaxation of WQBELs for aluminum, iron, settleable solids, temperature, and

turbidity at Discharge Point Nos. 001 and 002 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.

d. CWA Section 402(o)(2). CWA section 402(o)(2) provides several exceptions to the anti-backsliding requirements. 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 of this Fact Sheet, updated information that was not available at the time Order R5-2007-0132-02 was issued indicates that dissolved iron, settleable solids and temperature at Discharge Point Nos. 001 and 002 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 R5-2007-0132-02 was issued supports relaxation of the effluent limitations for aluminum and iron at Discharge Point Nos. 001 and 002. The updated information that supports the relaxation of effluent limitations for these constituents includes the following:

i. Discharge Point No. 001

(a) Aluminum. Receiving water monitoring data for water quality characteristics (e.g., pH and hardness) collected between December 2007 and June 2012 in Willow Slough Bypass, as well as local environmental conditions and aluminum toxicity study results indicates that the recommend NAWQC chronic criterion of 87 µg/L is not applicable to Willow Slough Bypass. The relaxed effluent limitations in this Order are based on the recommended NAWQC acute criterion of 750 µg/L for protection of aquatic life.

(b) Iron. The Discharger conducted two studies and compared the dissolved concentration of iron with the total concentration of iron. Evaluation of the new information from the effluent and receiving water monitoring data for dissolved iron collected between September 2010 and December 2012 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan narrative objective.

(c) Settleable Solids. Effluent and receiving water monitoring data collected between December 2007 and June 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. This Order contains receiving water limitations for suspended sediments,

settleables substances, and suspended material that will protect the beneficial uses.

(d) Temperature. Order R5-2007-0132-02 included effluent limitations at Discharge Point No. 001 for temperature based on the Thermal Plan. However, because Willow Slough Bypass is not within the legal boundaries of the Delta, the Thermal Plan is not applicable to Discharge Point No. 001. Additionally, the effluent temperature did not exceed the receiving water temperature by more than 4.1 F based on 183 samples collected between December 2007 and June 2012.

ii. Discharge Point No. 002

(a) Aluminum. Receiving water monitoring data for water quality characteristics (e.g., pH and hardness) collected between December 2007 and June 2012 in the Conaway Ranch Toe Drain, as well as local environmental conditions and aluminum toxicity study results indicates that the recommend NAWQC chronic criterion of 87 µg/L is not applicable to the Conaway Ranch Toe Drain. The relaxed effluent limitations in this Order are based the recommended NAWQC acute criterion of 750 µg/L for protection of aquatic life.

(b) Dissolved Iron. The Discharger conducted two studies and compared the dissolved concentration of iron with the total concentration of iron. Evaluation of the new information from the effluent monitoring data collected between February 2011 and April 2013 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan narrative objective.

(c) Settleable Solids. Effluent and receiving water monitoring data collected between December 2007 and June 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. This Order contains receiving water limitations for suspended sediments, settleables substances, and suspended material that will protect the beneficial uses.

(d) Temperature. Order R5-2007-0132-02 included effluent limitations at Discharge Point No. 002 for temperature based on the Thermal Plan. However, because the Conaway Ranch Toe Drain is not within the legal boundaries of the Delta, the Thermal Plan is not applicable to Discharge Point No. 002. Additionally, the effluent temperature did not exceed the receiving water temperature by more than 5.6 F based on 51 samples collected between December 2007 and June 2012.

Thus, removal or relaxation of the effluent limitations for aluminum, settleable solids, and temperature at Discharge Point No. 001 and aluminum, settleable solids, and temperature at Discharge Point No. 002 from Order R5-2007-0132-02

is in accordance with CWA section 402(o)(2)(B)(i), which allows for the removal or relaxation of effluent limitations based on information that was not available at the time of permit issuance.

e. **Turbidity.** Order R5-2007-0132-02 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 R5-2007-0132-02. 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 R5-2007-0132-02 and therefore does not allow degradation.

4. Satisfaction of Antidegradation Policy

a. **Surface Water.** This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

This Order removes or relaxes existing effluent limitations for aluminum, settleable solids, temperature, and turbidity at Discharge Point Nos. 001 and 002 based on updated monitoring data which 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 relaxation of the effluent limitations does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the relaxation of effluent limitations 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.

b. Groundwater. The Discharger utilizes oxidation ponds, unlined sludge lagoons, overland flow fields, and wetlands. Domestic wastewater contains constituents such as total dissolved solids, electrical conductivity, pathogens, nitrates, organics, metals, and BOD_5. Percolation from the ponds, lagoons, overland flow fields, and wetlands may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with Resolution No. 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger is consistent with Resolution No. 68-16 provided that:

i. the degradation is limited in extent;

ii. the degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;

iii. the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and

iv. the degradation does not result in water quality less than that prescribed in the Basin Plan.

Groundwater limitations for total coliform organisms, nitrate, and pH have been included in this order for protection of the beneficial use of groundwater.

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 for Discharge Point No. 001 consist of restrictions on aluminum, ammonia, BOD_5, cadmium, chlorine residual, copper, cyanide, diazinon and chlorpyrifos, electrical conductivity, mercury, pH, selenium, total coliform organisms, and TSS. The WQBELs for Discharge Point No. 002 consist of restrictions on aluminum, ammonia, BOD_5, chlorine residual, copper, diazinon and chlorpyrifos, electrical conductivity, methylmercury, pH, selenium, 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 131.21I(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 Nos. 001 and 002

Table F-20. Summary of Final Effluent Limitations – Discharge Point No. 001

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	MGD	--	--	7.5[2]	--	--	DC
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--	TTC
	lbs/day[3]	630	940	1,300	--	--	
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.0	BP, PB
Total Suspended Solids	mg/L	10	15	20	--	--	TTC
	lbs/day[3]	630	940	1,300	--	--	
	% Removal	85	--	--	--	--	CFR
Priority Pollutants							
Cadmium, Total Recoverable	µg/L	4.3	--	8.3	--	--	CTR
Copper, Total Recoverable	µg/L	23	--	49	--	--	CTR
Cyanide, Total Recoverable	µg/L	4.4	--	8.1	--	--	CTR
Mercury, Total Recoverable	lbs/month	0.038[4]	--	--	--	--	PB
Selenium, Total Recoverable	µg/L	4.4	--	7.1	--	--	CTR
	lbs/day[1]	0.28	--	0.44	--	--	
Non-Conventional Pollutants							
Aluminum, Total Recoverable	µg/L	392	--	750	--	--	NAWQC
Ammonia Nitrogen, Total (as N) 1 March – 31 October	mg/L	1.3	--	4.0	--	--	NAWQC
	lbs/day[3]	82	--	251	--	--	

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Ammonia Nitrogen, Total (as N) 1 November – 29 February	mg/L	1.8	--	3.3	--	--	NAWQC
	lbs/day[3]	113	--	207	--	--	
Chlorine, Total Residual	mg/L	--	0.011[5]	0.019[6]	--	--	NAWQC
Diazinon and Chlorpyrifos	µg/L	[12]	--	[13]	--	--	TMDL
Electrical Conductivity @ 25°C	µmhos/cm	2,050[7]	--	--	--	--	PB
Total Coliform Organisms	MPN/100 mL	--	2.2[8]	23[9]	--	240	Title 22
Acute Toxicity	% Survival	--	--	[10]	--	--	BP
Chronic Toxicity	TUc	--	--	[11]	--	--	BP

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.
PB – Based on the performance of the facility.
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
NAWQC – Based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
Title 22 – Based on CA Department of Public Health Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

2 The average dry weather discharge flow shall not exceed 7.5 MGD as a total from Discharge Point Nos. 001 and 002.

3 Based upon an average dry weather flow of 7.5 MGD.

4 The total monthly mass discharge of total mercury shall not exceed 0.038 lbs/month.

5 Applied as a 4-day average effluent limitation.

6 Applied as a 1-hour average effluent limitation.

7 Applied as an annual average effluent limitation.

8 Applied as a 7-day median effluent limitation.

9 Not to be exceeded more than once in any 30-day period.

10 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%

11 There shall be no chronic toxicity in the effluent discharge.

12 $$S_{avg} = \frac{C_{D\ avg}}{0.079} + \frac{C_{C\ avg}}{0.012} \leq 1.0$$

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

13 $$S_{max} = \frac{C_{D\ max}}{0.16} + \frac{C_{C\ max}}{0.025} \leq 1.0$$

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

Table F-21. Summary of Final Effluent Limitations – Discharge Point No. 002

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	MGD	--	--	7.5[2]	--	--	DC
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--	TTC
	lbs/day[3]	630	940	1,300	--	--	
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.0	BP, PB
Total Suspended Solids	mg/L	10	15	20	--	--	TTC
	lbs/day[3]	630	940	1,300	--	--	
	% Removal	85	--	--	--	--	CFR
Priority Pollutants							
Copper, Total Recoverable	µg/L	16	--	33	--	--	CTR
Selenium, Total Recoverable	µg/L	4.5	--	6.9	--	--	CTR
	lbs/day[3]	0.28	--	0.43	--	--	
Non-Conventional Pollutants							
Aluminum, Total Recoverable	µg/L	400	--	750	--	--	NAWQC
Ammonia Nitrogen, Total (as N) 1 March – 31 October	mg/L	1.5	--	4.7	--	--	NAWQC
	lbs/day[3]	94	--	295	--	--	
Ammonia Nitrogen, Total (as N) 1 November – 29 February	mg/L	2.3	--	5.6	--	--	NAWQC
	lbs/day[3]	144	--	352	--	--	
Chlorine, Total Residual	mg/L	--	0.011[4]	0.019[5]	--	--	NAWQC
Diazinon and Chlorpyrifos	µg/L	[6]	--	[7]	--	--	TMDL
Electrical Conductivity @ 25°C	µmhos/cm	2,050[8]	--	--	--	--	PB
Methylmercury	grams	0.17[9]	--	--	--	--	TMDL
Total Coliform Organisms	MPN/100 mL	--	2.2[10]	23[11]	--	240	Title 22
Acute Toxicity	% Survival	--	--	[12]	--	--	BP
Chronic Toxicity	TUc	--	--	[13]	--	--	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.
PB – Based on the performance of the facility.
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
NAWQC – Based on USEPA's National Ambient Water Quality Criteria.
TMDL – Based on the waste load allocations specified in the applicable TMDL.
Title 22 – Based on CA Department of Public Health Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

2 The average dry weather discharge flow shall not exceed 7.5 MGD as a total from Discharge Point Nos. 001 and 002.

3 Based upon an average dry weather flow of 7.5 MGD.

4 Applied as a 4-day average effluent limitation.

5 Applied as a 1-hour average effluent limitation.

6 $$S_{avg} = \frac{C_{D\ avg}}{0.079} + \frac{C_{C\ avg}}{0.012} \leq 1.0$$

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

7 $$S_{max} = \frac{C_{D\ max}}{0.16} + \frac{C_{C\ max}}{0.025} \leq 1.0$$

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

8 Applied as an annual average effluent limitation.

9 The total calendar annual load for methylmercury shall not exceed 0.17 grams.

10 Applied as a 7-day median effluent limitation.

11 Not to be exceeded more than once in any 30-day period.

12 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%

13 There shall be no chronic toxicity in the effluent discharge.

E. Interim Effluent Limitations

1. Compliance Schedules

a. Ammonia, BOD_5, pH, Total Coliform Organisms, and TSS. Order R5-2007-0132-02 established effluent limitations for ammonia, BOD_5, pH, total coliform organisms, and TSS more stringent than the effluent limitations previously imposed which were based on new interpretations of narrative water quality objectives in the Basin Plan. The Discharger submitted a request and justification for compliance schedules for these constituents, dated 22 January 2007. The Discharger submitted a subsequent request dated 24 October 2008 to extend the compliance schedules by 2 years. Consequently, Order R5-2007-0132-02 established compliance schedules for ammonia, BOD_5, pH, total coliform organisms, and TSS. Consistent with Order R5-2007-0132-02, this Order requires

final compliance with the effluent limitations for ammonia, BOD_5, pH, total coliform organisms, and TSS by 25 October 2017.

b. **Electrical Conductivity.** The permit limitations for EC are more stringent than the limitations previously imposed at Discharge Point No. 001 and 002. These new limitations are based on the City of Woodland's site–specific EC study that determined a 1,400 µmhos/cm was protective of agricultural beneficial uses both inside and outside the Yolo Bypass. The Discharger has complied with the application requirements in paragraph 4 of the State Water Board's Compliance Schedule Policy, and the Discharger has demonstrated the need for additional time to implement actions to comply with the new limitations. A source identification study, performed by the Discharger, showed that the primary source of EC in the wastewater was found to be from the water supply and residential water softener discharges. The Discharger is constructing a new regional surface water supply project to improve the municipal water supply. The new surface water supply may improve the influent water quality entering the Facility. This Order includes the compliance schedule and final compliance date of 1 January 2021 and establishes new interim milestones to ensure that the Discharger continues to make progress towards achieving final compliance with the final effluent limitations by the final compliance date.

c. **Mercury (Discharge Point No. 002 only).** The permit limitations for methylmercury are more stringent than the limitations previously imposed at Discharge Point No. 002. 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 for Discharge Point No. 002.

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 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. However, as feasible implementation measures are determined, the Discharger shall take action to reduce methylmercury in the discharge. 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.

Interim performance-based limitations have been established in this Order. The interim limitations were determined as described in section IV.E.2, below, and are in effect until the final limitations take effect. As part of the compliance schedule, this Order includes interim milestones that the Discharger must meet to assure compliance with the final effluent limitations for ammonia, BOD_5, electrical conductivity, methylmercury, pH, and total coliform organisms. The interim numeric effluent limitations and source control measures will result in the highest discharge quality that can reasonably be achieved until final compliance is attained. As discussed in section VII.B.7 of this Fact Sheet, the compliance schedule in this Order for ammonia, BOD_5, electrical conductivity, methylmercury, pH, and total coliform organisms are as short as possible and are in accordance with 40 CFR 122.47.

2. Interim Limits

a. Ammonia, BOD_5, pH, Total Coliform Organisms, and TSS. The Compliance Schedule Policy requires the Central Valley Water Board to establish interim requirements and dates for their achievement in the NPDES permit. Interim numeric effluent limitations are required for compliance schedules longer than 1 year. Interim effluent limitations must be based on current treatment plant performance or previous final permit limitations, whichever is more stringent. When feasible, interim limitations must correspond with final permit effluent limitations with respect to averaging bases (e.g., AMEL, MDEL) for effluent limitations for which compliance protection is intended.

The interim limitations for ammonia (MDEL only), BOD_5, pH, total coliform organisms, and TSS from Order R5-2007-0132-02 are retained in this Order.

b. Electrical Conductivity. The Compliance Schedule Policy requires the Central Valley Water Board to establish interim requirements and dates for their achievement in the NPDES permit. Interim numeric effluent limitations are required for compliance schedules longer than 1 year. Interim effluent limitations must be based on current treatment plant performance or previous final permit limitations, whichever is more stringent. When feasible, interim limitations must correspond with final permit effluent limitations with respect to averaging bases (e.g., AMEL, MDEL) for effluent limitations for which compliance protection is intended. The interim limitations for EC from Order R5-2007-0132-02 are retained in this Order.

c. 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 99.9^{th} 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% of the data points will lie within 3.3 standard deviations of the mean (Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row). 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 December 2007 through June 2012 was used to determine the performance-based interim effluent limitations for mercury at Discharge Point No. 002. 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 tables summarize the calculations of the interim effluent limitations at Discharge Point Nos. 001 and 002:

Table F-22. Interim Effluent Limitation Calculation Summary – Discharge Point No. 002

Parameter	Units	MEC	Mean	Standard Deviation	Number of Samples	Interim Limitation	
						Average Monthly	Maximum Daily
Mercury, Total Recoverable	g/year	55[1]	34	12	24	--	75[3]

1 Maximum annual effluent loading.
2 The effluent calendar annual total mercury load shall not exceed 75 grams.

F. Land Discharge Specifications

The Land Discharge Specifications are necessary to protect the beneficial uses of the groundwater and to prevent nuisance. The Discharger currently uses three facultative oxidation ponds, two aerated ponds, a polishing pond, and an overland flow system as part of the treatment process. Proper operation of the ponds is necessary to protect

groundwater beneficial uses, and therefore, land discharge specifications are established in this Order.

G. Reclamation Specifications – Not Applicable

H. Wetlands Specifications

The Wetlands Specifications are necessary to protect the aquatic life and wildlife in contact with the wetlands and to prevent nuisance. During certain times of the year, the Discharger discharges treated wastewater to the Conaway Ranch Toe Drain via the restoration wetlands. Proper operation and care of the wetlands is necessary to protect the aquatic like and wildlife in contact with the wetlands, and therefore, wetland specifications are established in this Order.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

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

A. Surface Water

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

a. **Turbidity.** Order R5-2007-0132-02 established a receiving water limitation for turbidity specifying that discharges from the Facility shall not cause the turbidity to increase more than 1 NTU where natural turbidity is between 0 and 5 NTU based on the water quality objective for turbidity in the Basin Plan. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the Basin Plan to limit turbidity to 2 NTU when the natural turbidity is less than 1 NTU. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and USEPA.

In Finding No. 14 of Resolution R5-2007-0136 the Central Valley Water Board found that the change in the turbidity 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). This Antidegradation Analysis is applicable to this receiving water, and therefore, an additional antidegradation analysis is not necessary. Thus, consistent with the revised water quality objective in the Basin Plan, this Order limits turbidity in the receiving water to 2 NTU when the natural turbidity is less than 1 NTU.

B. Groundwater

1. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

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

3. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 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), BOD_5 (three times per week), and TSS (three times per week) have been retained from Order R5-2007-0132-02. Daily monitoring requirements for pH and annual monitoring for electrical conductivity have not been retained from Order R5-2007-0132-02 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.

a. Monitoring Location EFF-A

Effluent monitoring is established to at Monitoring Location EFF-A to allow the Discharger to demonstrate the effluent meets tertiary treatment immediately after disinfection and prior to being discharged to Discharge Point No. 001 or the wetlands.

i. Effluent monitoring frequencies for BOD_5 (three times per week), chlorine residual (continuous), TSS (three times per week), and turbidity (continuous) have been retained from Order R5-2007-0132-02.

ii. Effluent monitoring for electrical conductivity and total coliform organisms has been reduced from five times per week to three times per week, respectively. 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.

iii. Monitoring data collected over the term of Order R5-2007-0132-02 for settleable solids did not demonstrate reasonable potential to exceed water

quality objectives/criteria. Thus, specific monitoring requirements for settleable solids have not been retained from Order R5-2007-0132-02.

b. Discharge Point No. 001

i. Effluent monitoring frequencies and sample types for flow (continuous), aluminum (monthly), cyanide (monthly), hardness (monthly), mercury (monthly), pH (continuous), and selenium (monthly), temperature (weekly) have been retained from Order R5-2007-0132-02 to determine compliance with effluent limitations for these parameters, where applicable, and characterize the effluent.

ii. Monitoring data collected over the term of Order R5-2007-0132-02 for oil and grease and standard minerals did not demonstrate reasonable potential to exceed water quality objectives/criteria at Discharge Point No. 001. Thus, specific monitoring requirements for these parameters have not been retained from Order R5-2007-0132-02.

iii. This Order establishes effluent limitations for copper at Discharge Point No. 001. Therefore, this Order requires monthly effluent monitoring for copper to determine compliance with the applicable effluent limitations.

iv. This Order establishes effluent limitations for cadmium at Discharge Point No. 001 because the receiving water is impaired upstream of the discharge and cadmium was detected in the effluent. Therefore, this Order includes quarterly effluent monitoring for cadmium to determine compliance with effluent limitations.

v. This Order includes effluent limitations for diazinon and chlorpyrifos based on the applicable TMDL for the Sacramento-San Joaquin Delta. 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.

vi. The effluent monitoring frequencies (at both Discharge Point Nos. 001 and 002) for ammonia and dissolved oxygen have been reduced from five times per week to three times per week and weekly to monthly, respectively. The Discharger provided an adequate dataset over the term of Order R5-2007-0132-02 to characterize the effluent and the Central Valley Water Board finds that the monthly monitoring is sufficient.

vii. Order R5-2007-0132-02 established monthly monitoring (at Discharge Point Nos. 001 and 002) for boron, chloride, sodium, and total dissolved solids, and thus a sufficient dataset has been provided to characterize the effluent for these parameters. Therefore, this Order does not retain effluent monitoring for these constituents.

viii. Order R5-2007-0132-02 established quarterly and annual effluent monitoring (at Discharge Point Nos. 001 and 002) for 2,3,7,8-TCDD equivalents, including the 17 congeners, according to section 3 of the SIP, and required the Discharger to prepare and implement a dioxin congeners evaluation and minimization plan to assess the presence of and address sources of dioxin-like congeners detected in the effluent. The Discharger completed the requirements of Order R5-2007-0132-02 by conducting monitoring and submitting a *Dioxin Congeners Source Evaluation and Minimization Plan*. The samples from the effluent and receiving water resulted in either non-detects or j-flag estimated detections. Therefore, the results of the sampling do not show a need to continue additional effluent monitoring for dioxin congeners. However, monitoring for 2,3,7,8-TCDD will continue to be required according to Attachment I. The Discharger should continue to pursue implementation of proposed source control measures identified in the *Dioxin Congeners Source Evaluation and Minimization Plan*, such as, a fireplace ordinance, alternative vehicle fuel, chlorine-free purchasing, etc.

ix. Priority pollutant data for the effluent has been provided by the Discharger over the term of Order R5-2007-0132-02 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. This Order requires bimonthly monitoring during the third year of the permit term in order to collect data to conduct an RPA for the next permit renewal. See Attachment I for more detained requirements related to performing priority pollutant monitoring.

c. Discharge Point No. 002

i. Effluent monitoring frequencies and sample types for flow (continuous), aluminum (monthly), copper (monthly), hardness (monthly), mercury (monthly), pH (continuous), selenium (monthly), and temperature (weekly) have been retained from Order R5-2007-0132-02 to determine compliance with effluent limitations for these parameters, where applicable, and characterize the effluent.

ii. Order R5-2007-0132-02 included monitoring requirements for boron, chloride, sodium, total dissolved solids, ammonia, dissolved oxygen, and TCDD equivalents. See sections VI.B.1.b.(vi., vii., and viii.) above for the changes included in this Order.

iii. The effluent monitoring frequencies for ammonia and dissolved oxygen have been reduced from five times per week to three times per week and weekly to monthly, respectively. The Discharger provided an adequate dataset over the term of Order R5-2007-0132-02 to characterize the effluent and the Central Valley Water Board finds that the monthly monitoring is sufficient.

iv. This Order includes effluent limitations for diazinon and chlorpyrifos based on the applicable TMDL for the Sacramento-San Joaquin Delta. 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.

v. Priority pollutant data for the effluent has been provided by the Discharger over the term of Order R5-2007-0132-02 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. This Order requires bimonthly monitoring during the third year of the permit term in order to collect data to conduct an RPA for the next permit renewal. See Attachment I for more detained requirements related to performing priority pollutant monitoring.

2. California Water Code section 13176, subdivision (a), states: "*The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code*." DPH certifies laboratories through its Environmental Laboratory Accreditation Program (ELAP).

Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the Clean Water Act. (Water Code §§ 13370, subd. I, 13372, 13377.) Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with Clean Water Act requirements. (Water Code § 13372, subd. (a).) The holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, and pH and immediate analysis is required for temperature. (40 CFR 136.3I, Table II) The Discharger has an ELAP certified laboratory on-site; therefore, all analyses must be conducted within the required analytical hold times.

C. Whole Effluent Toxicity Testing Requirements

1. Acute Toxicity. Consistent with Order R5-2007-0132-02, monthly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. Chronic Toxicity. Consistent with Order R5-2007-0132-02, 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), fecal coliform organisms (monthly), hardness (quarterly), pH (weekly), temperature (weekly), and turbidity (monthly) have been retained from Order R5-2007-0132-02.

c. Order R5-2007-0132-02 did not require priority pollutant monitoring for the upstream receiving waters. 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. This Order requires bimonthly monitoring during the third year of the permit term for priority pollutants and other pollutants of concern, performed concurrently with effluent monitoring, 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.

d. 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

a. Water Code section 13267 states, in part, "*(a) A Regional Water Board, in establishing…waste discharge requirements… may investigate the quality of any waters of the state within its region" and "(b) (1) In conducting an investigation…, the Regional Water Board may require that any person who… discharges… waste…that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports*." The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, a Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The Monitoring and Reporting Program is issued pursuant to Water Code section 13267. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the facility subject to this Order.

b. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment or control. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order

may be reopened and specific numeric limitations established consistent with Resolution No. 68-16 and the Basin Plan.

c. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Central Valley Water Board plans and policies, including Resolution No. 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water. This Order reduces the groundwater monitoring frequency for depth to groundwater, groundwater elevation, ammonia, electrical conductivity, fecal coliform organisms, pH, and total dissolved solids from monthly to quarterly. Additionally, monitoring requirements for dissolved oxygen, temperature, nitrate plus nitrite, and total coliform organisms have not been retained. Dissolved oxygen, temperature, and nitrate plus nitrite monitoring is not necessary to ensure protection of groundwater. Total coliform organisms are naturally present in the soil and can contaminate samples during groundwater pumping of the monitoring wells.

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. Pond Monitoring

Treatment pond monitoring is required to ensure proper operation of the three facultative oxidation ponds, two aerated ponds, and the polishing pond. Monthly monitoring for nitrate, nitrite, total kjeldahl nitrogen, and ammonia and weekly monitoring for odors have been retained from Order R5-2007-0132-02. Order R5-2007-0132-02 required the Discharger to monitor for ammonia, nitrite, nitrate, and total kjeldahl nitrogen at each pond. However, because the ponds are part of the treatment process and not a final discharge location, this Order requires the Discharger to monitor for ammonia, nitrate, nitrite, and total kjeldahl nitrogen at Monitoring Locations PND-INF and PND-EFF. Additionally, Order R5-2007-0132-02 included monitoring requirements for dissolved oxygen, electrical conductivity, and pH at each individual pond. However, measuring these three constituents within the treatment process are not critical to meeting discharge requirements. The ponds are part of the treatment process and monitoring pH, dissolved oxygen, and electrical conductivity at Discharge Point Nos. 001 and 002 is sufficient to protect the beneficial uses of the downstream receiving water. Therefore, this Order discontinues monitoring for pH, dissolved oxygen and electrical conductivity. In addition, this Order requires the Discharger to record and report freeboard and levee

conditions in order to ensure proper operation and maintenance of the treatment ponds.

3. Wetlands Monitoring

Wetlands sediment monitoring has been retained from Order R5-2007-0132-02 in order to assess compliance with the wetlands specifications. Wetlands specifications are imposed to protect human, plant, animal, and aquatic life and to prevent nuisance. Order R5-2007-0132-02 included monitoring requirements for wetlands influent and effluent, and wetlands tracts. However, the monitoring parameters for wetlands influent and effluent, and tracts included in Order R5-2007-0132-02 is already required as part of the final effluent monitoring requirements when the Facility is discharging to Discharge Point No. 002, therefore, these requirements have not been retained. This Order retains wetlands sediment monitoring and wildlife/avian egg monitoring from Order R5-2007-0132-02, which, combined with final effluent monitoring at Discharge Point No. 002, is sufficient to ensure the safety of wildlife within the wetlands and protect the beneficial uses of the receiving waters.

4. Municipal 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.

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 bimonthly monitoring of the effluent during the third year of the permit term at Monitoring Locations EFF-001 and EFF-002, respectively, and of the receiving water at Monitoring Location RSW-001U and RSW-002U, respectively, 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 13387I.

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. However, it is not necessary to modify the compliance schedule prior to implementation of the preferred alternative. As feasible implementation measures are determined, the Discharger shall take action to reduce sources of methylmercury in the discharge.

b. Whole Effluent Toxicity. This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a TRE. This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

c. Water Effects Ratio (WER) and Metal Translators. A default WER of 1.0 has been used in this Order for calculating criteria for applicable 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, except copper, lead and nickel for Discharge Point No. 001. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

d. **Electrical Conductivity, Boron, Sodium, and Chloride Study.** This Order allows the Discharger to complete and submit a report on the results of site-specific studies to determine appropriate salinity levels necessary to protect downstream beneficial uses. If the Discharger decides a study is appropriate, the study shall be completed and submitted to the Central Valley Water Board as specified in section VI.C.2.b of this Order. Based on a review of the results of the report this Order may be reopened to revise the final effluent limitations for electrical conductivity and/or add final effluent limitations for boron, sodium, and chloride.

e. **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.

f. **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.

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 chronic whole effluent toxicity testing performed by the Discharger from December 2007 through June 2012 at Discharge Point Nos. 001 and 002, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

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

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

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

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

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

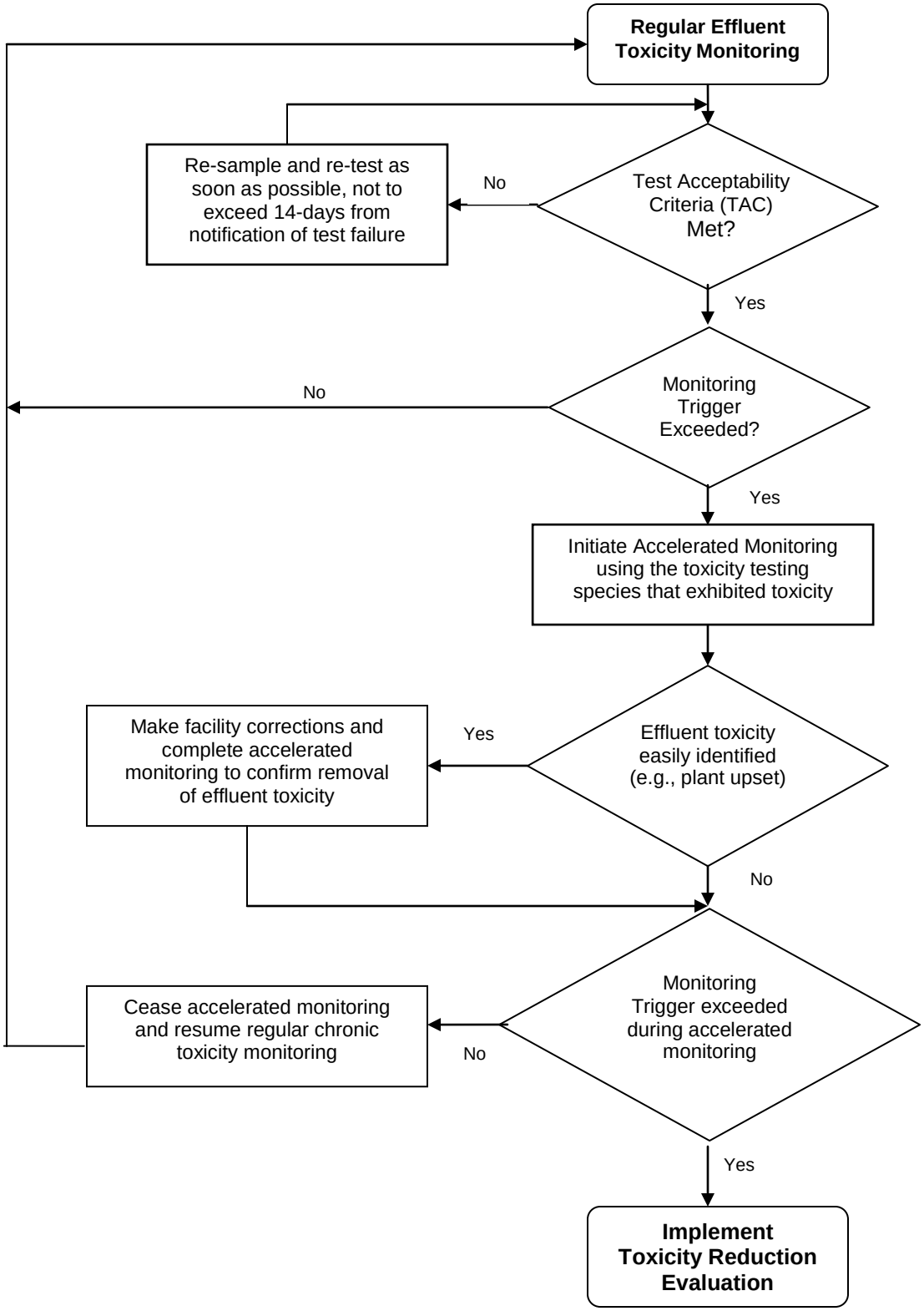
TRE Guidance. The Discharger is required to prepare a TRE Workplan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

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

- Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA-821-R-02-013, October 2002.

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

Figure F-1
WET Accelerated Monitoring Flow Chart



b. Electrical Conductivity, Boron, Sodium, and Chloride Studies. As described in section IV.C.3.c, above, the Central Valley Water Board is using the City of Woodland's site-specific objective for the protection of the agriculture beneficial use as the basis for effluent limits in this Order. If deemed necessary, the Discharger may submit a report on the results of a site-specific investigation of appropriate EC, boron, sodium, and chloride levels to protect agricultural beneficial uses. The study shall evaluate how soil chemistry, climate, flow, background water quality, rainfall, and flooding affect salinity requirements. Based on these factors, the study shall recommend site-specific numeric values for salinity that fully protect the agricultural irrigation use designation of Willow Slough Bypass and Conaway Ranch Toe Drain.

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. 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.

Control Studies can be developed through a stakeholder group approach or other collaborative mechanism, or by individual dischargers. By letter dated 19 April 2012, the Discharger agreed to participate in the Central Valley Clean Water Association (CVCWA) Coordinated Methylmercury Control Study (Study).

In accordance with the Delta Mercury Control Plan, the Discharger submitted a workplan in April 2012. The Delta Mercury Control Plan states "*Within four months of the submittal, the Executive Officer must determine if the Workplans are acceptable. After four months, Workplans are deemed approved and ready to implement if no written approval is provided by the Executive Officer, unless the Executive Officer provides written notification to extend the approval process."* Therefore, since the workplan was submitted in April 2012, the workplan shall be implemented by the Discharger. In accordance with the Delta Mercury Control Program, the Discharger is required to submit a progress report by **20 October 2015** that documents progress towards complying with the Control Studies workplan. The progress report must include an amended workplan for any additional studies needed to address methymercury reductions.

By **20 October 2018,** the Discharger must complete the Study and submit a final report to the Central Valley Water Board that presents the results and descriptions of the methylmercury control options, the preferred methylmercury controls, and proposed methylmercury management plan(s) (including implementation schedules), for achieving methylmercury allocations them. 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. As feasible implementation measures are determined, the Discharger shall take action to reduce sources of methylmercury in the discharge.

3. Best Management Practices and Pollution Prevention

a. Water Code section 13263.3(d)(3) Pollution Prevention Plans (PPPs). Order R5-2007-0132-02 included a requirement for a PPP for cyanide, selenium, and aluminum. The Discharger submitted the workplan for the PPP on 13 June 2008 and submitted the final PPP in September 2010 . As described in section IV.C.3.c, a compliance time schedule for compliance with final effluent limitations for copper, cyanide, selenium, and aluminum will be established in a TSO. The TSO requires the preparation and implementation of a PPP in accordance with Water Code section 13263.3(d)(3). Therefore the PPP requirements in Order R5-2007-0132-02 for cyanide, selenium, aluminum will not be included in this Order.

The PPPs required in section VI.C.7.b of this Order, shall, at a minimum, meet the requirements outlined in Water Code section 13263.3(d)(3). The minimum requirements for the PPPs 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.

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 workplan 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 workplan 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 workplan within 6 months of Executive Officer Approval.**

c. **Salinity Evaluation and Minimization Plan.** An Evaluation and Minimization Plan for salinity is required in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to Willow Slough Bypass and Conaway Ranch Toe Drain.

4. Construction, Operation, and Maintenance Specifications

a. **Turbidity Operational Requirements.** Turbidity is included as an operational specification as an indicator of the effectiveness of the treatment process and to assure compliance with effluent limitations for total coliform organisms. The tertiary treatment process is capable of reliably meeting a turbidity limitation of 2 NTU as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period, and an instantaneous maximum of 10 NTU. Turbidity specifications are included as operating criteria in section VI.C.4.a of this Order to ensure that adequate disinfection of wastewater is achieved. Consistent with Order R5-2007-0132-02, the turbidity specifications are effective 25 October 2017.

b. **Treatment Pond Operating Requirements.** The operation and maintenance specifications for the three facultative oxidation ponds, two aerated ponds, polishing pond, and wetlands are necessary to protect the beneficial uses of the groundwater. The specifications included in this Order are retained from Order R5-2007-0132-02. In addition, reporting requirements related to use of the three facultative oxidation ponds, two aerated ponds, and polishing pond are required to monitor their use and the potential impact on groundwater.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Pretreatment Requirements**

i. The federal CWA section 307(b), and federal regulations, 40 CFR Part 403, require publicly owned treatment works to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal, and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 CFR Part 403.

ii. The Discharger shall implement and enforce its approved pretreatment program and is an enforceable condition of this Order. If the Discharger fails

to perform the pretreatment functions, the Central Valley Water Board, the State Water Board or USEPA may take enforcement actions against the Discharger as authorized by the CWA.

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 System.** 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 – Not Applicable

7. Compliance Schedules

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 CFR 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:

- 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;

- Source control efforts are currently underway or completed, including compliance with any pollution prevention programs that have established;
- A proposed schedule for additional source control measures or waste treatment;
- 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;
- The highest discharge quality that can reasonably be achieved until final compliance is attained;
- 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
- Additional information and analyses to be determined by the Regional Water Board on a case-by-case basis.

Based on information submitted with the infeasibility analyses, 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 ammonia, BOD_5, electrical conductivity, methylmercury, pH, total coliform organisms, and TSS.

a. **Compliance Schedules for Ammonia, BOD_5, pH, Total Coliform Organisms, and TSS**. The Discharger submitted a request, and justification dated 25 July 2007 for a compliance schedule for ammonia, BOD_5, pH, total coliform organisms, and TSS. Based on the information contained in the Discharger's request, Order R5-2007-0132-02 established a compliance schedule for the final WQBELs for ammonia, BOD_5, pH, total coliform organisms, and TSS and required full compliance by **25 October 2017**. In order to achieve compliance with the final effluent limitations for these parameters, the Discharger is pursuing an upgrade project that will include new secondary biological treatment and clarification (replacing the ponds and overland flow treatment system with conventional activated sludge process), new filtration and coagulation facilities, and upgraded disinfection facilities. This Order retains the compliance schedules and final compliance date of 25 October 2017 from Order R5-2007-0132-02 and establishes new interim milestones to ensure that the Discharger continues to make progress towards achieving final compliance with the final effluent limitations by the final compliance date.

b. **Compliance Schedule for Electrical Conductivity (Discharge Point Nos. 001 and 002).** The Discharger has complied with the application requirements in paragraph 4 of the State Water Board's Compliance Schedule Policy and the

Compliance Schedule for electrical conductivity meets the requirements of 40 CFR 122.47. In its request and justification for a compliance schedule for electrical conductivity the Discharger has demonstrated the need for additional time to implement actions to comply with the new final effluent limitations for electrical conductivity. In order to achieve compliance with the final effluent limitations for electrical conductivity, the Discharger is pursuing a regional surface water supply project to improve the municipal water supply through conjunctive use with the existing groundwater supply. The compliance schedule in this Order includes milestones related to construction of new water intake facilities, water treatment facilities, and new conveyance facilities, which collectively constitute the surface water supply project. Considering the size of the project and that it is regional in nature, the surface water supply project is not readily divisible into various stages. Further, because the time between these milestones is over one year in length, the compliance schedule requires Annual Progress Reports. The Annual Progress Reports will include detail with respect to construction progress to demonstrate the plant is being constructed within the allotted time per the compliance schedule. The inclusion of Annual Progress Reports is consistent with the Compliance Schedule Policy and 40 CFR 122.47. The new surface water supply will improve the effluent water quality but may not provide enough improvement to meet the new final effluent limitation. The Discharger has therefore requested additional time to assess the improvement to effluent water quality achieved once the new water supply is in service. This assessment will be conducted over one calendar year in order to account for seasonal variations in municipal water use. After this assessment period, the Discharger will compare reductions in EC with final limitations. If additional steps are necessary, the Discharger will implement source control measures proposed in the Salinity Minimization and Evaluation Plan within 6 months. The Central Valley Water Board finds that this compliance schedule based on the current information is as short as possible. Thus, this Order includes the compliance schedule and final compliance date of **1 January 2021** and establishes new interim milestones to ensure that the Discharger continues to make progress towards achieving final compliance with the final effluent limitations by the final compliance date.

c. **Compliance Schedule for Methylmercury.** The Discharger has complied with the application requirements in paragraph 4 of the State Water Board's Compliance Schedule Policy, and the Discharger has demonstrated the need for additional time to implement actions to comply with the new limitations.

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 CFR 122.2 (definition of schedule of compliance). The compliance schedule for methylmercury meets these requirements.

Federal Regulations at 40 CFR 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. The compliance schedule in section VI.C.7 of the Order includes interim milestones requiring the Discharger to submit a methylmercury control study, implement methylmercury control programs, and submit annual reports to the Central Valley Water Board to ensure compliance with the final effluent limitations by the final compliance date. 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 has considered 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 WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was printed and published Tuesday through Friday and Sunday in *The Davis Enterprise* newspaper in the City of Davis

B. Written Comments

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

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board offices by 5:00 p.m. on **20 June 2013**.

C. Public Hearing

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

Date:	**4 October 2013**
Time:	9:00 a.m.
Location:	Regional Water Quality Control Board, Central Valley Region 11020 Sun Center Dr., Suite #200 Rancho Cordova, CA 95670

Interested persons were invited to attend. At the public hearing, the Central Valley Water Board heard testimony, if any, pertinent to the discharge, WDRs, and permit.

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 David Kirn at (916) 464-4761.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS FOR CONSTITUENTS OF CONCERN

Table G-1. Summary of Reasonable Potential Analysis for Constituents of Concern – Discharge Point No. 001

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	771	2,513	200	750[2]	--	--	--	--	--	Yes
Ammonia Nitrogen, Total (as N)	mg/L	12	5.5	1.4	5.6[2]	3.4[3]/1.4[4]	--	--	--	--	Yes
Cadmium, Total Recoverable	µg/L	0.1	8.3	5.2[5]/3.2[6]	12[5]/6.6[6]	5.2[5]/3.2[6]	--	--	--	--	Yes
Chloride	mg/L	360	310	106[7]	860	230	--	--	--	--	Yes
Copper, Total Recoverable	µg/L	50	9.7	35[5]/21[6]	49[5]/27[6]	35[5]/21[6]	1,300	--	--	--	Yes
Cyanide, Total (as CN)	µg/L	6.7	NA	5.2	22	5.2	700	220,000	--	--	Yes
Electrical Conductivity @ 25°C	µmhos/cm	2,349	1,864	700[7]	--	--	--	--	--	--	Yes
Mercury, Total Recoverable	µg/L	0.017	0.002	0.051	--	--	--	0.051	--	--	No
Selenium, Total Recoverable	µg/L	6.0	13	5.0	20	5.0	170	4,200	--	--	Yes
Sulfate	µg/L	230	NA	250	--	--	--	--	--	--	No
Total Dissolved Solids	mg/L	1,492	NA	450[7]	--	--	--	--	--	--	Yes

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

Footnotes:
(1) Represents the maximum observed annual average concentration for comparison with the Secondary MCL.
(2) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour Average.
(3) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day Average.
(4) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day Average.
(5) Criterion to be compared to the maximum effluent concentration.
(6) Criterion to be compared to the maximum upstream receiving water concentration.
(7) Water Quality for agriculture.

Table G-2. Summary of Reasonable Potential Analysis for Constituents of Concern – Discharge Point No. 002

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	2,500	5,300	750	750[1]	--	--	--	--	--	Yes
Ammonia Nitrogen, Total (as N)	mg/L	7.7	2.4	1.6	5.6[1]	4.0[2]/1.6[3]	--	--	--	--	Yes
Chloride	mg/L	250	180	106[4]	--	--	--	--	--	--	Yes
Copper, Total Recoverable	µg/L	40	16.9	20[5]/12[6]	33[5]/19[6]	20[5]/12[6]	--	--	--	--	Yes
Cyanide, Total (as CN)	µg/L	2.9	NA	5.2	22	5.2	--	220,000	--	--	No
Electrical Conductivity @ 25°C	µmhos/cm	3,157	1,779	700[4]	--	--	--	--	--	--	Yes
Mercury, Total Recoverable	µg/L	0.01	NA	0.051	--	--	--	0.051	--	--	No
Selenium, Total Recoverable	µg/L	3.8	12	5.0	20	5.0	--	4,200	--	--	Yes
Sulfate	µg/L	110	NA	--	--	--	--	--	--	--	No
Total Dissolved Solids	mg/L	1,741	NA	450[4]	--	--	--	--	--	--	Yes

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

Footnotes:
(1) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour Average.
(2) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day Average.
(3) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day Average.
(4) Water Quality for agriculture.
(5) Criterion to be compared to the maximum effluent concentration.
(6) Criterion to be compared to the maximum upstream receiving water concentration.

ATTACHMENT H – CALCULATION OF WQBELS

Table H-1. Calculation of WQBELs – Discharge Point No. 001

Parameter	Units	Most Stringent Criteria			HH Calculations			Aquatic Life Calculations[1]									Final Effluent Limitations	
		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
Aluminum, Total Recoverable	µg/L	200	750	--	200	1.91	382	0.35	263	--	--	263	1.5	392	2.9	750	392	750
Ammonia Nitrogen, Total (as N) 1 March – 31 October	mg/L	--	5.6	1.4	--	--	--	0.24	1.34	0.71	0.95	0.95	1.32	1.3	4.2	4.0	1.3	4.0
Ammonia Nitrogen, Total (as N) 1 November – 29 February	mg/L	--	5.6	1.9	--	--	--	0.5	2.79	0.87	1.63	1.63	1.13	1.8	2.05	3.3	1.8	3.3
Cadmium, Total Recoverable	µg/L	5.0	12	5.2	5.0	1.9	9.5	0.36	4.3	0.56	2.9	2.9	1.5	4.4	2.8	8.3	4.3	8.3
Copper, Total Recoverable	µg/L	1,000	49	35	1,000	2.14	2,140	0.28	14	0.49	17	14	1.6	23	3.5	49	23	49
Cyanide, Total (as CN)	µg/L	150	22	5.2	150	1.8	276	0.37	8.2	0.58	3.0	3.0	1.5	4.4	2.7	8.1	4.4[1]	8.1
Selenium, Total Recoverable	µg/L	50	20	5.0	50	1.6	79	0.48	9.6	0.68	3.4	3.4	1.3	4.4	2.1	7.1	4.4	7.1

Table H-2. Calculation of WQBELs – Discharge Point No. 002

Parameter	Units	Most Stringent Criteria			HH Calculations			Aquatic Life Calculations[1]									Final Effluent Limitations	
		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
Aluminum, Total Recoverable	µg/L	--	750	--	--	--	--	0.36	272	--	--	272	1.5	400	2.8	750	400	750
Ammonia Nitrogen, Total (as N) 1 March – 31 October	mg/L	--	5.6	1.6	--	--	--	0.23	1.3	0.7	1.1	1.1	1.3	1.5	4.3	4.7	1.5	4.7
Ammonia Nitrogen, Total (as N) 1 November – 29 February	mg/L	--	5.6	2.8	--	--	--	0.34	1.9	0.8	2.5	1.9	1.2	2.3	2.9	5.6	2.3	5.6
Copper, Total Recoverable	µg/L	--	33	20	--	--	--	0.29	9.5	0.49	9.8	9.5	1.6	16	3.5	33	16	33
Selenium, Total Recoverable	µg/L	--	20	5.0	--	--	--	0.5	10	0.70	3.5	3.5	1.3	4.5	2.0	6.9	4.5	6.9

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. 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 Monitoring 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 Monitoring. 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. Bimonthly Monitoring. Priority pollutant samples shall be collected bimonthly (i.e., January, March, May, July, September, and November) during the third year of the permit term from the effluent at Monitoring Locations EFF-001 and EFF-002 and from upstream receiving water Monitoring Locations RSW-001U and RSW-002U. The effluent and receiving water shall be monitored at the aforementioned frequency and monitoring locations 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 the SMR following each sample event. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

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 workplan. 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[1] (µg/L or as 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
76	1,3-Dichlorobenzene	541731	2
32	1,3-Dichloropropene	542756	0.5
77	1,4-Dichlorobenzene	106467	2
17	Acrolein	107028	2

CTR #	Constituent	CAS Number	Maximum Reporting Level[1] (µg/L or as noted)
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	Dibromochloromethane	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
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

CTR #	Constituent	CAS Number	Maximum Reporting Level[1] (µg/L or as noted)
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
98	N-Nitrosodiphenylamine	86306	1
96	N-Nitrosodimethylamine	62759	5
97	N-Nitrosodi-n-propylamine	621647	5

CTR #	Constituent	CAS Number	Maximum Reporting Level[1] (µg/L or as noted)
95	Nitrobenzene	98953	10
53	Pentachlorophenol	87865	1
99	Phenanthrene	85018	5
54	Phenol	108952	1
100	Pyrene	129000	10
	Aluminum	7429905	50
1	Antimony	7440360	5
2	Arsenic	7440382	10
15	Asbestos	1332214	--
	Barium	7440393	--
3	Beryllium	7440417	2
4	Cadmium	7440439	0.5
5a	Chromium (III)	7440473	50
5b	Chromium (VI)	18540299	10
6	Copper	7440508	10
14	Cyanide	57125	5
	Fluoride	7782414	--
	Iron	7439896	--
7	Lead	7439921	2
8	Mercury	7439976	0.5
	Manganese	7439965	--
	Molybdenum	7439987	--
9	Nickel	7440020	50
10	Selenium	7782492	5
11	Silver	7440224	2
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	--
102	Aldrin	309002	0.005
113	beta-Endosulfan	33213659	0.01

CTR #	Constituent	CAS Number	Maximum Reporting Level[1] (µg/L or as noted)
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	--
	Endothal	145733	--
	Ethylene Dibromide	106934	--
	Glyphosate	1071836	--
	Methoxychlor	72435	--
	Molinate (Ordram)	2212671	--
	Oxamyl	23135220	--
	Picloram	1918021	--
	Simazine (Princep)	122349	--
16	2,3,7,8-TCDD (Dioxin)	1746016	5.00E-06

CTR #	Constituent	CAS Number	Maximum Reporting Level[1] (µg/L or as noted)
	2,4,5-TP (Silvex)	93765	--
	Ammonia (as N)	7664417	--
	Boron	7440428	--
	Chloride	16887006	--
	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	--
	Sodium	7440235	--
	Specific conductance (EC)		--
	Sulfate		--
	Sulfide (as S)		--
	Sulfite (as SO_3)		--
	Temperature		--
	Total Dissolved Solids (TDS)		--

[1] 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.