CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER R5-2012-XXXX

NPDES NO. CA0079901

WASTE DISCHARGE REQUIREMENTS FOR THE CITY OF NEVADA CITY WASTEWATER TREATMENT PLANT NEVADA COUNTY

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

Table 1. Discharger Information

Discharger	City of Nevada City
Name of Facility	City of Nevada City Wastewater Treatment Plant
Facility Address	650 Jordan Street
	Nevada City, CA 95959
	Nevada County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a minor discharge.	

The discharge by the Owner 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	39º 15’ 35.1” N	121º 01’ 50.7” W	Deer Creek, tributary to Yuba River

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**XXXX**
This Order shall become effective on:	**XXXX**
This Order shall expire on:	**XXXX**
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:	**XXXX**

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 **DATE**.

_____

PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	City of Nevada City
Name of Facility	City of Nevada City Wastewater Treatment Plant
Facility Address	650 Jordan St.
	Nevada City, CA 95959
	Nevada County
Facility Contact, Title, and Phone	Howard Schmitz, Chief Plant Operator 530-265-8668
Mailing Address	317 Broad Street Nevada City, CA 95959
Type of Facility	Publicly Owned Treatment Works
Facility Design Flow	0.69 million gallons per day (MGD) average dry weather flow

II. FINDINGS

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

A. Background. The City of Nevada City (hereinafter Discharger) previously discharged pursuant to Order No. R5-2008-0177 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0079901. The Discharger submitted a Report of Waste Discharge, dated 13 September 2011, and applied for a NPDES permit renewal to discharge up to 0.69 MGD of treated wastewater from the Nevada City Wastewater Treatment Plant, hereinafter Facility. The application was deemed complete on 15 September 2011.

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

B. Facility Description. The Discharger owns and operates a wastewater collection, treatment, and disposal system. The treatment system consists of screening, grit removal, automated lime addition for reliable nitrification, biological treatment using nitrification/denitrification activated sludge, secondary clarification, filtration (cloth disc filters and sand filters operated in series or in parallel), chlorination and dechlorination. Tertiary treated wastewater is discharged from Discharge Point 001 (see table on cover page) to Deer Creek, a water of the United States, a tributary to the Yuba River 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 J are also incorporated into this Order.

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

F. **Technology-based Effluent Limitations.** Section 301(b) of the CWA and implementing USEPA permit regulations 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 and Best Professional Judgment (BPJ) in accordance with 40 CFR 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet.

G. **Water Quality-based Effluent Limitations (WQBELs).** Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as 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. The Basin Plan at page II-2.00 states that the "*…beneficial uses of any specifically identified water body generally apply to its tributary streams*." The Basin Plan does not specifically identify beneficial uses for Deer Creek, but does identify present and potential uses for the Yuba River, to which Deer Creek is tributary.

In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to Deer Creek are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Deer Creek, tributary to Yuba River	Existing: Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Hydropower generation (POW); Water contact recreation, including canoeing and rafting (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); cold freshwater habitat (COLD); Migration of aquatic organisms, warm and cold (MIGR); Spawning, reproduction, and/or early development, warm and cold (SPWN); and Wildlife habitat (WILD). ~~Intermittent: None~~Potential: None

The Basin Plan includes a list of Water Quality Limited Segments (WQLSs), which are defined as "*…those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.).*" The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*" Deer Creek and the Yuba River are listed as a WQLS for mercury in the 303(d) list of impaired water bodies. A Total Maximum Daily Load (TMDL) has not been established for these water bodies, therefore, effluent limitations for mercury are not included in this Order. However, this Order does require monitoring for total recoverable mercury and methymercury. Requirements of this Order implement the Basin Plan.

I. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About 40 criteria in the NTR applied in California. On 18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria

for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.

J. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 28 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 Total Maximum Daily Load (TMDL). All compliance schedules must be as short as possible, and may not exceed ten years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. The Central Valley Water Board, however, is not required to include a compliance schedule, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Central Valley Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance

schedule in a permit, and, consistent with the Compliance Schedule Policy, should consider feasibility of achieving compliance, and must impose a schedule that is as short as possible to achieve compliance with the effluent limit based on the objective or criteria.

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

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

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

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on 5-day biochemichal oxygen demand (BOD_5) and total suspended solids (TSS). The WQBELs consist of restrictions on ammonia, chlorine residual, dichlorobromoethane, electrical conductivity, lead, pathogens, and pH. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes new effluent limitations for lead to protect beneficial uses.

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

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

O. Anti-Backsliding Requirements. Sections 303(d)(4) and 402(o)(2) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions. Some effluent limitations in this Order are less stringent that those in Order No. R5-2008-0177. As

discussed in detail in the Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

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

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

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

the reports, and shall identify the evidence that supports requiring that person to provide the reports."

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

R. Standard and Special Provisions. Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The Central Valley Water Board has also included in this Order special provisions applicable to the Discharger. Some special provisions require submittal of technical reports. All technical reports are required in accordance with Water Code section 13267. The rationale for the special provisions and need for technical reports required in this Order are provided in the Fact Sheet.

S. Provisions and Requirements Implementing State Law. The provisions/requirements in sections VI.C.3.a., 4.b., and 5.c. of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

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

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

THEREFORE, IT IS HEREBY ORDERED, that Order No. R5-2008-0177 and Time Schedule Order R5-2008-0178 are 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 001

1. Final Effluent Limitations – Discharge Point 001 to Deer Creek

a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program (Attachment E):

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand 5-day @ 20°C	mg/L	10	15	20	--	--
	lbs/day[1]	58	86	115	--	--
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	58	86	115	--	--
pH	standard units	--	--	--	6.5	8.0
Ammonia (as N)	mg/L	1.9	--	5.6	--	--
	lbs/day[1]	11	--	32	--	--
Dichlorobromomethane	µg/L	2.3	--	4.6	--	--
Lead	µg/L	1.4	--	2.7	--	--

1 Based on an average dry weather flow of 0.69 MGD.

b. **Percent Removal.** The average monthly percent removal of 5-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS) shall not be less than 85 percent.

c. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
   i. 70%, minimum for any one bioassay; and
   ii. 90%, median for any three consecutive bioassays.

d. **Electrical Conductivity (@ 25ºC).** The annual average effluent electrical conductivity shall not exceed the municipal water supply electrical conductivity plus an increment of 500 µmhos/cm, or 700 µmhos/cm, whichever is less.

e. **Total Residual Chlorine.** Effluent total residual chlorine shall not exceed:
   i. 0.01 mg/L, as a 4-day average; and
   ii. 0.02 mg/L, as a 1-hour average.

f. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed:
   i. 2.2 most probable number (MPN) per 100 mL, as a 7-day median;

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 0.69 MGD.

B. Land Discharge Specifications – Not Applicable

C. Reclamation Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

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

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 Officer;

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

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

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

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

10. Radioactivity:

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

b. Radionuclides to be present in excess of the maximum contaminant levels specified in Table 4 (MCL Radioactivity) of section 64443 of Title 22 of the California Code of Regulations.

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

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

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

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

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

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

17. **Turbidity.**

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

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

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

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

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

    When wastewater is treated to a tertiary level or equivalent, a one-month averaging period may be used when determining compliance with this Receiving Surface Water Limitation for turbidity.

B. Groundwater Limitations – None

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 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.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and an effluent concentration limitation imposed.

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

d. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. 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.

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. **Initial Investigative TRE Workplan. By 29 October 2012**, the Discharger shall submit to the Central Valley Water Board an updated Initial Investigative TRE Workplan for approval by the Executive Officer. This should be a one to two page document including, at a minimum:

(a) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of effluent toxicity, effluent variability, and treatment system efficiency;

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

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

ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring,

the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.

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.

Within sixty (60) days of notification by the laboratory of the test results, the Discharger shall submit to the Central Valley Water Board a TRE Workplan for approval by the Executive Officer. The TRE Workplan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Workplan must be developed in accordance with USEPA guidance[1].

3. Best Management Practices and Pollution Prevention

a. Salinity Evaluation and Minimization Plan. The Discharger shall prepare or update its salinity evaluation and minimization plan to identify and address sources of salinity from the Facility. Implementation of the plan shall continue and the newly updated elements of the plan shall be implemented upon

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

submittal of the updated plan to the Central Valley Water Board **by 8 March 2013**.

4. Construction, Operation and Maintenance Specifications

a. Turbidity. Effluent turbidity shall not exceed:

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.

5. Special Provisions for Municipal Facilities (POTWs Only)

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

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

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

iii. The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations in section V.B. of this Order. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in section V.B. of this Order.

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

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

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

vii. **By 28 January 2013,** 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.

b. Biosolids Storage and Transportation Specifications

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

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

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

iii. Biosolids storage facilities shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.

iv. Biosolids storage facilities shall be designed and maintained to contain all storm water falling on the biosolids storage area during a rainfall year with a return frequency of 100 years.

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

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

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

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

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

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

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

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

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

c. Collection System. On 2 May 2006, the State Water Board adopted State Water Resources Control Board Order No. 2006-0003-DWQ, Statewide General

Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order No. 2006-0003-DWQ and any future revisions thereto. Order No. 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.

d. This Order, and the Monitoring and Reporting Program which is a part of this Order, requires that certain parameters be monitored on a continuous basis. The wastewater treatment plant is not staffed on a 24/7 full time basis. However, the Discharger has a SCADA electronic system for operator notification for approximately 60 different alarm parameters that could cause a violation. Therefore, an operator is available on a continuous basis and will be notified immediately if an alarm is triggered.

6. Other Special Provisions

a. Wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the Department of Public Health (DPH; formerly the Department of Health Services) reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent.

7. Compliance Schedules - None

VII. COMPLIANCE DETERMINATION

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

of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

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

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

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

Any excursion above the 1-hour average or 4-day average total residual chlorine effluent limitations is a violation. If the Discharger conducts continuous monitoring

and the Discharger can demonstrate, through data collected from a back-up monitoring system, that a chlorine spike recorded by the continuous monitor was not actually due to chlorine, then any excursion resulting from the recorded spike will not be considered an exceedance, but rather reported as a false positive. Records supporting validation of false positives shall be maintained in accordance with section IV Standard Provisions (Attachment D).

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

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

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

F. **Priority Pollutant Effluent Limitations.** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined in Attachment A and Attachment E of this Order. For purposes of reporting and administrative enforcement by the Central Valley Water Board and the State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

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

ATTACHMENT A - DEFINITIONS

Arithmetic Mean (μ)

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

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

Average Monthly Effluent Limitation (AMEL)

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

Average Weekly Effluent Limitation (AWEL)

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

Bioaccumulative

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

Carcinogenic

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

Coefficient of Variation (CV)

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

Daily Discharge

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

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

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

Detected, but Not Quantified (DNQ)

DNQ are those sample results less than the reporting limit, but greater than or equal to the laboratory's method detection limit.

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, Attachment B, revised as of 3 July 1999.

Minimum Level (ML)

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

Mixing Zone

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

Not Detected (ND)

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

Ocean Waters

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

Persistent Pollutants

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

Pollutant Minimization Program (PMP)

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

Pollution Prevention

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to

another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Central Valley Water Board.

Reporting Level (RL)

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

Satellite Collection System

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

Source of Drinking Water

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

Standard Deviation (σ)

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

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

where:

x is the observed value;

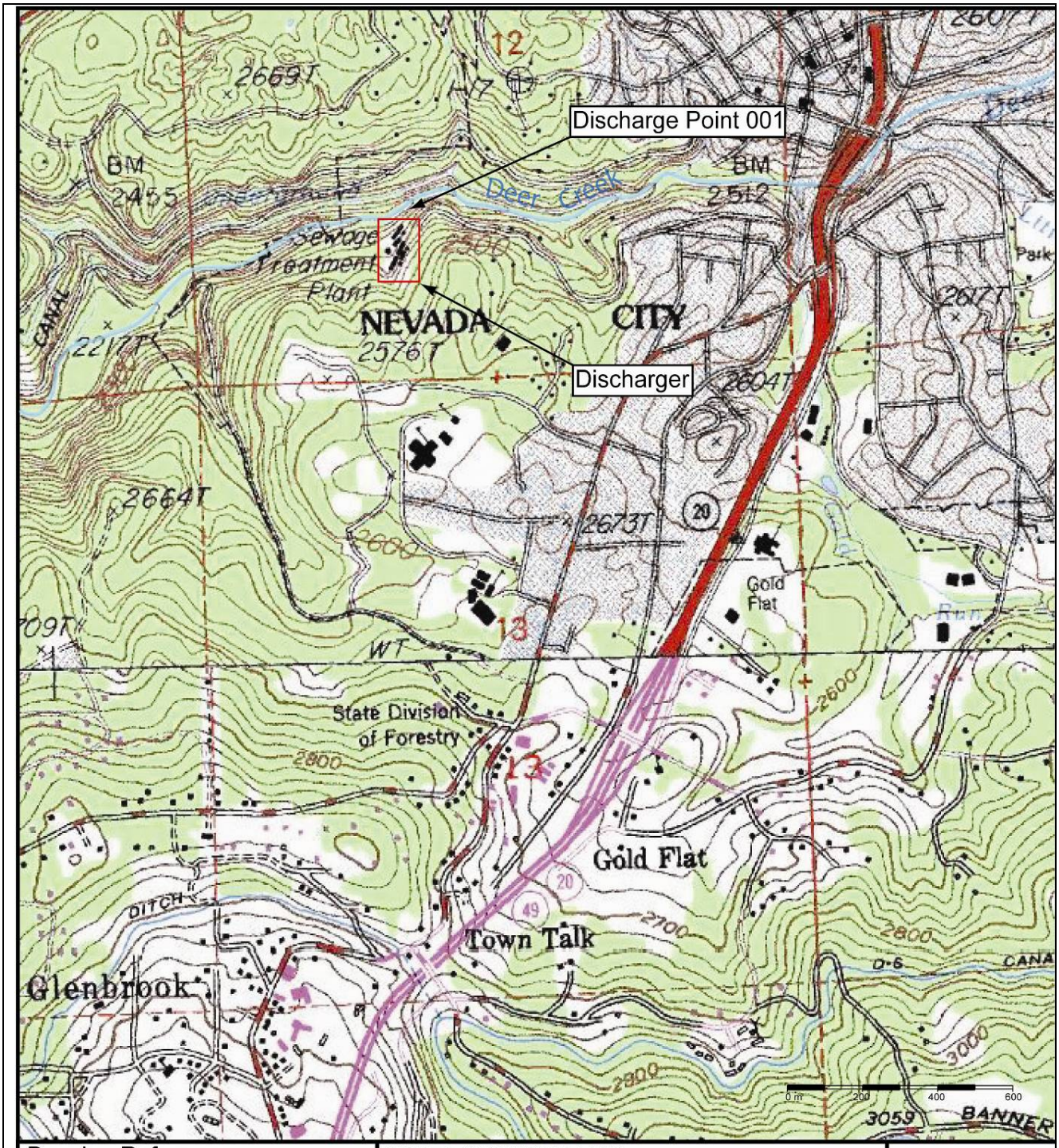
μ is the arithmetic mean of the observed values; and

n is the number of samples.

Toxicity Reduction Evaluation (TRE)

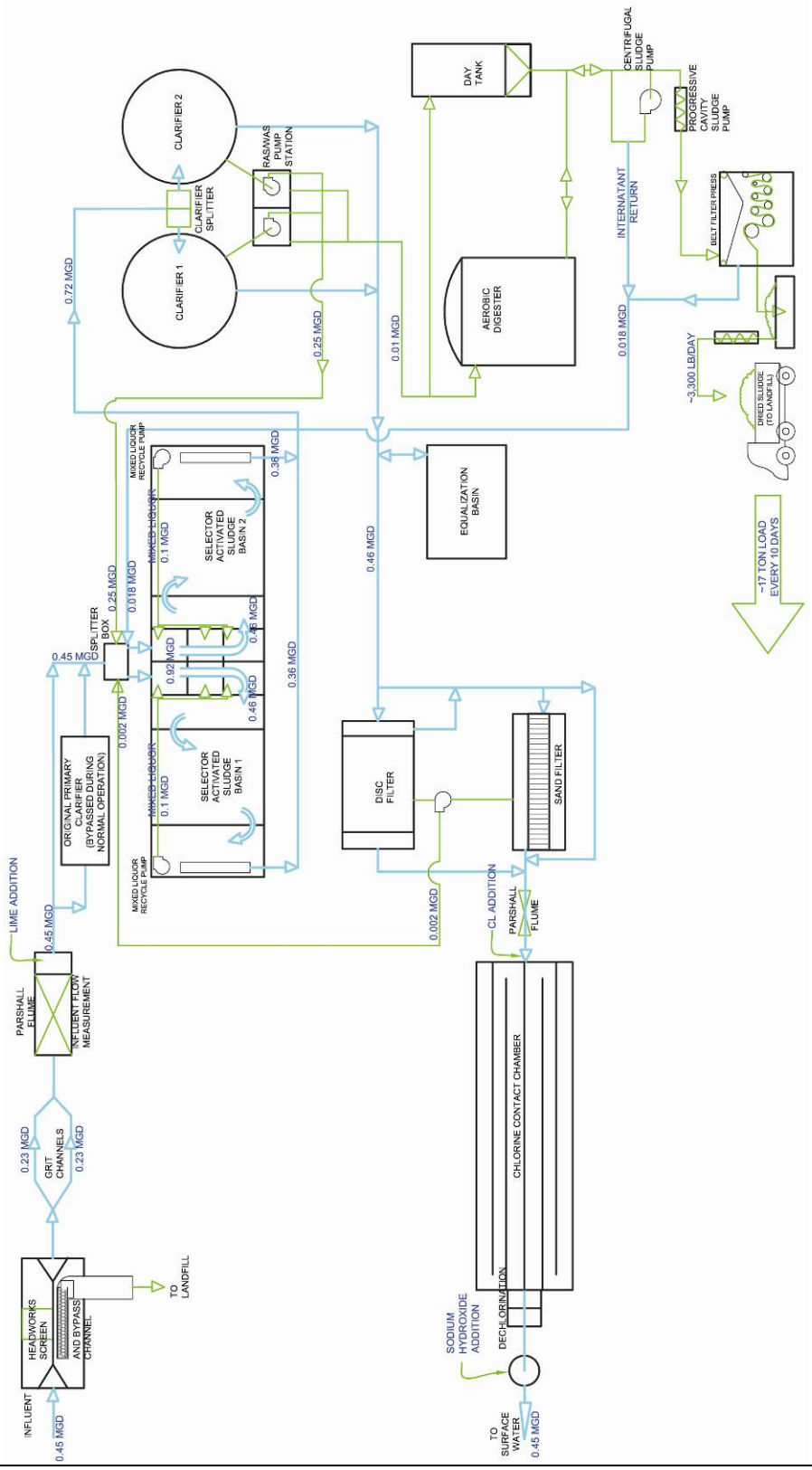
TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection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

ATTACHMENT B - MAP



Drawing Reference: NEVADA CITY U.S.G.S TOPOGRAPHIC MAP 7.5 MINUTE QUADRANGLE *Topographic Map* *Dated 7/1/1995*	SITE LOCATION MAP CITY OF NEVADA CITY WASTEWATER TREATMENT PLANT NEVADA COUNTY	N W E S

ATTACHMENT C - FLOW SCHEMATIC



ATTACHMENT D - STANDARD PROVISIONS

I. STANDARD PROVISIONS - PERMIT COMPLIANCE

A. Duty to Comply

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

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

The Discharger shall allow the Central Valley Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR 122.41(i); 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 Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR 122.41(m)(4)(i)):

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

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

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

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

5. Notice

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

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

H. Upset

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

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions - Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR 122.41(n)(2))

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

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

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

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

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

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

II. STANDARD PROVISIONS - PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or

termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR 122.41(f))

B. Duty to Reapply

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

C. Transfers

This Order is not transferable to any person except after notice to the Central Valley Water Board. The Central Valley Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the 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 Central Valley Water Board Executive Officer at any time. (40 CFR 122.41(j)(2))

B. Records of monitoring information shall include:

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

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

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

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

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

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

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

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

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

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Central Valley Water Board, State Water Board, or USEPA within a reasonable time, any information which the Central Valley Water Board, State Water Board, or USEPA may request to determine whether cause exists

for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Central Valley Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR 122.41(h); Wat. Code, § 13267)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Central Valley Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions - Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR 122.41(k))

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR 122.22(a)(3))

3. All reports required by this Order and other information requested by the Central Valley Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions - Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Standard Provisions - Reporting V.B.2 above (40 CFR 122.22(b)(1));

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A

duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR 122.22(b)(2)); and

c. The written authorization is submitted to the Central Valley Water Board and State Water Board. (40 CFR 122.22(b)(3))

4. If an authorization under Standard Provisions - Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions - Reporting V.B.3 above must be submitted to the Central Valley Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR 122.22(c))

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

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

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR 122.22(l)(4))

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water

Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR 122.41(l)(4)(i))

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley Water Board. (40 CFR 122.41(l)(4)(ii))

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

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

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

F. Planned Changes

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

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b) (40 CFR 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR 122.41(l)(1)(ii))

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR 122.41(l)(1)(iii))

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

VI. STANDARD PROVISIONS - ENFORCEMENT

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

VII. ADDITIONAL PROVISIONS - NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

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

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 CFR 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 CFR 122.42(b)(2))

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 CFR 122.42(b)(3))

ATTACHMENT E - MONITORING AND REPORTING PROGRAM

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ATTACHMENT E - MONITORING AND REPORTING PROGRAM

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

I. GENERAL MONITORING PROVISIONS

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

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

C. Chemical, bacteriological, and bioassay analyses 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, DO, turbidity, temperature, and residual chlorine, such analyses performed by a noncertified laboratory will be accepted provided <u>that the analysis is in accordance with 40 CFR 136 or an USEPA approved alternative test procedure, and</u> 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, DO, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.

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

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

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

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

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

I. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct

comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	A location where a representative sample of the influent into the facility can be collected prior to any plant return flows or treatment processes.
001	EFF-001	A location where a representative sample of the effluent form the facility can be collected after all treatment processes and prior to commingling with other waste streams or being discharged into Deer Creek. [Latitude: 39 15' 35.1: N; Longitude: 121 01' 50.7" W]
--	RSW-001	50 feet upstream from the point of discharge into Deer Creek.
--	RSW-002	50 feet downstream from the point of discharge into Deer Creek.
--	BIO-001	Representative sample location for biosolids.
--	SPL-001	A location where a representative sample of the municipal water supply can be obtained.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

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

Table E-2. Influent Monitoring

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

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

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

[3] 24-hour flow proportional composite.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

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

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	[1]
Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	mg/L	24-hr Composite[2]	2/Week	[1]
	lbs/day	Calculate	2/Week	--
Total Suspended Solids	mg/L	24-hr Composite[2]	2/Week	[1]
	lbs/day	Calculate	2/Week	--
pH	Standard Units	Grab	1/Day[3, 4]	[1]
Ammonia (as N)	mg/L	Grab	1/Week[3, 7]	[1]
Dichlorobromomethane	µg/L	Grab	1/Month	[1, 5]
Lead	µg/L	Grab	1/~~Month~~Quarter	[1]
Total Coliform Organisms	MPN/100 mL	Grab	3/Week[12]	[1]
Priority Pollutants and Other Constituents of Concern (see section X.C.5. below and Att. I)	See Att. I	See Att. I	See Att. I	See Att. I
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	[1]
Total Residual Chlorine	mg/L	Meter	Continuous	[1, 6]
Hardness (as $CaCO_3$)	mg/L	Grab	1/Month[8]	[1]
Mercury, Total Recoverable	µg/L	Grab	[10]	[9]
Methylmercury	µg/L	Grab	[10]	[9]
Standard Minerals[11]	mg/L	Grab	1/Year	[1]
Temperature	°C	Grab	1/Day[3, 4]	[1]
Total Dissolved Solids	mg/L	Grab	1/Quarter	[1]
Trihalomethanes	µg/L	Grab	1/Quarter	[5]
Turbidity	NTU	Meter	Continuous	[1]
Whole Effluent Toxicity (see section V. below)	--	--	--	--

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

[2] 24-hour flow proportional composite.

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

[4] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

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

[6] Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L.

[7] Concurrent with whole effluent toxicity monitoring.

[8] Hardness samples shall be collected concurrently with metals samples.

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

[10] Unfiltered methylmercury and total recoverable mercury shall be monitored quarterly for eight consecutive quarters beginning with the first quarter following the date of permit adoption.

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

[12] Samples for total coliform organisms may be collected at any point following disinfection.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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

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

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

3. *Test Species* - Test species shall be rainbow trout (*Oncorhchus 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.

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

1. *Monitoring Frequency* - The Discharger shall perform semi-annual three species chronic toxicity testing.

2. *Sample Types* - Effluent samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in this Monitoring and Reporting Program.

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

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

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

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

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 Toxicity Reduction Evaluations (TRE) monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic).

Table E-4. Chronic Toxicity Testing Dilution Series

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

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

a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the Method Manual, and its subsequent amendments or revisions; or

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

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

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

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

   a. The results expressed in TUc, measured as 100/NOEC, and also measured as $100/LC_{50}$, $100/EC_{25}$, $100/IC_{25}$, and $100/IC_{50}$, as appropriate.

   b. The statistical methods used to calculate endpoints;

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

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

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

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

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

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

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

   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

A. Monitoring Location RSW-001

1. The Discharger shall monitor Deer Creek at RSW-001 as follows:

Table E-5a. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L[1] % saturation	Grab	1/Week	[2, 3]
~~Electrical Conductivity @ 25 ºC~~	~~µmhos/cm~~	~~Grab~~	~~1/Month~~	~~[2, 3]~~
Hardness (as $CaCO_3$)	mg/L	Grab	1/Month	[2]
pH	Standard Units	Grab	1/Week	[2, 3]
Priority Pollutants and Other Constituents of Concern (see section X.C.5. below and Att. I)	See Att. I	See Att. I	See Att. I	See Att. I
Temperature	ºF	Grab	1/Week	[2, 3]
Turbidity	NTU	Grab	1/Week	[2, 3]

[1] Report both saturation concentration and percent saturation.

[2] Analyzed using methods per 40 CFR Part 136.

[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.

B. Monitoring Location RSW-002

1. The Discharger shall monitor Deer Creek at RSW-002 as follows:

Table E-5b. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L[1] % saturation	Grab	1/Week	[2, 3]
~~Electrical Conductivity @ 25 ºC~~	~~µmhos/cm~~	~~Grab~~	~~1/Month~~	~~[2, 3]~~
~~Hardness (as $CaCO_3$)~~	~~mg/L~~	~~Grab~~	~~1/Month~~	~~[2]~~
pH	Standard Units	Grab	1/Week	[2, 3]
Temperature	ºF	Grab	1/Week	[2, 3]
Turbidity	NTU	Grab	1/Week	[2, 3]

[1] Report both saturation concentration and percent saturation.

[2] Analyzed using methods per 40 CFR Part 136.

[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.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

a. A composite sample of sludge shall be collected annually at Monitoring Location BIO-001 in accordance with USEPA's *POTW Sludge Sampling and*

Analysis Guidance Document, August 1989, and tested for metals listed in 40 CFR Part 122, Appendix D, Table III.

b. A composite sample of sludge shall be collected when sludge is removed from the ponds for disposal in accordance with USEPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for the metals listed in Title 22.

c. Sampling records shall be retained for a minimum of **five 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.

d. Upon removal of sludge, the Discharger shall submit characterization of sludge quality, including sludge percent solids and quantitative results of chemical analysis for the listed in 40 CFR 122 Appendix D, Table III. Suggested methods for analysis of sludge are provided in USEPA publications titled "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods" and "Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater". Recommended analytical holding times for sludge samples should reflect those specified in 40 CFR 136.6.3I. Other guidance is available in USEPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989.

B. Municipal Water Supply

1. Monitoring Location SPL-001

The Discharger shall monitor the municipal water supply at SPL-001 as follows. A sampling station shall be established where a representative sample of the municipal water supply can be obtained. The municipal water supply has demonstrated consistent quality and therefore, sampling for standard minerals is not retained from the previous Order. Municipal water supply samples shall be collected at approximately the same time as effluent samples.

Table E-6. Municipal Water Supply Monitoring Requirements

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

[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] Analyzed using methods per 40 CFR Part 136.

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 t"e "*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-7. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	**Permit effective date**	Continuous from the first day of calendar month through last day of calendar month.	Submit with monthly SMR
1/Day	**Permit effective date**	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
1/Week	**Permit effective date**	Sunday through Saturday	Submit with monthly SMR
1/Month	**Permit effective date**	First day of calendar month through last day of calendar month	First day of the second calendar month following the end of the monitoring period.
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	First day of the second calendar month following the end of the monitoring period (1 May, 1 August, 1 November, 1 February).

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
2/Year	**Permit effective date**	1 January through 30 June, 1 July through 31 December	First day of the second calendar month following the end of the monitoring period (1 August, 1 February).
1/Year	**Permit effective date**	1 January through 31 December	1 February following the end of the monitoring period.

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

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

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

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

   For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

4. **Compliance Determination.** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and in Attachment A of this Order. For purposes of reporting and administrative enforcement by the Central Valley Water Board and the State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

5. **Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND

or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

6. **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 the date and time that the discharge to EFF-001 started and stopped, if applicable.

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

7. **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" (electrical conductivity and flow) the Discharger shall report the annual average in the December SMR. The annual average shall be calculated as the average of the samples gathered for the calendar year.

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

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

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

average mass loading, the monthly average flow and constituent concentration shall be used.

c. **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 RSW-001 and RSW-002.

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

a. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment. The Discharger is not

required to duplicate the submittal of data that is entered in a tabular format within CIWQS.

b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

c. If not using eSMRs system, SMRs with cover letters must be submitted to the Central Valley Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

Regional Water Quality Control Board
Central Valley Region
NPDES Compliance and Enforcement Unit
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670-6114

C. Other Reports

1. **Progress Reports.** As specified in the compliance time schedules required in the Special Provisions contained in section VI.C. of the Order, progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date or not, and the remaining tasks to meet the final compliance date.

Table E-8. Reporting Requirements for Special Provisions Progress Reports

Special Provision	Reporting Requirements

Special Provision	**Reporting Requirements**
Updated Initial Investigative TRE Workplan (Section VI.C.2.a.)	Submit updated Workplan **by 29 October 2012.**
Updated Salinity Evaluation and Minimization Plan (Section VI.C.3.a.)	Submit updated Plan **by 8 March 2013.**
Biosolids Use or Disposal Plan (Section VI.C.5.a.)	Submit Plan **by 28 January 2013.**
Minimum Levels Report (MRP Section X.C.3.)	Submit Report **by 1 October 2012.**
Annual Operations Report MRP Section X.C.6.)	Submit Report Annually **by 30 January of each year.**

2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, and TRE/TIE as required by Special Provisions VI.C. 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 or in compliance with SMR reporting requirements described in subsection X.B. above.

3. **By 1 October 2012**, the Discharger shall submit a report outlining minimum levels, MDLs, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP.

4. The Discharger's sanitary sewer system collects wastewater using sewers, pipes, pumps, and/or other conveyance systems and directs the raw sewage to the wastewater treatment plant. A "sanitary sewer overflow" is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the wastewater treatment plant. Sanitary sewer overflows are prohibited by this Order. All violations must be reported as required in Standard Provisions. Facilities (such as wet wells, regulated impoundments, tanks, highlines, etc.) may

be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage facilities.

5. **Effluent and Receiving Water Characterization Study.** An effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal. During the third or fourth year of this permit term, the Discharger shall conduct four consectutive quarterly samples of the effluent at EFF-001 and of the receiving water at RSW-001 for all priority pollutants and other constituents of concern as described in Attachment I. The report shall be completed in conformance with the following schedule:

Task	Compliance Date
i. Submit Work Plan and Time Schedule	No later than 2 years and 6 months from the effective date of this Order
ii. Monitoring	During third or fourth year of permit term
iii. Submit Final Report	Within 6 months following completion of final monitoring event

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

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

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

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

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

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

ATTACHMENT F - FACT SHEET

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ATTACHMENT F - FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	5A290101001
Discharger	City of Nevada City
Name of Facility	City of Nevada City Wastewater Treatment Plant
Facility Address	650 Jordan Street
	Nevada City, CA 95959
	Nevada County
Facility Contact, Title and Phone	Howard Schmitz, Chief Plant Operator, 530-265-8668
Authorized Person to Sign and Submit Reports	Howard Schmitz, Chief Plant Operator, 530-265-8668
Mailing Address	317 Broad Street, Nevada City, CA 95959
Billing Address	SAME
Type of Facility	Publically Owned Treatment Works (POTW)
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	B

Pretreatment Program	N
Reclamation Requirements	Not Applicable
Facility Permitted Flow	0.69 million gallons per day (MGD)
Facility Design Flow	0.69 mgd
Watershed	Yuba River
Receiving Water	Deer Creek, Tributary to Yuba River
Receiving Water Type	Inland Surface Water

A. The City of Nevada City (hereinafter Discharger) is the owner and operator of the City of Nevada City Wastewter Treatment Plant (hereinafter Facility), a publicly owned treatment works (POTW).

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

B. The Facility discharges wastewater to Deer Creek, a water of the United States and a tributary to the Yuba River, and was previously regulated by Order No. R5-2008-0177 which was adopted on 4 December 2008 and expires on 30 November 2013. The terms and conditions of the previous Order remained in effect until the new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit was adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its WDRs and NPDES permit on 13 September 2011.

II. FACILITY DESCRIPTION

The Discharger owns and operates a wastewater collection, treatment, and disposal system, and provides sewerage service for the City of Nevada City. The Facility serves a population of 3,100. The Facility's average dry weather design flow is 0.69 MGD and the maximum daily wet weather flow rate is 1.60 MGD. The annual average daily flow to the Facility was 0.38 MGD, 0.45 MGD, and 0.47 MGD, for years 2009, 2010, and

2011, respectively. The high flows for 2010 and 2011 are influenced by the above average rainfall received during the winter of 2010/2011.

A. Description of Wastewater and Biosolids Treatment or Controls

The wastewater treatment system consists of screening, grit removal, lime addition, influent flow equalization and emergency storage, nitrification/denitrification, activated sludge, filters, chlorination, and dechlorination. The waste activated sludge is stored in an aerated Day Tank, dewatered by a belt filter press, and hauled to Ostrom Road Landfill in Wheatland, CA.

The screening consists of a Parkson HLS500 Hycor Helisieve automatic screen to remove inorganics larger than 1/4", grit removal occurs in a manually scraped grit channel. Lime is added via a variable speed auger to maintain optimal pH in the nitrification/denitrification activated sludge process. Influent flow emergency storage or equalization is provided, as needed, in the original primary clarifier no longer needed with the new treatment process. Advanced secondary treatment is provided by two parallel nitrification/denitrification activated sludge processes (2 basins and 2 secondary clarifiers).

Effluent filtration is provided by a disk filter and sand filter in series operation (filters may also be run in parallel operation during high flow events or either filter may be isolated for maintenance). Effluent disinfection is achieved using chlorine. The final effluent is dechlorinated prior to discharge to Deer Creek.

Grit and bar screenings are hauled off-site to a landfill. Secondary Waste Activated Sludge is stored in an aerated Day Tank (with emergency backup storage in the old Anaerobic digester) then dewatered in a filter press. The dewatered sludge is hauled off-site to a landfill. Filtrate from the sludge dewatering process is returned to the activated sludge process for treatment with the incoming waste stream.

The Discharger has a year to year contract with Robinson Enterprises to haul our sludge. There is no contract with the Ostrom Rd. Landfill, but sludge is tested as required by the state to meet the requirements.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 12, T16N, R8E, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated municipal wastewater is discharged at Discharge Point 001 to Deer Creek, a water of the United States and a tributary to the Yuba River at a point latitude 39° 16' 35.1" N and longitude 121° 01' 50.7" W.

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

Effluent limitations contained in Order No. R5-2008-0177 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order No. R5-2008-0177 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitations R5-2008-0177					Monitoring Data (From ~~April~~December 2008 To December 2011)		
		Ave. Monthly	Ave. Weekly	Max. Daily	Instant Min.	Instant Max.	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Biochemical Oxygen Demand 5-day @ 20°C	mg/L	10	15	20	--	--	--	--	3
	lbs/day[1]	58	86	115	--	--	--	--	17
	% removal	85	--	--	--	--			
Total Suspended Solids	mg/L	10	15	20	--	--	--	--	6
	lbs/day[1]	58	86	115	--	--	--	--	35
	% removal	85	--	--	--	--			
pH	standard units	--	--	--	6.5	8.0	--	--	6.6[2] - 7.3[3]

Parameter	Units	Effluent Limitations R5-2008-0177					Monitoring Data (From ~~April~~December 2008 To December 2011)		
		Ave. Monthly	Ave. Weekly	Max. Daily	Instant Min.	Instant Max.	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Ammonia (as N)	mg/L	1.9	--	5.6	--	--	--	--	7.3
	lbs/day[1]	11	--	32	--	--	--	--	42
Nitrate + Nitrite (as N)	mg/L	10	--	--	--	--	--	--	5.26
Nitrite (as N)	mg/L	1	--	--	--	--	--	--	0.18
	lbs/day[1]	5.8	--	--	--	--	--	--	1.0
Dichlorobromo-methane	µg/L	0.56	--	1.1	--	--	--	--	1.6
Carbon Tetrachloride	µg/L	0.25	--	0.50	--	--	--	--	0.25[4]
Copper	µg/L	1.57	--	3.16	--	--	--	--	2.9
Zinc	µg/L	15.66	--	31.42	--	--	--	--	51.4
Electrical Conductivity @ 25ºC	µmhos/cm	[5]	[5]	[5]	[5]	[5]	--	--	388
Total Coliforn Organisms	MPN/100 mL	--	--	--	--	240	--	--	220
Total Residual Chlorine	mg/L	--	0.01[6]	0.02[7]	--	--	--	--	0
Settleable Solids	ml/L	0.1	--	0.2	--	--	--	--	0

1 Based on an average dry weather flow of 0.69 MGD.

2 Minimum.

3 Maximum.

4 Non-detect at Method Detection Limit of 0.5 µg/L.

5 Effluent limitation is municipal water supply plus 500 µmhos/cm, or 700 µmhos/cm, as an annual average, whichever is less.

6 As a 4-day average.

7 As a 1-hour average.

D. Compliance Summary

A review of the Discharger's monitoring data from January 2009 through November 2011 indicates overall satisfactory compliance with the effluent limitations required in Order R5-2008-0177. The Discharger had multiple exceedances of Order R5-2008-0177 effluent limitations for zinc, dichlorobromomethane, and copper; however, was in compliance with the interim limitations contained in Time Schedule Order R5-2008-0178 for these constituents. Also, two exceedances of the total coliform and one exceedance of the ammonia effluent limitations were reported during this period.

E. Planned Changes

The Discharger does not plan on expanding or making any significant changes to the Facility during the next five years. In August of 2010, the Discharger began using lime addition to the treatment process on a continuous basis. The lime addition is accomplished via an automated auger lime feed system located in the headworks following screening and grit removal. The Discharger found that adding lime significantly improved the reliability of the nitrification/denitrification process within the Facility. Operationally, Facility staff target maintaining an alkalinity of 75 mg/L and a pH of 7.0 standard units in the selector basin. This change has ultimately saved the Discharger operation costs by reducing the quantity of sodium bicarbonate needed for denitrification and has raised the effluent hardness to a minimum of 75 mg/L without significantly increasing the salinity of the discharge. The Discharger has incorporated this operational change into the Operation and Mantenance Manual.

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 September 2009)*, for the Sacramento and San Joaquin River Basins (Basin Plan)

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

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

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

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

6. **Anti-Backsliding Requirements.** This Order is consistent with anti-backsliding policies as specified in the Finding contained at section II.O of this Order. Compliance with the anti-backsliding requirements is discussed in this Fact Sheet (section IV.D.3).

7. **Emergency Planning and Community Right to Know Act**

Section 13263.6(a) of the Water Code, requires that "*the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective*".

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

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

8. Storm Water Requirements

USEPA promulgated federal regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the storm water program and are obligated to comply with the federal regulations.

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

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 11 October 20011 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*." Deer Creek and the Yuba River are both listed on the 2010 303(d) list of impaired water bodies for mercury. At this time, no mercury Total Maximum Daily Load (TMDL) has been established for Deer Creek or the Yuba River.

2. TMDLs. USEPA requires the Central Valley Water Board to develop TMDLs for each 303(d) listed pollutant and water body combination. A mercury TMDL for

Deer Creek and the Yuba River are projected to be completed in 2016 and 2021, respectively.

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

E. Other Plans, Polices and Regulations

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

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

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

c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the 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 (No discharge or application of waste other than that described in this Order). This prohibition is based on Water Code section 13260 that requires filing of a report of waste discharge (ROWD) before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.

2. **Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at CFR Part 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 CFR 122.41(m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 CFR 122.41(m)(4), prohibits bypass unless it is

unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Central Valley Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

3. **Prohibition III.C (No controllable condition shall create a nuisance).** 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

4. **Prohibition III.D (No inclusion of pollutant free wastewater shall cause improper operation of the Facility's systems).** This prohibition is based on CFR Part 122.41 et seq. that requires the proper design and operation of treatment facilities

B. Technology-Based Effluent Limitations

1. Scope and Authority

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

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

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for POTWs [defined in section 304(d)(1)]. Section 301(b)(1)(B) of that Act requires that such treatment works

must, as a minimum, meet effluent limitations based on secondary treatment as defined by the USEPA Administrator.

Based on this statutory requirement, USEPA developed secondary treatment regulations, which are specified in 40 CFR Part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH.

2. Applicable Technology-Based Effluent Limitations

a. BOD_5 and TSS. Federal regulations, 40 CFR Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD_5 and TSS. Tertiary treatment is necessary to protect the beneficial uses of the receiving stream and the final effluent limitations for BOD_5 and TSS are based on the technical capability of the tertiary process. BOD_5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The secondary and tertiary treatment standards for BOD_5 and TSS are indicators of the effectiveness of the treatment processes. The principal design parameter for wastewater treatment plants is the daily BOD_5 and TSS loading rates and the corresponding removal rate of the system. In applying 40 CFR Part 133 for weekly and monthly average BOD_5 and TSS limitations, the application of tertiary treatment processes results in the ability to achieve lower levels for BOD_5 and TSS than the secondary standards currently prescribed; the 30-day average BOD_5 and TSS limitations have been revised to 10 mg/L, which is technically based on the capability of a tertiary system. In addition to the average weekly and average monthly effluent limitations, a daily maximum effluent limitation for BOD_5 and TSS is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall

not be less than 85 percent. If 85 percent removal of BOD_5 and TSS must be achieved by a secondary treatment plant, it must also be achieved by a tertiary (i.e., treatment beyond secondary level) treatment plant. This Order contains a limitation requiring an average of 85 percent removal of BOD_5 and TSS over each calendar month. This Order requires Water Quality Based Effluent Limitations (WQBELs) that are equal to or more stringent than the secondary technology-based treatment described in 40 CFR Part 133. (See section IV.C.3.d of this Attachment for the discussion on Pathogens which includes WQBELs for BOD_5 and TSS.)

b. **Flow.** The Facility was designed to provide the equivalent to a tertiary level of treatment for up to a design flow of 0.69 MGD. Therefore, this Order contains an average dry weather discharge flow effluent limit of 0.69 MGD.

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

Summary of Technology-based Effluent Limitations
Discharge Point 001

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

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD_5 @ 20°C[1]	mg/L	10	15	20	--	--
	lbs/day[2]	58	86	115	--	--
Total Suspended Solids[1]	mg/L	10	15	20	--	--
	lbs/day[2]	58	86	115	--	--
pH	standard units	--	--	--	6.0	9.0

[1] The average monthly percent removal of BOD_5 and total suspended solids shall not be less than 85 percent.

[2] Based on an average dry weather flow of 0.69 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 section IV.C.3.v. of this Fact Sheet.

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

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

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

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

The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

a. Receiving Water and Beneficial Uses.

The Basin Plan at II-2.00 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan does not specifically identify beneficial uses for Deer Creek, but does identify present and potential uses for the Yuba River, to which Deer Creek is tributary. Thus, beneficial uses applicable to Deer Creek are as follows:

Table F-4. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Deer Creek, tributary to Yuba River	Existing: Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Hydropower generation (POW); Water contact recreation, including canoeing and rafting (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Cold freshwater habitat (COLD); Migration of aquatic organisms, warm and cold (MIGR); Spawning, reproduction, and/or early development, warm and cold (SPWN); and Wildlife habitat (WILD). ~~Intermittent: None~~Potential: None

b. **Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on monitoring results obtained since adoption of previous Order R5-2008-0177, from ~~January~~December 2008 through September 2011, which includes effluent and ambient background data submitted in the SMRs.

c. **Assimilative Capacity/Mixing Zone.** The Discharger requested a dilution credit of 7.28:1 and submitted a mixing zone study for Human Health constituents, specifically dichlorobromomethane, that identified the end of the mixing zone at 236 feet from Discharge Point 001. The mixing zone study included a tracer analysis using EC to determine the point of complete mixing. The Central

Valley Water Board determined that the mixing zone and dilution credit meet the requirements of section 1.4.2 of the SIP as explained below.

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

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

For priority pollutants, the SIP supersedes the Basin Plan mixing zone provisions. Section 1.4.2 of the SIP states, in part, "…*with the exception of*

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

For incompletely-mixed discharges, the Discharger must complete an independent mixing zone study to demonstrate to the Central Valley Water Board that a dilution credit is appropriate. In granting a mixing zone, ~~the SIP states that a mixing zone shall be as small as practicable, and meet the conditions provided in~~ Section 1.4.2.2 of the SIP requires the ~~as~~ follow~~s~~ing to be met:

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

A: A mixing zone shall not:

1. *compromise the integrity of the entire water body;*
2. *cause acutely toxic conditions to aquatic life passing through the mixing zone;*
3. *restrict the passage of aquatic life;*

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

Section 1.4.2.1 of the SIP establishes the authority for the Central Valley Water Board to consider dilution credits based on the mixing zone conditions in a receiving water. Section 1.4.2.1 in part states: *"The dilution credit, D, is a numerical value associated with the mixing zone that accounts for the receiving water entrained into the discharge. The dilution credit is a value used in the calculation of effluent limitations (described in Section 1.4).* ***Dilution credits may be limited or denied on a pollutant-by-pollutant basis, which may result in a dilution credit for all, some, or no priority pollutants in the discharge." (emphasis added)***

Deer Creek is a year-round stream, and therefore, dilution is considered for year-round discharge. There is no stream flow gauge on Deer Creek near the Plant; however, Deer Creek is highly influenced by Nevada Irrigation District (NID). NID operates two reservoirs upstream of the discharge and uses this reach of the creek as a conduit to divert water used for agricultural purposes at a point approximately 36,000 feet downstream of the discharge.

There are no other major tributaries into, or diversions from, Deer Creek along this reach of the creek. Therefore, the Discharger used flow data from NID's downstream diversion to calculate a conservative harmonic mean flow (NID does not divert all of Deer Creek's water). Monitoring data from January 1995 through December 2009 was used to determine NID's median daily diversion flow. The Facility's effluent daily discharge flow (0.4 MGD) was subtracted from NID's median daily diversion flow and the resulting harmonic mean flow in Deer Creek equated to 5.02 MGD.

The mixing zone field study was conducted on 18 November 2010, when Deer Creek flows are expected to be low and stable. Field conditions were found to be representative of mixing conditions under the estimated 5.02 MGD harmonic mean flow. Under low flow conditions, Deer Creek pinches down to narrow chutes of water before plunging into pools. Thus, EC cross-sectional profiles were measured at the end of pools downstream of these hydraulic-pinch points. Three measurements were obtained upstream and four measurements were obtained downstream. Based on field measurements, complete mixing was determined to be 236 feet downstream of the effluent discharge, which is the end of the proposed mixing zone.

Based on the average dry weather flow effluent limit of 0.69 MGD and the harmonic mean of 5.02 MGD, the calculated dilution credit equates to 7.28. However, allowing the full dilution credit of 7.28 is not necessary for the Discharger to maintain compliance with the final effluent limits. <u>In addition, allowing the full dilution credit would result in a greater amount of loading of dichlorobromomethane to the receiving water. As required by Section 1.4.2.2 of the SIP, the mixing zone must be as small as practicable. Additionally, the degradation to the receiving water downstream of the mixing zone, due to the less stringent effluent limits and increased loading, must be in accordance with State and federal antidegradation policies, minimizing the use of available assimilative capacity to that needed after best practical treatment or control</u>

(BPTC) is implemented. Therefore, based on a projected maximum effluent concentration (MEC) (3.33 times the standard deviation plus the mean), the Central Valley Water Board grants the Discharger a dilution credit of 4.1:1 for dichlorobromomethane. The Order establishes performance-based effluent limitations for dichlorobromomethane with which the Discharger is able to comply.

To fully comply with all applicable laws, regulations and policies of the State, Central Valley Water Board approved a mixing zone and the associated dilution credits based on the following:

- Mixing zones are allowed under the SIP provided all elements contain in Section 1.4.2.2 are met. Based on the mixing zone study conducted by the Discharger the Central Valley Water Board has determined that these factors are met.

- Section 1.4.2.2 of the SIP requires mixing zones to be as small as practicable. Based on the mixing zone study conducted by the Discharger the Central Valley Water Board has determined the mixing zone is as small as practicable.

- In accordance with Section 1.4.2.2 of the SIP, the Board has determined the mixing zone is as small as practicable, will not compromise the integrity of the entire water body, restrict the passage of aquatic life, dominate the water body or overlap existing mixing zones from different outfalls. The approximately 236 foot mixing zone is small relative to the large size of the approximately 22 mile segment of the receiving water from Scotts Flatt Reservoir to the Yuba River, is not at or near a drinking water intake, and does not overlap a mixing zone from a different outfall.

- The Central Valley Water Board is allowing a mixing zone for human health constituents only and has determined allowing such mixing zone will not

cause acutely toxic conditions to aquatic life passing through the mixing zone.

- The Central Valley Water Board has determined the discharge will not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under the federal or State endangered species laws, because the mixing zone is for human health criteria only, is relatively small, and acutely toxic conditions will not occur in the mixing zone. The discharge will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum, produce objectionable odor, taste, or turbidity, cause objectionable bottom deposits, or cause nuisance, because the proposed Order establishes end-of-pipe effluent limitations (e.g., for BOD_5 and TSS) and discharge prohibitions to prevent these conditions from occurring.

- As required by the SIP, in determining the extent of or whether to allow a mixing zone and dilution credit, the Central Valley Water Board has considered the presence of pollutants in the discharge that are carcinogenic, mutagenic, teratogenic, persistent, bioaccumulative, or attractive to aquatic organisms, and concluded that the allowance of the mixing zone and dilution credit is adequately protective of the beneficial uses of the receiving water.

- The Central Valley Water Board has determined mixing zone complies with the SIP for priority pollutants.

- The mixing zone study indicates the maximum allowed dilution factor to be 7.28:1 for human health constituents. Section 1.4.2.2.B of the SIP, in part states, *"The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements."* The Central Valley Water Board has determined a dilution factor of 7.28:1 is not needed or necessary for the Discharger to achieve compliance with this Order.

- The Central Valley Water Board has determined the mixing zone complies with the Basin Plan for non-priority pollutants. The Basin Plan requires a mixing zone not adversely impact beneficial uses. Beneficial uses will not be adversely affected for the same reasons discussed above. In determining the size of the mixing zone, the Central Valley Water Board has considered the procedures and guidelines in Section 5.1 of USEPA's *Water Quality Standards Handbook*, 2nd Edition (updated July 2007) and Section 2.2.2 of the TSD. The SIP incorporates the same guidelines.

- The Central Valley Water Board has determined that allowing dilution factors that exceed those proposed by this Order would not comply with the State Antidegradation Policy for receiving waters outside the allowable mixing zone for dichlorobromomethane. 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 and requires that existing quality of waters be maintained unless degradation is justified based on specific findings. Item 2 of Resolution 68-16 states:

  "Any activity which produces or may produce a waste or increased volume or concentration of waste and which dischargers or proposed to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the 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."

  The effluent limitations established in this Order for dichlorobromomethane were developed based on performance of the Discharger's current wastewater treatment capabilities. Therefore, the Central Valley Water Board determined the effluent limitations required by this Order will result in the Discharger implementing best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and the highest water

quality consistent with maximum benefit to the people of the State will be maintained. The Central Valley Water Board also determined the Discharger will be in immediate compliance with the effluent limitations.

The Central Valley Water Board also determined establishing effluent limitations for dichlorobromomethane is consistent with Section 1.4.2.2.B of the SIP that requires the Central Valley Water Board to deny or significantly limit a mixing zone and dilution credits as necessary to comply with other regulatory requirements.

- Therefore, the Central Valley Water Board has determined the effluent limitations established in this Order for dichlorobromomethane are appropriate and necessary to comply with the Basin Plan, SIP, Federal anti-degradation regulations, and Resolution 68-16.

~~In accordance with Section 1.4.2.2 of the SIP, the mixing zone is as small as practicable, will not compromise the integrity of the entire water body, dominate the water body, or overlap existing mixing zones from different outfalls. The 236 foot mixing zone is very small relative to the approximately 22 mile segment of the receiving water from Scotts Flat Reservoir to the Yuba River and is not at or near a drinking water intake.~~

~~The mixing zone is for a human health constituent and will not restrict the passage of aquatic life or cause acutely toxic conditions to aquatic life passing through the mixing zone, because this Order establishes end-of-pipe effluent limitations for constituents with addressing aquatic life criteria without credit for dilution. In addition, this Order requires compliance with an acute toxicity effluent limitation and requires acute bioassays using 100% effluent. Compliance with the acute toxicity effluent limitation assures the effluent is not acutely toxic.~~

~~The discharge will not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under the federal or~~

~~State endangered species laws, because the mixing zone is for human health criteria only, is relatively small, and acutely toxic conditions will not occur in the mixing zone. The discharge will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum, produce objectionable odor, taste, or turbidity, cause objectionable bottom deposits, or cause nuisance, because this Order establishes end-of-pipe effluent limitations (e.g., for BOD_5 and TSS) and discharge prohibitions to prevent these conditions from occurring.~~

~~As suggested~~required ~~by the SIP, in determining the extent of or whether to allow a mixing zone and dilution credit, the Central Valley Water Board has considered the presence of pollutants in the discharge that are carcinogenic, mutagenic, teratogenic, persistent, bioaccumulative, or attractive to aquatic organisms, and concluded that the allowance of the mixing zone and dilution credit is adequately protective of the beneficial uses of the receiving water.~~

~~The mixing zone therefore complies with the SIP. The mixing zone also complies with the Basin Plan, which requires that the mixing zone not adversely impact beneficial uses. Beneficial uses will not be adversely affected for the same reasons discussed above. In determining the size of the mixing zone, the Central Valley Water Board has considered the procedures and guidelines in Section 5.1 of USEPA's *Water Quality Standards Handbook*, 2nd Edition (updated July 2007) and Section 2.2.2 of the TSD. The SIP incorporates the same guidelines.~~

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

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

This Order has established the criteria for hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the SIP[1], the CTR[2] and State Water Board Order No. WQO 2008-0008 (City of Davis). The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR § 131.38(c)(4)) 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

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[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.

receiving water after the effluent has mixed with the water body[1]. This ensures that effluent limitations are fully protective of aquatic life in all areas of the receiving water affected by the discharge under all flow conditions, at the fully mixed location, and throughout the water body including at the point of discharge into the water body.

i. **Conducting the Reasonable Potential Analysis (RPA).** The SIP in Section 1.3 states, "The RWQCB shall…determine whether a discharge may: (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable priority pollutant criterion or objective." Section 1.3 provides a step-by-step procedure for conducting the RPA. The procedure requires the comparison of the MEC and Maximum Ambient Background Concentration to the applicable criterion that has been properly adjusted for hardness. Unless otherwise noted, for the hardness-dependent CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.

a) The SIP requires water quality-based effluent limitations (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

[1] 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.

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

A 2006 Study[2] developed procedures for calculating the effluent concentration allowance (ECA)[3] 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

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

[2] 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.

[3] 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.

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[1], is as follows:

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

Where:

H = hardness (as $CaCO_3$)[2]

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.

[1] 40 CFR § 131.38(b)(2).

[2] For this discussion, all hardness values are in mg/L as $CaCO_3$.

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

$$ECA = C \quad (\text{when } C \leqslant B^{1}) \qquad \text{(Equation 2)}$$

Where:

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

B = the ambient background concentration

The 2006 Study demonstrated that the relationship between hardness and the calculated criteria is the same for some metals, so the same procedure for calculating the ECA may be used for these metals. The same procedure can be used for chronic cadmium, chromium III, copper, nickel, and zinc. These metals are hereinafter referred to as "Concave Down Metals". "Concave 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[2]. The 2006 Study proves that regardless of whether the effluent hardness is lower or greater than the upstream hardness, the reasonable worst-case flow

[1] The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e. $C \leqslant B$)

[2] 2006 Study, p. 5700

condition is the effluent dominated condition (i.e., no receiving water flow)[1]. Consequently, for Concave Down Metals, the CTR criteria have been calculated using the downstream ambient hardness under this condition.

The effluent hardness ranged from 78 mg/L to 136 mg/L, based on 12 samples from August 2010 to September 2011. The upstream receiving water hardness varied from 14 mg/L to 35 mg/L, based on 3 samples from August 2011 to November 2011. Under the effluent dominated condition, the reasonable worst-case downstream ambient hardness was set at 75 mg/L due to the operational target used by the Facility. As demonstrated in the example shown in Table F-5, below, using this hardness 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 zinc assumes the following conservative conditions for the upstream receiving water:

- Upstream receiving water always at the lowest observed upstream receiving water hardness (i.e., 14 mg/L)

- Upstream receiving water zinc 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.

[1] 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.

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

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 zinc, for any receiving water flow condition (high flow to low flow), the fully-mixed downstream ambient zinc concentration is in compliance with the CTR criteria.[1]

Table F-5: Zinc ECA Evaluation

Lowest Observed Effluent Hardness	**75 mg/L (as $CaCO_3$)**
Lowest Observed Upstream Receiving Water Hardness	**14 mg/L (as $CaCO_3$)**
Highest Assumed Upstream Receiving Water Zinc Concentration	**1.0 µg/L[1]**
Zinc $ECA_{chronic}$[2]	**93.9 µg/L**

Effluent Fraction[6]		**Fully Mixed Downstream Ambient Concentration**			
		Hardness [3] (mg/L)	**CTR Criteria [4] (µg/L)**	**Zinc [5] (µg/L)**	**Complies with CTR Criteria**
High Flow	1%	14.61	23.5	23.4	**Yes**
	5%	17.05	26.8	26.2	**Yes**
	15%	23.15	34.7	33.3	**Yes**
	25%	29.25	42.3	40.5	**Yes**
	50%	44.5	60.3	58.3	**Yes**
	75%	59.75	77.4	76.1	**Yes**
Low Flow	100%	75	93.9	93.9	**Yes**

[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-5 demonstrates that the receiving water is always in compliance with the CTR criteria at the fully-mixed location in the receiving water. It also demonstrates that the receiving water is in compliance with the CTR criteria for all mixtures from the point of discharge to the fully-mixed location. Therefore, a mixing zone is not used for compliance.

[1] Highest assumed upstream receiving water zinc concentration calculated using Equation 1 for chronic criterion at a hardness of 14 mg/L.

[2] ECA calculated using Equation 1 for chronic criterion at a hardness of 75 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 zinc concentration is the mixture of the receiving water and effluent zinc 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-6).

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

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 acute silver, a Concave Up Metal, in Table F-6, below. As previously mentioned, the lowest effluent hardness is 75 mg/L, while the upstream receiving water hardness ranged from 14 mg/L to 35 mg/L. In this case, the reasonable worst-case upstream receiving water hardness to use in Equation 4 to calculate the ECA is 14 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-6, for acute silver.

Table F-6: Acute Silver ECA Evaluation

Lowest Observed Effluent Hardness					**75 mg/L**
Reasonable Worst-case Upstream Receiving Water Hardness					**14 mg/L**
Reasonable Worst-case Upstream Receiving Water Acute Silver Concentration					**0.1 µg/L[1]**
Acute Silver ECA_{acute}[2]					**1.17 µg/L**
		Fully Mixed Downstream Ambient Concentration			
Effluent Fraction[6]		**Hardness[3] (mg/L) (as $CaCO_3$)**	**CTR Criteria[4] (µg/L)**	**Acute Silver[5] (µg/L)**	**Complies with CTR Criteria**
High Flow	1%	14.6	0.1	0.1	**Yes**
	5%	17.1	0.2	0.2	**Yes**
	15%	23.2	0.3	0.3	**Yes**
	25%	29.3	0.5	0.4	**Yes**
	50%	44.5	1.0	0.7	**Yes**
	75%	59.8	1.7	0.9	**Yes**
Low Flow	100%	75.0	2.5	1.2	**Yes**

1 Reasonable worst-case upstream receiving water acute silver concentration calculated using Equation 1 for acute criterion at a hardness of 14 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 acute silver 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).

As discussed above, the receiving water at times contains concentrations of lead that exceed water quality criteria associated with the hardness condition previous to the discharge. The 2006 study procedures remain applicable under these conditions. The discharge cannot cause or contribute to a violation of water quality criteria/objectives in the receiving water. Although metals concentrations downstream of the discharge exceed CTR criteria, the cause of the exceedance is not due to the

discharge, it is due to the elevated metals concentrations upstream of the discharge. Implementing the procedures of the 2006 study does not result in an increase in toxicity downstream of the discharge, and in fact reduces the amount of toxicity already present in the receiving water. This is demonstrated in the example below for lead (see Table F-7).

As shown in Table F-7 for lead, prior to the discharge the lead concentrations in the receiving water has been observed to exceed water quality criteria by up to 72%. But when the receiving water contains some fraction of effluent, the percent exceedance is reduced. The greater the amount of effluent in the receiving water, the lower the percent exceedance, until a fully compliant state is achieved when the effluent constitutes almost half the flow. The lead effluent limitation contained in this Order, therefore, is sufficient to assure that the discharge never causes or contributes to a violation of a water quality criterion, and in fact reduces the amount of toxicity already present in the receiving water.

Table F-7: Lead ECA Evaluation

				Lowest Observed Effluent Hardness	**75 mg/L**
				Lowest Observed Upstream Receiving Water Hardness	**14 mg/L**
				Highest Observed Upstream Receiving Water Lead Concentration	**0.4 µg/L[1]**
				Lead $ECA_{chronic}$[2]	**1.7 µg/L**
Effluent Fraction[6]		**Fully Mixed Downstream Ambient Concentration**			
		Hardness [3] (mg/L)	**CTR Criteria [4] (µg/L)**	**Lead [5] (µg/L)**	**Percent Exceeding Criterion**
High Flow ↓	0%	14	0.26	0.45	**72%**
	1%	14.61	0.27	0.46	**67%**
	5%	17.05	0.33	0.51	**53%**
	15%	23.15	0.49	0.64	**29%**
	25%	29.25	0.67	0.76	**14%**
	50%	44.5	1.14	1.07	**-5%**
	75%	59.75	1.65	1.39	**-16%**

Low Flow	100%	75	2.21	1.70	**-23%**

1 Highest assumed upstream receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 14 mg/L.

2 ECA calculated using Equation 1 for chronic criterion at a hardness of 14 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 lead concentration is the mixture of the receiving water and effluent lead concentrations at the applicable effluent fraction using Equation 3.

6 The effluent fraction ranges from 0% at the high receiving water flow condition, to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

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

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

CTR Metals	ECA (µg/L, total recoverable)	
	Acute	**Chronic**
Copper	10.7	7.3
Chromium III	1,372	163.5
Cadmium	2.91	1.96
Lead	43.7	1.70
Nickel	367.8	40.9
Silver	1.17	--
Zinc	93.9	93.9

3. Determining the Need for WQBELs

The Central Valley Water Board conducted the RPA in accordance with section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Central Valley Water Board may use the SIP as guidance for water quality-based toxics

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

a. **Constituents with No Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential; however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

i. **Aluminum.** 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.

Surface water pH can also drive the ionoregulatory versus respiratory effects of aluminum on fish, because the chemical conditions at the fish gill surface are thought to modify aluminum speciation and sorption.

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

Aluminum toxicity particularly damages respiratory organs, such as fish gills. However, water passing over the gills can become more basic due to neutralization of acidic water by ammonia (NH_3), which can lead to precipitation and polymerization of aluminum depositing on the gill surface. Then the accumulation of aluminum deposits on the gill surface enhances the rates of sloughing and proliferation of fish lamellae cells (hyperplasia of lamellae).

Calcium [hardness] concentrations in surface water may also reduce aluminum toxicity by competing with monomeric aluminum (Al^{3+}) binding to negatively charged fish gills and by keeping tight junctions between epithelial cells intact.

"Given Al [aluminum] speciation and behavior in complex solutions, the mechanism responsible for toxicity will probably be dependent on pH and calcium concentration of a given solution. ~~Therefore, understanding Al speciation chemistry and its influence on the mechanisms of toxicity to fish and invertebrates are important to interpreting the toxicological studies which form the basis of AWQC [Ambient Water Quality Criteria] development."(Arid West, 2006)~~ Failure to identify and qualify the various forms of aluminum present in surface waters inadequately assesses aluminum toxicity. Many analytical techniques used for aluminum determinations require that acid digestion of the raw water is sampled prior to chemical analysis. These procedures, while generally adequate for measuring 'total' aluminum, do not provide the information necessary for the faction of aluminum that is toxic or potentially toxic to aquatic organisms.

(a) WQO. The Code of Federal Regulations promulgated criteria for priority toxic pollutants for California's surface waters as part of section 131.38 Establishment of Numeric Criteria for Priority Toxic Pollutants

for the State of California (California Toxics Rule or CTR), including metals criteria. Freshwater aquatic life criteria for metals are expressed as a function of total hardness. However, aluminum criteria were not promulgated as part of the CTR. Absent numeric aquatic life criteria for aluminum, WQBEL's in the Central Valley 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 the following: (1) USEPA Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses, (2) USEPA Ambient Water Quality Criteria (AWQC), (3) AWQC-Correction, ~~(4) the Arid West Water Quality Research Project and Reports,~~ and (~~5~~4) site-specific aluminum studies conducted by dischargers within the Central Valley Region. (Basin Plan, p. IV.-17.00; *see also,* 40 CFR 122.44(d)(vi).)

USEPA's *Ambient Water Quality Criteria for Aluminum (AWQC) - 1988*. In 1988, based on the scientific knowledge of that time, USEPA recommended acute and chronic criteria of 750 µg/L and 87 µg/L, respectively. USEPA attempted to derive the water quality criteria for aluminum in accordance with the steps in their Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses as described below:

1) USEPA calculated 15 Species Mean Acute Values (SMAVs) out of the 26 acute toxicity test results (Table 1, USEPA 1988).
2) From the 15 SMAV's, USEPA compiled 14 Genus Mean Acute Values (GMAVs) (Table 3, USEPA 1988).
3) The four most sensitive species were ranked in the following order:

Rank	Species	Common Name	GMAV
1	*Ceriodaphnia dubia*	Clandoceran	2,648
2	*Salvelinus fontinalis*	Brook trout	3,600
3	*Salmo gairdneri*	Rainbow trout	10,390
4	*Gammarus pseudolimnaeus*	Amphipod	22,000

From these GMAV's, the Final Acute Value (FAV) at a pH between 6.5 and 9.0 was calculated to be 1,496 µg/L. Thus, the acute criterion equals 748 µg/L, which is one-half the FAV.

4) Chronic toxicity values (Table 2) were determined with the three freshwater species, and the acute-chronic ratios (ACR) were calculated as shown below:

Species	Hardness ($CaCO_3$)	pH	Acute Value (µg/L)	Chronic Value (µg/L)	ACR
Ceriodaphnia dubia	50	7.15	1900	1908	0.9958
Daphnia magna	220	8.3	38200	742	51.27
Pimephales promelas	220	7.24 - 8.15	35000	3288	10.64

5) and 6) A Species Mean ACR (SMACR) was not calculated; therefore, the Final ACR (FACR) was determined to be 0.9958, based on the acutely sensitive species (*Ceriodaphnia dubia*). However, according to the Guidelines, the Final ACR cannot be less than 2, because a FACR lower than 2 would result in the Final Chronic Value (FCV) exceeding the acute criterion. Therefore, the default 2 was used as the FACR.

7) The Final Chronic Value (FCV) is calculated as follows:

$$FCV = \frac{FAV}{FACR}$$

The FCV equals the FAV of 1,496 µg/L divided by the FACR of 2, which equates to the same value as the acute criterion, 748 µg/L. However, USEPA lowered the chronic criterion to 87 µg/L, based on striped bass (Buckler, et al.) and brook trout (Cleveland, et al.) studies conducted in sterile lab waters with hardness at approximately 12 mg/L as $CaCO_3$ that, in part, indicated at a pH of 6.5, chronic toxicity above aluminum concentrations of 87.2 µg/L (which resulted in zero percent dead after seven days) and again at pH 6.5-6.6 and concentrations above 88 µg/L (which resulted in four percent weight reduction after 60 days), respectively. Dissimilarly, USEPA determined that the Buckler, et al. study was not an appropriate toxicity test to include in the chronic toxicity database for calculating a Final Chronic Equation because (a) the pH of the dilution water was less than 6.5, (b) aluminum was a component of an effluent or mixture, and (c) the control mortality was too high in many tests. For unknown reasons, USEPA also determined that the Cleveland, et al. was not an appropriate chronic toxicity test either.

In the AWQC for Aluminum 1988 document, USEPA discusses the complexities of aluminum speciation, giving evidence that USEPA was aware that aluminum toxicity is related to speciation that is driven by water quality characteristics. USEPA went on to quote several studies that suggest pH is a driver of aluminum toxicity. USEPA went as far as to quote a study by Seip et al. (1984) that stated, "the simple hydroxides ($[Al(OH)]^{2+}$ and $[Al(OH)_2]^{+}$) are regarded as the most dangerous forms while organically bound Al and polymeric forms are less toxic or essentially harmless." Nevertheless, USEPA still based the Final Chronic Value on total aluminum concentrations from two studies that were conducted at pH of 6.5 - 6.6 and hardness at approximately 10 to 12 mg/L as $CaCO_3$ for all surface waters without consideration of the unique and diverse water quality characteristics.

Additionally, concerns with Buckler et al. and Cleveland et al. is that the data is inconsistent within each study. One possibility with the inconsistencies is that aluminum speciation was not measured as part of these tests so the toxic portion of aluminum remains unknown, only the total or dissolved amounts are known. There is no correlation between (a) the amount of total or dissolved aluminum present in a particular sample at a certain pH and hardness and (b) the actual bioavailability and toxicity to aquatic life due to the complex nature of aluminum speciation and other influences like organic material present in surface waters. In April 1999, USEPA released the National Recommended Water Quality Criteria-Correction. There were no corrections to the 1988 aluminum recommended criteria; however, USEPA recognized that they were aware of field data indicating that many high quality waters in the U.S. contain more than 87 µg/L aluminum, when either total recoverable or dissolved is measured.

Local Environmental Conditions. Twenty-one site-specific aluminum toxicity tests have also been conducted within the Central Valley Region. The most sensitive species as determined by USEPA's 1988 chronic database ~~and Arid West's 2006 expansion of USEPA's 1988 chronic database~~, *Ceriodaphnia dubia*, was also used as the test specie in many of these local site-specific studies.

As shown in the following table, all EC_{50} toxicity study result values are at concentrations of aluminum above 5000 µg/L. Even at a critically low hardness value of 16 mg/L as $CaCO_3$, aluminum toxicity effects in the studied Central Valley Region's surface waters (Auburn Ravine) show the Total Aluminum EC_{50} value at concentrations above 5,160 µg/L. Thus this representative data and the toxic effects of aluminum in the Central Valley Region's surface waters is less toxic to resident species. All aluminum toxicity study results in these regional water bodies show that USEPA's recommended 87 µg/L chronic criterion is overly stringent for the Region's circumneutral pH surface waters at hardness ranging from 16 to 156 mg/L as $CaCO_3$.

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
	" "	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, seven 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.

Site-specific Conditions. Nevada City is 2400 feet above sea level, and is surrounded by forest. pH of Deer Creek, the receiving water, typically ranges from 6.6 - 7.7 (6.2, Jan '09 and 6.5, Feb '08) with an average of 7.2 based on 178 monitoring results obtained during the years from 2008 through 2010. Limited data shows three hardness samples that range from 1~~2~~4 to 35 mg/L as $CaCO_3$ and can range even higher. Deer Creek supports aquatic species such as rainbow trout and other salmonids. But brook trout or striped bass have not been surveyed nor expected to be present (http://bios.dfg.ca.gov/) since striped bass is non-

native to California and brook trout is present in higher elevation lakes and streams. As previously discussed in section IV.C.2.c. (Assimilative Capacity/Mixing Zone) of this Fact Sheet, Deer Creek is highly influenced by NID's operation of two reservoirs upstream of the discharge; subsequently, NID uses this section of Deer Creek as a conduit and diverts reservoir water downstream of the discharge.

The Discharger has not conducted a toxicity test for aluminum; however, the City of Auburn conducted two toxicity tests in Auburn Ravine, shown highlighted in the previous table. The City of Auburn is located at an elevation of approximately 1400 feet above sea level, and is surrounded by forest. As shown, the test water quality characteristics of Auburn Ravine are similar to Deer Creek, pH at 7.4 and hardness at 16 mg/L as $CaCO_3$ in comparison to the mean pH at 7.2 and the mean hardness at 24 mg/L as $CaCO_3$, respectively. Thus, based on these two similar primary water quality characteristics (pH and hardness) that drive aluminum speciation, the aluminum toxicity within Auburn Ravine is expected to be similar in Deer Creek. Therefore, the Auburn Ravine aluminum toxicity test study is relevant and appropriate in this case for use in determining the specific numerical criteria to be used in determining compliance with the Basin Plan's narrative toxicity objective. The Auburn Ravine aluminum toxicity study resulted in a site-specific aluminum objective at 1079 µg/L. Thus, these results support the conclusion that the 87 µg/L chronic criterion is overly stringent for Deer Creek.

State of California Department of Public Health (DPH) has established secondary maximum contaminant levels (MCLs) to assist public drinking water systems in managing their drinking water for

aesthetic conditions such as taste, color, and odor. The secondary MCL for aluminum is 200 µg/L.

(b) RPA Results. Based on 25 effluent monitoring results, the MEC is 120 µg/L; and two receiving water monitoring results, the maximum ambient concentration is 23 µg/L. Therefore, the discharge does not show reasonable potential to exceed the Department of Public Health Secondary MCL of 200 µg/L for drinking water aesthetic conditions or USEPA acute criterion of 750 µg/L for protection of aquatic species. Therefore, the discharge does not have reasonable potential to cause or contribute to an instream excursion above the secondary MCLs and recommended acute and chronic criterion; and thus, the discharge complies with the Basin Plan's narrative toxicity objective. WQBELs for aluminum are not contained in this Order.

ii. Bis (2-ethylhexyl) Phthalate.

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

(b) RPA Results. The Discharger conducted accelerated monitoring from July 2011 to December 2011 in order to obtain a data set large enough to perform a reasonable potential analysis for this Order. The data sampling was done using clean-hands techniques. Eight effluent samples and three receiving water samples for bis-2 were obtained. Three of the effluent and two of the receiving water samples for bis-2 were non-detect. The maximum concentration from the other effluent samples was 0.204 µg/L, and the one detected receiving water sample was 0.0209 µg/L, both are below the criterion of 1.8 µg/L. Therefore, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above the CTR bis-2 criterion for

the protection of human health. Appropriately, WQBELs are not contained in this Order.

iii. Carbon Tetrachloride

(a) WQO. The CTR includes a criterion of 0.25 µg/L for carbon tetrachloride for the protection of human health for waters from which both water and organisms are consumed.

(b) RPA Results. Carbon tetrachloride was not detected in the discharge or the receiving water from 16 effluent samples and four receiving water samples. Therefore, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above the CTR carbon tetrachloride criterion for the protection of human health. The effluent limitations for carbon tetrachloride have not been retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

iv. Copper

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for copper. Using the default conversion factors and reasonable worst-case measured hardness, as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 10.7 µg/L and 7.3 µg/L, respectively, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness, as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the receiving water are 2.2 µg/L and 1.7 µg/L, respectively, as total recoverable.

(b) RPA Results. The MEC for copper was 2.9 µg/L (as total recoverable) while the maximum observed upstream receiving water concentration was 0.8 µg/L (as total recoverable). Therefore, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above the CTR copper criterion for the protection of freshwater aquatic life. The effluent limitations for copper have not been retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

v. Nitrate plus Nitrite, and Nitrite

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

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

(b) RPA Results. Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. Nitrate and nitrite are known to cause adverse health effects in humans. Inadequate or incomplete

denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream.

However, based on 132 samples gathered from December 2008 through May 2011 the MEC for nitrate was 5.26 mg/L and the MEC for nitrite was <0.11 mg/L. Therefore, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above the Drinking Water Standards for nitrate, nitrite, or nitrate plus nitrite. The effluent limitations for nitrate plus nitrite and for nitrite have not been retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

vi. Settleable Solids

(a) WQO. For inland surface waters, the Basin Plan states that "[w]*ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.*" Order No. R5-2008-0177 established an AMEL of 0.1 ml/L and an MDEL of 0.2 ml/L for settleable solids to implement the narrative settleable solids objective.

(b) RPA Results. Settleable solids were not detected in the effluent. Because settleable solids have not been detected in the effluent and because the Discharger will provide tertiary treatment, the discharge from the Facility does not have a reasonable potential to cause or contribute to an excursion above the Basin Plan's narrative objective for settleable solids and the effluent limitations for settleable solids have not been retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

vii. Zinc

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for zinc. Order No. R5-2008-0177 established effluent limitations for zinc based on the CTR chronic criterion for protection of aquatic life. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are both 93.9 µg/L, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the receiving water are 22.6 µg/L, as total recoverable.

(b) RPA Results. The MEC for zinc was 51.4 µg/L, while the maximum observed upstream receiving water concentration was 1.0 µg/L. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the chronic criterion for zinc. The effluent limitations for zinc have not been retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

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

i. Mercury

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

(b) RPA Results. The maximum observed effluent mercury concentration was 0.0035 µg/L from four effluent samples. From two receiving water samples the maximum detected mercury concentration was 0.0053 µg/L. Therefore, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above the CTR mercury criterion for the protection of freshwater aquatic life or human health.

This Order does not contain a performance-based mass limit to cap the discharge of mercury into Deer Creek. Instead, the proposed permit includes quarterly monitoring for total recoverable mercury and methylmercury for eight consecutive quarters during the first two years of the new permit term. Therefore, at the next permit renewal, should the Board determine that a TMDL will be established for Deer Creek, there will be additional data for establishing a representative mass limit that the Discharger can meet that will cap the discharge of mercury into Deer Creek.

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

i. Ammonia

(a)WQO. The NAWQC for the protection of freshwater aquatic life for total ammonia, recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. USEPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because Deer Creek has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages in Deer Creek 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, as the Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.0 was used to derive the acute criterion. The resulting acute criterion is 5.6 mg/L.

The maximum observed 30-day rolling average temperature and the maximum observed pH of the effluent were used to calculate the 30-day CCC. The maximum observed 30-day average effluent temperature was 74°F (23°C), for the rolling 30-day period ending May 2011. The maximum observed effluent pH value was 7.1 in April 2009. Using a pH value of 7.1 and the worst-case temperature value of 74°F (23°C) on a rolling 30-day basis, the resulting 30-day CCC is 3.2 mg/L (as N). 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 3.2 mg/L (as N), the 4-day average concentration that should not be exceeded is 8.1 mg/L (as N).

(b)RPA Results. Per section 1.3, Step 7, of the SIP, the facility type may be used as information to aid in determining if a water quality based effluent limitation is required. The Discharger is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger uses nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia would violate the Basin Plan narrative toxicity objective. The MEC for ammonia was 7.3 mg/L while the maximum observed upstream receiving water concentration was 0.05 mg/L. Therefore, ammonia in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC.

(c) WQBELs. The Central Valley Water Board calculates WQBELs in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, USEPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the average monthly effluent limitation (AMEL) and the maximum daily effluent limitation (MDEL). The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for ammonia of 1.9 mg/L and 5.6 mg/L, respectively, based on the NAWQC acute criterion.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 7.3 mg/L, which occurred on 2 February 2010, is greater than the applicable WQBELs. The MEC of 7.3 mg/L was the only exceedance of the criteria in ~~118~~139 samples from December 2008 through May 2011. Since the operational change of adding lime to the treatment system (started in August 2010), the MEC was 2.8 mg/L on 2 May 2011. The Central Valley Water Board concludes, therefore, the Discharger should be able to comply with the effluent limitations.

ii. Chlorine Residual

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

(b) RPA Results. The Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. The Discharger uses a sulfur dioxide process to dechlorinate the effluent prior to discharge to Deer Creek. Due to the existing chlorine use and the potential for chlorine to be discharged, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC.

(c) WQBELs. The USEPA *Technical Support Document for Water Quality-Based Toxics Control* [EPA/505/2-90-001] contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average 1-hour limitation is considered more appropriate than an average daily limitation. This Order contains a 4-day average effluent limitation and 1-hour average effluent limitation for chlorine residual of 0.01 µg/L and 0.02 µg/L, respectively, based on USEPA's NAWQC, which implements the Basin Plan's narrative toxicity objective for protection of aquatic life.

(d) Plant Performance and Attainability. Prior to discharge the Discharger adds sodium hydroxide to dechlorinate the treated effluent. The Central Valley Water Board concludes, therefore, that immediate compliance with total residual chlorine effluent limitations is feasible.

iii. Dichlorobromomethane

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

(b) RPA Results. The MEC for dichlorobromomethane was 1.6 µg/L while the maximum observed upstream receiving water concentration was <0.16 µg/L. Therefore, dichlorobromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.

(c) WQBELs. The receiving water contains assimilative capacity for dichlorobromomethane ~~(see previous section IV.C.2.c),~~and therefore, a dilution credit of 4.1:1 was allowed in the development of the WQBELs for dichlorobromomethane. However, based on justification provided in Section IV.C.2.c. Assimilative Capacity/Mixing Zone, the Central Valley Water Board has determined effluent limitations may only be as high as is required to comply with the Basin Plan, SIP, and State and federal anitdegradation policies. Therefore, t~~T~~his Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for dichlorobromomethane of 2.3 µg/L and 4.6 µg/L, respectively, based on the CTR criterion for the protection of human health.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 1.6 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. Lead

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for lead. Using the default conversion factors and reasonable worst-case measured hardness as

described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 43.7 µg/L and 1.70 µg/L, respectively, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the receiving water are 7.0 µg/L and 0.26 µg/L, respectively, as total recoverable.

(b) RPA Results. The MEC for lead was an estimated value of 0.3 µg/L (as total recoverable) while the maximum observed upstream receiving water concentration was 0.45 µg/L (as total recoverable). The upstream receiving water concentration is above the receiving water chronic criteria, therefore, lead 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.

(c) WQBELs. Dilution credits are not allowed for the development of WQBELs based on aquatic life criteria, as discussed further in section IV.C.2.c of this Fact Sheet. This Order contains a final AMEL and MDEL for lead of 1.4 µg/L and 2.7 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 0.3 µg/L is less than the applicable WQBELs. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. Pathogens

(a) WQO. DPH has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards,

and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median. As coliform organisms are living and mobile, it is impracticable to quantify an exact number of coliform organisms and to establish weekly average limitations. Instead, coliform organisms are measured as a most probable number and regulated based on a 7-day median limitation.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as *"…an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities."* Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the Department of Public Health's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

(b) RPA Results. The beneficial uses of Deer Creek include municipal and domestic supply, water contact recreation, and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. The method of treatment is not prescribed by this Order;

however, wastewater must be treated to a level equivalent to that recommended by DPH.

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

In addition to coliform limitations, an operational specification for turbidity has been included to monitor the effectiveness of treatment filter performance. The tertiary treatment process, or equivalent, is capable of reliably treating wastewater to a turbidity level of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DPH recommended Title 22 disinfection criteria, weekly average specifications are impracticable for turbidity. This Order includes operational specifications for turbidity of 2 NTU as a daily average; 5 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 10 NTU as an instantaneous maximum.

Final WQBELs for BOD_5 and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD_5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD_5 and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design

parameter for wastewater treatment plants is the daily BOD_5 and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for BOD_5 and TSS than the secondary standards currently prescribed. Therefore, this Order requires AMELs for BOD_5 and TSS of 10 mg/L, which is technically based on the capability of a tertiary system. In addition to the average weekly and average monthly effluent limitations, an MDEL 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

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.

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

vi. pH

(a)WQO. The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the *"…pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses."*

(b)RPA Results. The discharge of municipal wastewater has a reasonable potential to cause or contribute to an excursion above the Basin Plan's numeric objectives for pH.

(c)WQBELs. Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.0 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH. These limits are retained from Order R5-2008-0177.

(d)Plant Performance and Attainability. Based on 897 pH samples taken from December 2008 through May 2011, the maximum pH level reported was 7.3 and the minimum was 6.6. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

vii. Salinity

(a)WQO. ~~There are no USEPA water quality criteria for the protection of aquatic organisms for electrical conductivity, total dissolved solids, and sulfate; but USEPA has a water quality goal for chloride for the protection of freshwater aquatic life of 230 mg/L as a 4-day average and 860 mg/L as a 1-hour average.~~ The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for <u>certain specified water bodies for</u> electrical conductivity, total dissolved solids, sulfate, and chloride. <u>The USEPA Ambient Water Quality</u>

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. Additionally, there is no USEPA numeric water quality criteria for the protection of agriculture, industrial, and live stock usage. Numeric values for the protection of these uses are typically done based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective.

Table F-9. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ ~~Goal~~Objective[1]	Secondary MCL[3]	USEPA NAWQC	Effluent	
				Average	Maximum
EC (µmhos/cm)	Varies[2]	900, 1600, 2200	N/A	295	388
TDS (mg/L)	Varies	500, 1000, 1500	N/A	161	229
Sulfate (mg/L)	Varies	250, 500, 600	N/A	15.0	19.9
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day	29.5	31.2

1 Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality, Chapter IV, Section 8 of the Basin Plan., However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective. ~~Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985)~~

2 The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors. An EC level of 700 µmhos/cm is generally considered to present no risk of salinity impacts to crops. However, many crops are grown successfully with higher salinities.

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

(1) Chloride. The secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a

short-term maximum. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The ~~recommended~~most limiting agricultural water quality goal ~~for chloride, that would apply~~to interpret the narrative chemical constituent objective, is 106 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations–Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers. However, t~~T~~he agricultural water quality goal is not a site-specific goal or objective, but rather a general measure to protect salt-sensitive crops. Site specific levels of chloride for the receiving waters are necessary to interpret the narrative chemical constituents objective for protection of agricultural supply.

The Central Valley Water Board is currently implementing the 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 consistent with the efforts currently underway by CV-SALTS.

(2) Electrical Conductivity. The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The most limiting agricultural water quality goal ~~The agricultural water quality~~

~~goal, that would apply the narrative chemical constituents objective, is~~ may be as low as 700 µmhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations–Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). However, t~~T~~he 700 µmhos/cm agricultural water quality goal is not a site-specific goal or objective, but rather a general measure of electrical conductivity that was determined to protect ~~intended to prevent reduction in crop yield, i.e. a restriction on use of water, for~~ salt-sensitive crops, such as beans, carrots, turnips, and strawberries under certain soil and climate conditions. ~~These crops are either currently grown in the area or may be grown in the future.~~ Most other crops can tolerate higher EC concentrations without harm. ~~,~~ Site specific levels of EC for the receiving waters to interpret the narrative chemical constituents objective in the Basin Plan for protection of agricultural supply are necessary. Overall, ~~however, as the~~ salinity of agricultural ~~the~~ irrigation water must be maintained at levels in which growers do not need to take ~~increases, more crops are potentially harmed by the EC, or~~ extra measures ~~must be taken by the farmer~~ to minimize or eliminate any harmful impacts.

The Central Valley Water Board is currently implementing the 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 consistent with the efforts currently underway by CV-SALTS.

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

(4) Total Dissolved Solids. The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The most limiting agricultural water quality goal ~~The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is~~ may be as low as 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations–Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. However, t~~T~~he ~~450 mg/L~~ water quality goal is not a site-specific goal, but rather a general measure of TDS that was determined to protect ~~intended to prevent reduction in crop yield, i.e. a restriction on use of water, for~~ salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm. Site specific levels of TDS for the receiving waters to interpret the narrative chemical constituents objective are necessary.~~, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.~~

The Central Valley Water Board is currently implementing the 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 consistent with the efforts currently underway by CV-SALTS.

(b)RPA Results.

(1) Chloride. Two chloride effluent samples were concentrations of 27.9 mg/L and 31.2 mg/L, collected in January 2010 and January 2011, repspectively. These levels do not exceed the Secondary MCL~~agricultural water goal~~. The background concentration in Deer Creek was 2.34 mg/L collected by the Discharger in October 2011.

(2) Electrical Conductivity. A review of the Discharger's monitoring reports shows an average effluent EC of 295 µmhos/cm, with a range from 51 µmhos/cm to 388 µmhos/cm. These levels do not exceed the Secondary MCL~~agricultural water goal~~. The background receiving water EC averaged 61 µmhos/cm.

(3) Sulfate. Sulfate concentrations in the effluent ranged from 5.71 mg/L to 19.9 mg/L, with an average of 15 mg/L, from three samples. These levels do not exceed the secondary MCL. Background concentrations in Deer Creek were 2.17 mg/L and 4.74 mg/L from two samples.

(4) Total Dissolved Solids. The average TDS effluent concentration was 161 mg/L with concentrations ranging from 51 mg/L to 229 mg/L. These levels do not exceed the Secondary MCL for TDS~~applicable water quality objectives~~. TDS was not measured in Deer Creek.

(c) WQBELs. Based on the relatively low reported salinity, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. However, since the Discharger discharges to Deer Creek a tributary of the Yuba River and eventually the Sacramento-San Joaquin Delta, of additional concern is the salt contribution to Delta waters. Allowing the Discharger to increase its current salt loading may be contrary to the Region-wide effort to address salinity in the Central Valley. Therefore, this Order retains from the previous Order the performance-based effluent limitation of the municipal water supply EC plus and increment of 500 µmhos/cm, or 700 µmhos/cm, whichever is less for EC to be applied as an annual average to limit the discharge to current levels.

In order to ensure that the Discharger will continue to control the discharge of salinity, this Order includes a requirement to update the Discharger's salinity evaluation and minimization plan. Also water supply monitoring is required to evaluate the relative contribution of salinity from the source water to the effluent.

(d) Plant Performance and Attainability. The effluent limitations established in this Order for electrical conductivity are retained from the previous Order. The Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

4. WQBEL Calculations

a. This Order includes WQBELs for ammonia, dichlorobromomethane, electrical conductivity, lead, pH, total coliform organisms, and total residual chlorine. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.

b. Effluent Concentration Allowance. For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from section 1.4 of the SIP:

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

where:

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

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

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

d. Aquatic Toxicity Criteria. WQBELs based on acute and chronic aquatic toxicity criteria are calculated in accordance with section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e. LTAacute and LTAchronic) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.

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

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

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

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

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 001

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

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH	standard units	--	--	--	6.5	8.0
Ammonia (as N)	mg/L	1.9	--	5.6	--	--
	lbs/day[1]	11	--	32	--	--
Dichlorobromomethane	µg/L	2.3[2]	--	4.6[2]	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Lead	µg/L	1.4	--	2.7	--	--
Acute Toxicity	% survival	--	90[3]	70[4]	--	--
Electrical Conductivity (@ 25ºC)	µmhos/cm	[5]	--	--	--	--
Total Residual Chlorine	mg/L	--	0.01[6]	0.02[7]	--	--
Total Coliform Organisms	MPN/100mL	--	2.2[8]	23[9]	--	240

1 Based on Facility design flow of 0.69 MGD.

2 Based on CTR multiplied by the dilution credit of 4.1.

3 Median percent survival of three consecutive acute bioassays.

4 Minimum percent survival of any one acute bioassay.

5 Annual average shall not exceed municipal water supply EC plus 500 µmhos/cm, or 700 µmhos/cm, whichever is less.

6 Applied as a 4-day average effluent limitation.

7 Applied as a 1-hour 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.

5. Whole Effluent Toxicity (WET)

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

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

states that, "…effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate…". USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc." Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

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

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

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) Based on six chronic WET tests performed by the Discharger from May 2009 through May 2011, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective, <u>as shown in the table below:</u>

Chronic Whole Effluent Toxicity Testing Results

Date	Fathead Minnow *Pimephales promelas*		Water Flea *Ceriodaphnia dubia*		Green Algae *Selenastrum capricornutum*
	Survival (%)	Growth (Average Young/Female)	Survival (%)	Reproduction (Average Dry Weight - mg)	Growth (Cells/mL - millions)
04 May 2009	100	31.2	97.5	0.83	2.70
02 November 2009	100	28.1	100	0.50	3.47
01 February 2010	100	24.8	97.4	0.35	3.30
10 May 2010	100	29.4	97.5	0.40	3.04
15 November 2010	100	29.2	100	0.46	3.24
09 May 2011	100	27.4	97.5	0.49	2.24

The Monitoring and Reporting Program of this Order requires semi-annual chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, the Special Provision in section VI.C.2.a. of the Order requires the Discharger to submit to the Central Valley Water Board an Initial Investigative TRE Workplan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for TRE initiation if toxicity is demonstrated.

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region[1] that contained numeric chronic

[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

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).

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations

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provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

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

2. Averaging Periods for Effluent Limitations

40 CFR 122.45 (d) requires average weekly and average monthly discharge limitations for POTWs unless impracticable. However, for toxic pollutants and pollutant parameters in water quality permitting, USEPA recommends the use of a maximum daily effluent limitation in lieu of average weekly effluent limitations for two reasons. "*First, the basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge's potential for causing acute toxic effects would be missed.*" (TSD, pg. 96) This Order uses maximum daily effluent limitations in lieu of average weekly effluent limitations for ammonia, dichlorobromomethane, and lead 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, TSS, pH, total residual chlorine, and total coliform organisms 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 Clean Water Act specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent

limitation is justified based on exceptions to the anti-backsliding provisions contained in Clean Water Act sections 402(o) or 303(d)(4), or, where applicable, 40 CFR 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in Order R5-2008-0177, with the exception of effluent limitations for carbon tetrachloride, chronic whole effluent toxicity, copper, dichlorobromomethane, nitrate plus nitrite, nitrite, settleable solids, and zinc. The effluent limitations for these pollutants are less stringent than those in Order R5-2008-0177. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

a. Pursuant to CWA section 303 (d)(4), backsliding may be allowed for water quality based effluent limits if there is compliance with the federal and state antidegradation policies. In this case, water quality based effluent limits established in Order R5-2008-0177 for carbon tetrachloride, chronic toxicity, copper, nitrate plus nitrite, nitrite, settleable solids, and zinc were not retained in this Order. This complies with federal and state antibacksliding requirements because there will be no additional degradation based on a reasonable potential analysis conducted on sample data gathered following the adoption of Order R5-2008-0177 that established no reasonable potential for these constituents. As described in section IV.C.3.b of this Fact Sheet, based on updated information that was not available at the time Order R5-2008-0177 was issued, a reasonable potential analysis was performed and carbon tetrachloride, chronic whole effluent toxicity, copper, nitrate plus nitrite, nitrite, settleable solids, and zinc do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water.

b. Order R5-2008-00177 established end-of-pipe effluent limitations for dichlorobromomethane without credit for dilution. As discussed in section IV.C.2.c of this Fact Sheet, a mixing zone and dilution credits for human-health criteria are appropriate, and assimilative capacity is available, based on

updated information that was not available at the time Order R5-2008-0177 was adopted, which supports the calculation of less stringent effluent limitations for dichlorobromomethane based on a dilution ratio of 7.28:1. Because effluent limitations may only be as high as is justified under State and federal antidegradation policies, this Order does not allocate all of the available assimilative capacity and establishes performance-based effluent limitations for dichlorobromomethane based on a dilution of 4.1:1.

Relaxation and removal of the WQBELs in the previous permit is in accordance with CWA sections 303(d)(4) and 402(o), which allow for the removal of WQBELs for attainment waters where antidegradation requirements are satisfied. Removal of the WQBELs is consistent with 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.

4. Satisfaction of Antidegradation Policy

This Order does ~~not~~ allow for an increase in ~~flow or~~ mass of pollutants to the receiving water. However, as a result of the Discharger's implementation of BPTC for the existing discharge, the quality of the effluent has improved. 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 due to the relatively small size of the discharge in relation to the size of the receiving water and the tertiary level of treatment of the wastewater prior to discharging to thereceiving water effluent.

This Order allows a mixing/dilution zone in accordance with the Basin Plan, the SIP, and EPA's *Water Quality Standards handbook, 2d Edition* (updated July

2007) and EPA's *Technical Support Document for Water Quality-Based Toxics Control*. As discussed in Finding IV.C.2.c. of this Fact Sheet (Assimilative Capacity/Mixing Zone), the mixing zone is as small as practical and complies with all applicable SIP requirements. In addition, this Order includes performance-based effluent limitations for dichlorobromomethane that are more stringent than would be allowed under the mixing zone analysis alone, implementing BPTC. Therefore, with BPTC implemented, the Central Valley Water Board finds that the degradation due to the increase of pollutant concentration allowed by the mixing zone does not impact beneficial uses in the receiving water downstream of the mixing zone, and is in accordance with state and federal antidegradation policies.

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

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD5 and TSS. The WQBELs consist of restrictions on ammonia, dichlorobromomethane, electrical conductivity, lead, pH, total coliform organisms, and total residual chlorine. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes new effluent limitations for lead to protect beneficial uses.

Summary of Final Effluent Limitations
Discharge Point 001

Table F-11. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	MGD	0.69[2]	--	--	--	--	DC
Biochemical Oxygen Demand 5-day @ 20°C	mg/L	10	15	20	--	--	TTC
	lbs/day[3]	58	86	115	--	--	
	% removal	>85	--	--	--	--	CFR
Total Suspended Solids	mg/L	10	15	20	--	--	TTC
	lbs/day[3]	58	86	115	--	--	
	% removal	>85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.0	BP, PB
Ammonia (as N)	mg/L	1.9	--	5.6	--	--	NAWQC
	lbs/day[3]	11	--	32	--	--	
Dichlorobromomethane	µg/L	2.3[4]	--	4.6[4]	--	--	CTR
Lead	µg/L	1.4	--	2.7	--	--	PB
Acute Toxicity	% survival	--	90[5]	70[6]	--	--	BP
Electrical Conductivity @ 25ºC	µmhos/cm	[7]	--	--	--	--	AWQG
Total Residual Chlorine	mg/L	--	0.01[8]	0.02[9]	--	--	NAWQC
Total Coliform Organisms	MPN/100mL	--	2.2[10]	23[11]	--	240	Title 22

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 treatment plant performance.

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.

AWQG - Based on the Agricultural Water Quality Goals.

Title 22 - Based on CA Department of Public Health Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

[2] Design average dry weather flow.

[3] Based on Facility design flow of 0.69 MGD.

[4] Based on CTR multiplied by the dilution credit of 4.1.

[5] Median percent survival of three consecutive acute bioassays.

[6] Minimum percent survival of any one acute bioassay.

[7] Annual average shall not exceed municipal water supply EC plus 500 µmhos/cm, or 700 µmhos/cm, whichever is less.

[8] Applied as a 4-day average effluent limitation.

[9] Applied as a 1-hour average effluent limitation.

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

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

E. Land Discharge Specifications – Not Applicable

F. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that

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

A. Surface Water

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

B. Groundwater

1. The wastewater and biosolid processes at the Facility are contained within piping, concrete structures, and tanks, and consequently there is no existing threat to

groundwater. Therefore, groundwater limitations are not necessary to protect groundwater and the groundwater limitations were not retained from the previous Order.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

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

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD_5 and TSS reduction requirements). The monitoring frequencies for flow, pH, BOD_5, and TSS have been retained from Order R5-2008-0177.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.

2. Effluent monitoring frequencies and sample types for flow, BOD_5, TSS, pH, ammonia, total coliform organisms, electrical conductivity, total residual chlorine, standard minerals, total dissolved solids, and trihalomethanes have been retained from Order R5-2008-0177 to determine compliance with effluent limitations for these parameters.

3. Monitoring data collected over the existing permit term for aluminum, carbon tetrachloride, copper, nitrate, nitrite, persistent chlorinated hydrocarbon pesticides, and zinc did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order R5-2008-0177.

4. The SIP states that if "*…all reported detection limits of the pollutant in the effluent are greater than or equal to the C [water quality criterion or objective] value, the RWQCB [Regional Water Board] shall establish interim requirements…that require additional monitoring for the pollutant….*" All reported detection limits for some priority pollutants are greater than or equal to corresponding applicable water quality criteria or objectives. Monitoring for these constituents has been included in this Order in accordance with the SIP.

5. 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 pursuant to Article 3 (commencing with section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code." The Department of Public Health 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. (Wat. Code §§ 13370, subd. (c), 13372, 13377.) section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with Clean Water Act requirements. (Wat. 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 C.F.R. § 136.3(e), Table II) Due to the location of the Facility, it is both legally and factually impossible for the Discharger to comply with section 13176 for constituents with short holding times.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Quarterly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

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

D. Receiving Water Monitoring

1. **Surface Water**

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

2. **Groundwater - Not Applicable**

E. Other Monitoring Requirements

1. **Biosolids Monitoring**

   Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements contained in the Special Provision contained in section VI.C.5. of this Order. Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

2. **Water Supply Monitoring**

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

3. **Effluent and Receiving Water Characterization Study.**

   An effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal. During the third or fourth

year of this permit term, the Discharger is required to conduct quarterly monitoring of the effluent at EFF-001 and of the receiving water at RSW-001 for all priority pollutants and other constituents of concern as described in Attachment I.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

a. **Mercury.** This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.

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

c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for **<constituent(s)>**. 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.

2. **Special Studies and Additional Monitoring Requirements**

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page III-8.00) Based on whole effluent chronic toxicity testing performed by the Discharger from May 2009 through May 2011, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

The Monitoring and Reporting Program of this Order requires chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, this provision requires the Discharger to submit to the Central Valley Water Board an Initial Investigative TRE Workplan for

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

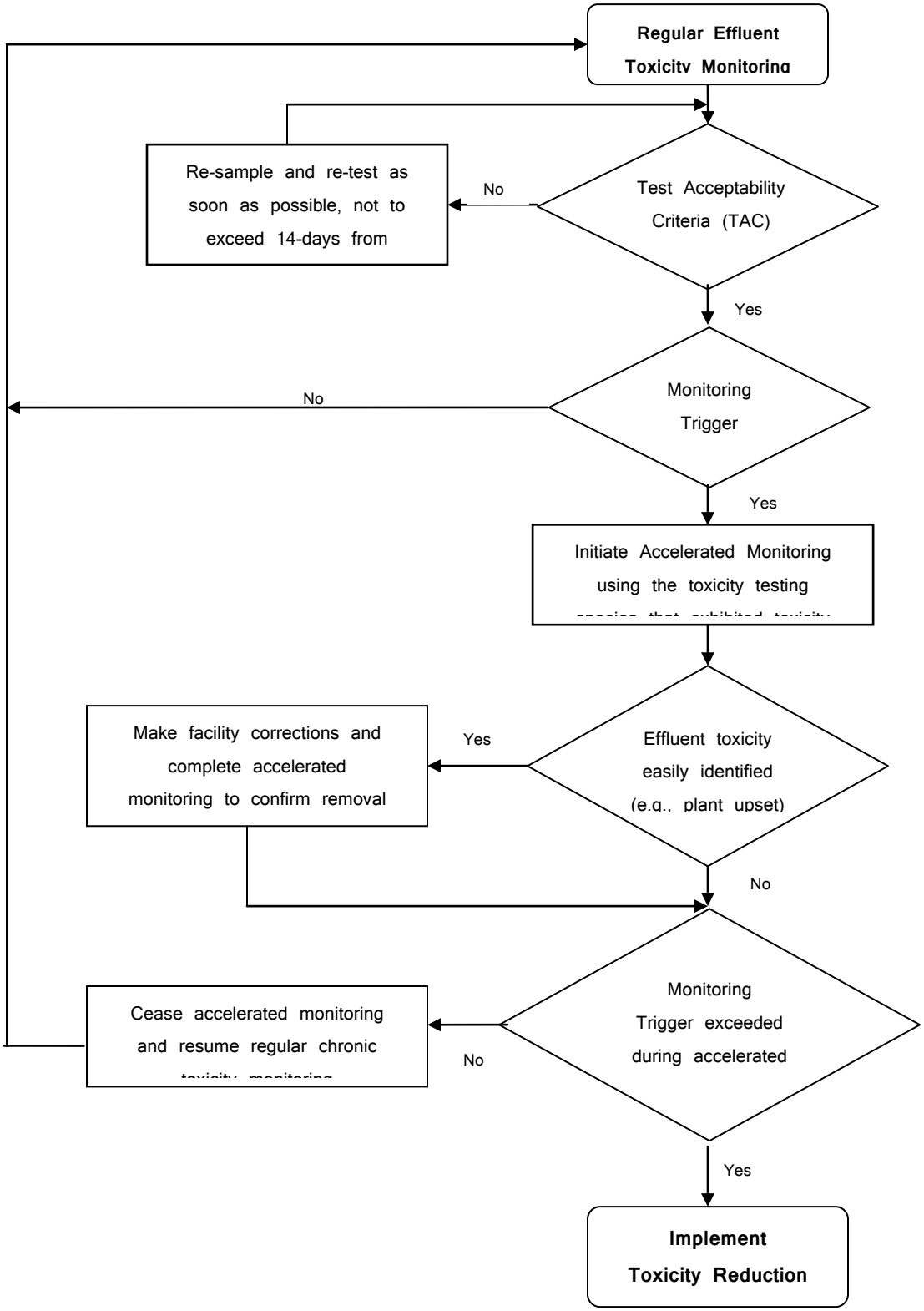
TRE Guidance. The Discharger is required to prepare a TRE Workplan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

- 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



3. Best Management Practices and Pollution Prevention

a. 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 Deer Creek.

4. Construction, Operation, and Maintenance Specifications

a. Turbidity. Effluent turbidity shall not exceed:

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

5. Special Provisions for Municipal Facilities (POTWs Only)

a. The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ (General Order) on 2 May 2006. The General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions.

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

facility were required to obtain enrollment for regulation under the General Order by 1 December 2006.

6. Other Special Provisions

a. Ownership Change. To maintain the accountability of the operation of the Facility, the Discharger is required to notify the succeeding owner or operator of the existence of this Order by letter if, and when, there is any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger.

7. Compliance Schedules - None

VIII. PUBLIC PARTICIPATION

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

A. Notification of Interested Parties

The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the following **(e.g., newspaper name and date)**

B. Written Comments

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

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

C. Public Hearing

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

Date:	XX June 2012
Time:	8:30 a.m.
Location:	Regional Water Quality Control Board, Central Valley Region 11020 Sun Center Dr., Suite #200 Rancho Cordova, CA 95670

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

Please be aware that dates and venues may change. Our Web address is www.waterboards.ca.gov/centralvalley where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Board to review the decision of the Central Valley Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Central Valley Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel

P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (916) 464-3291.

F. Register of Interested Persons

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

G. Additional Information

Requests for additional information or questions regarding this order should be directed to David Kirn at (916) 464-4761.

ATTACHMENT G - SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	120	23	--	--	--	--	--	--	200	No
Ammonia (as N)	mg/L	7.3	0.05	5.62	5.62	5.17[3]/2.07[4]	--	--	--	--	Yes
Bis (2-ethylhexyl) Phthalate	µg/L	0.096	0.021	1.8	--	--	1.8	5.9	--	4	No[5]
Carbon Tetrachloride	µg/L	< 0.1	< 0.1	0.25	--	--	0.25	4.4	--	0.5	No[5]
Copper, Total Recoverable	µg/L	2.9	0.77	7.3[9]/1.7[10]	10.7[9]/2.3[10]	7.3[9]/1.7[10]	1300	--	--	1000	No[5]
Dichlorobromomethane	µg/L	1.6	< 0.16	0.56	--	--	0.56	46	--	80[7]	Yes
Electrical Conductivity @ 25ºC	µmhos/cm	388	220	700[6]	--	--	--	--	--	900	No
Lead, Total Recoverable	µg/L	0.3	0.448	1.7[9]/0.26[10]	43.7[9]/7[10]	1.7[9]/0.26[10]	--	--	--	15	Yes
Mercury, Total Recoverable	µg/L	0.0035	0.0053	0.05	--	--	0.05	0.051	--	2	No[5]
Nitrate (as N)	mg/L	5.3	0.45	10	--	--	10	--	--	45	No[5]
Nitrite (as N)	mg/L	0.18	NA	1	--	--	--	--	--	1	No[5]
Settleable Solids	ml/L	< 0.1	--	0.1	0.2	--	--	--	--	--	No
Total Dissolved Solids	mg/L	229	46	450	--	--	--	--	--	500	No[5]

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

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

MEC = Maximum Effluent Concentration

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

C = Criterion used for Reasonable Potential Analysis

CMC = Criterion Maximum Concentration (CTR or NTR)

CCC = Criterion Continuous Concentration (CTR or NTR)

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

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

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

MCL = Drinking Water Standards Maximum Contaminant Level

NA = Not Available

ND = Non-detect

Footnotes:

(1) .

(2) .

(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) Pollutant does not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives. See section IV.C.3.b of the Fact Sheet (Attachment F).

(6) Water Quality for Agriculture.

(7) Criterion applies to total trihalomethanes, which includes chloroform.

(8) Represents the maximum observed annual average concentration for comparison with the MCL.

(9) Criterion to be compared to the maximum effluent concentration.

(10) Criterion to be compared to the maximum upstream receiving water concentration.

(11) As discussed further in Section IV.C.3.c of the Fact Sheet (Attachment F), an effluent limitation for diazinon and chlorpyrifos is established in accordance with the Total Maximum Daily Load for the Feather River.

(12) The Feather River is listed on the 2010 303(d) list as impaired for mercury. Therefore, this Order establishes a final mass loading limitation for mercury.

ATTACHMENT H - CALCULATION OF WQBELS

Parameter	Units	Most Stringent Criteria			Dilution Factors			HH Calculations			Aquatic Life Calculations									Final Effluent Limitations	
		HH	CMC	CCC	HH	CMC	CCC	ECA_{HH} = $AMEL_{HH}$	AMEL/MDEL $Multiplier_{HH}$	$MDEL_{HH}$	ECA $Multiplier_{acute}$	LTA_{acute}	ECA $Multiplier_{chronic}$	$LTA_{chronic}$	Lowest LTA	AMEL $Multiplier_{95}$	$AMEL_{AL}$	MDEL $Multiplier_{99}$	$MDEL_{AL}$	Lowest AMEL	Lowest MDEL
Ammonia (as N)	mg/L	--	5.62	2.24	--	--	--	--	--	--	0.14	0.8	0.54	1.8	0.8	2.5	1.9	7.2	5.6	1.9	5.6
Dichlorobromomethane	µg/L	0.56	--	--	4.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.3	4.6
Lead, Total Recoverable	µg/L	15	44/7.0	1.7/0.2	--	--	--	--	--	--	0.35	15	0.56	0.96	0.96	1.5	1.4	2.8	2.7	1.4	2.7

ATTACHMENT I - EFFLUENT AND RECEIVING WATER CHARACTERIZATION STUDY

I. **Background.** Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from http://www.waterboards.ca.gov/iswp/index.html). To implement the SIP, effluent and receiving water data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such as heavy metals) where the toxicity of the constituents varies with pH and/or hardness. Section 3 of the SIP prescribes mandatory monitoring of dioxin congeners. In addition to specific requirements of the SIP, the Central Valley Water Board is requiring the following monitoring:

A. **Drinking water constituents**. Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (Basin Plan). The Basin Plan defines virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plan further requires that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.

B. **Effluent and receiving water temperature.** This is both a concern for application of certain temperature-sensitive constituents, such as fluoride, and for compliance with the Basin Plan's thermal discharge requirements.

C. **Effluent and receiving water hardness and pH.** These are necessary because several of the CTR constituents are hardness and pH dependent.

II. **Monitoring Requirements.**

A. **Quarterly Monitoring**. Quarterly priority pollutant samples shall be collected from the effluent and upstream receiving water (EFF-001 and RSW-001) and analyzed for the constituents listed in Table I-1. Quarterly monitoring shall be conducted for 1 year (4 consecutive samples, evenly distributed throughout the year) and the results of such monitoring be submitted to the Central Valley Water Board, during the third or fourth year of the permit term. 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. All receiving water samples shall be taken as grab samples.

Table I-1. Priority Pollutants

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
28	1,1-Dichloroethane	75343	0.5	EPA 8260B
30	1,1-Dichloroethene	75354	0.5	EPA 8260B
41	1,1,1-Trichloroethane	71556	0.5	EPA 8260B
42	1,1,2-Trichloroethane	79005	0.5	EPA 8260B
37	1,1,2,2-Tetrachloroethane	79345	0.5	EPA 8260B
75	1,2-Dichlorobenzene	95501	0.5	EPA 8260B
29	1,2-Dichloroethane	107062	0.5	EPA 8260B
	cis-1,2-Dichloroethene	156592	0.5	EPA 8260B
31	1,2-Dichloropropane	78875	0.5	EPA 8260B
101	1,2,4-Trichlorobenzene	120821	0.5	EPA 8260B
76	1,3-Dichlorobenzene	541731	0.5	EPA 8260B
32	1,3-Dichloropropene	542756	0.5	EPA 8260B
77	1,4-Dichlorobenzene	106467	0.5	EPA 8260B
17	Acrolein	107028	2	EPA 8260B

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
18	Acrylonitrile	107131	2	EPA 8260B
19	Benzene	71432	0.5	EPA 8260B
20	Bromoform	75252	0.5	EPA 8260B
34	Bromomethane	74839	1	EPA 8260B
21	Carbon tetrachloride	56235	0.5	EPA 8260B
22	Chlorobenzene (mono chlorobenzene)	108907	0.5	EPA 8260B
24	Chloroethane	75003	0.5	EPA 8260B
25	2- Chloroethyl vinyl ether	110758	1	EPA 8260B
26	Chloroform	67663	0.5	EPA 8260B
35	Chloromethane	74873	0.5	EPA 8260B
23	Dibromochloromethane	124481	0.5	EPA 8260B
27	Dichlorobromomethane	75274	0.5	EPA 8260B
36	Dichloromethane	75092	0.5	EPA 8260B
33	Ethylbenzene	100414	0.5	EPA 8260B
88	Hexachlorobenzene	118741	1	EPA 8260B
89	Hexachlorobutadiene	87683	1	EPA 8260B
91	Hexachloroethane	67721	1	EPA 8260B
94	Naphthalene	91203	10	EPA 8260B
38	Tetrachloroethene	127184	0.5	EPA 8260B
39	Toluene	108883	0.5	EPA 8260B
40	trans-1,2-Dichloroethylene	156605	0.5	EPA 8260B
43	Trichloroethene	79016	0.5	EPA 8260B
44	Vinyl chloride	75014	0.5	EPA 8260B
	Methyl-tert-butyl ether (MTBE)	1634044	0.5	EPA 8260B
	Trichlorofluoromethane	75694	5	EPA 8260B
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	10	EPA 8260B
	Styrene	100425	0.5	EPA 8260B
	Xylenes	1330207	0.5	EPA 8260B
60	1,2-Benzanthracene	56553	5	EPA 8270C
85	1,2-Diphenylhydrazine	122667	1	EPA 8270C
45	2-Chlorophenol	95578	2	EPA 8270C
46	2,4-Dichlorophenol	120832	1	EPA 8270C

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
47	2,4-Dimethylphenol	105679	2	EPA 8270C
49	2,4-Dinitrophenol	51285	5	EPA 8270C
82	2,4-Dinitrotoluene	121142	5	EPA 8270C
55	2,4,6-Trichlorophenol	88062	10	EPA 8270C
83	2,6-Dinitrotoluene	606202	5	EPA 8270C
50	2-Nitrophenol	25154557	10	EPA 8270C
71	2-Chloronaphthalene	91587	10	EPA 8270C
78	3,3'-Dichlorobenzidine	91941	5	EPA 8270C
62	3,4-Benzofluoranthene	205992	10	EPA 8270C
52	4-Chloro-3-methylphenol	59507	5	EPA 8270C
48	4,6-Dinitro-2-methylphenol	534521	10	EPA 8270C
51	4-Nitrophenol	100027	5	EPA 8270C
69	4-Bromophenyl phenyl ether	101553	10	EPA 8270C
72	4-Chlorophenyl phenyl ether	7005723	5	EPA 8270C
56	Acenaphthene	83329	1	EPA 8270C
57	Acenaphthylene	208968	10	EPA 8270C
58	Anthracene	120127	10	EPA 8270C
59	Benzidine	92875	5	EPA 8270C
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	0.1	EPA 8270C
63	Benzo(g,h,i)perylene	191242	5	EPA 8270C
64	Benzo(k)fluoranthene	207089	2	EPA 8270C
65	Bis(2-chloroethoxy) methane	111911	5	EPA 8270C
66	Bis(2-chloroethyl) ether	111444	1	EPA 8270C
67	Bis(2-chloroisopropyl) ether	39638329	10	EPA 8270C
68	Bis(2-ethylhexyl) phthalate	117817	3	EPA 8270C
70	Butyl benzyl phthalate	85687	10	EPA 8270C
73	Chrysene	218019	5	EPA 8270C
81	Di-n-butylphthalate	84742	10	EPA 8270C
84	Di-n-octylphthalate	117840	10	EPA 8270C
74	Dibenzo(a,h)-anthracene	53703	0.1	EPA 8270C
79	Diethyl phthalate	84662	2	EPA 8270C
80	Dimethyl phthalate	131113	2	EPA 8270C
86	Fluoranthene	206440	10	EPA 8270C

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
87	Fluorene	86737	10	EPA 8270C
90	Hexachlorocyclopentadiene	77474	1	EPA 8270C
92	Indeno(1,2,3-c,d)pyrene	193395	0.05	EPA 8270C
93	Isophorone	78591	1	EPA 8270C
98	N-Nitrosodiphenylamine	86306	1	EPA 8270C
96	N-Nitrosodimethylamine	62759	5	EPA 8270C
97	N-Nitrosodi-n-propylamine	621647	5	EPA 8270C
95	Nitrobenzene	98953	10	EPA 8270C
53	Pentachlorophenol	87865	0.2	EPA 8270C
99	Phenanthrene	85018	5	EPA 8270C
54	Phenol	108952	1	EPA 8270C
100	Pyrene	129000	10	EPA 8270C
	Aluminum	7429905	50	EPA 6020/200.8
1	Antimony	7440360	5	EPA 6020/200.8
2	Arsenic	7440382	0.01	EPA 1632
15	Asbestos	1332214	0.2 MFL >10um	EPA/600/R-93/116(PCM)
	Barium	7440393	100	EPA 6020/200.8
3	Beryllium	7440417	1	EPA 6020/200.8
4	Cadmium	7440439	0.25	EPA 1638/200.8
5a	Chromium (total)	7440473	2	EPA 6020/200.8
5b	Chromium (VI)	18540299	0.5	EPA 7199/1636
6	Copper	7440508	0.5	EPA 6020/200.8
14	Cyanide	57125	5	EPA 9012A
	Fluoride	7782414	0.1	EPA 300
	Iron	7439896	100	EPA 6020/200.8
7	Lead	7439921	0.5	EPA 1638
8	Mercury	7439976	0.0002 (11)	EPA 1669/1631
	Manganese	7439965	20	EPA 6020/200.8
9	Nickel	7440020	5	EPA 6020/200.8
10	Selenium	7782492	5	EPA 6020/200.8
11	Silver	7440224	1	EPA 6020/200.8
12	Thallium	7440280	1	EPA 6020/200.8
	Tributyltin	688733	0.002	EV-024/025

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
13	Zinc	7440666	10	EPA 6020/200.8
110	4,4'-DDD	72548	0.02	EPA 8081A
109	4,4'-DDE	72559	0.01	EPA 8081A
108	4,4'-DDT	50293	0.01	EPA 8081A
112	alpha-Endosulfan	959988	0.02	EPA 8081A
103	alpha-Hexachlorocyclohexane (BHC)	319846	0.01	EPA 8081A
	Alachlor	15972608	1	EPA 8081A
102	Aldrin	309002	0.005	EPA 8081A
113	beta-Endosulfan	33213659	0.01	EPA 8081A
104	beta-Hexachlorocyclohexane	319857	0.005	EPA 8081A
107	Chlordane	57749	0.1	EPA 8081A
106	delta-Hexachlorocyclohexane	319868	0.005	EPA 8081A
111	Dieldrin	60571	0.01	EPA 8081A
114	Endosulfan sulfate	1031078	0.05	EPA 8081A
115	Endrin	72208	0.01	EPA 8081A
116	Endrin Aldehyde	7421934	0.01	EPA 8081A
117	Heptachlor	76448	0.01	EPA 8081A
118	Heptachlor Epoxide	1024573	0.01	EPA 8081A
105	Lindane (gamma-Hexachlorocyclohexane)	58899	0.019	EPA 8081A
119	PCB-1016	12674112	0.5	EPA 8082
120	PCB-1221	11104282	0.5	EPA 8082
121	PCB-1232	11141165	0.5	EPA 8082
122	PCB-1242	53469219	0.5	EPA 8082
123	PCB-1248	12672296	0.5	EPA 8082
124	PCB-1254	11097691	0.5	EPA 8082
125	PCB-1260	11096825	0.5	EPA 8082
126	Toxaphene	8001352	0.5	EPA 8081A
	Atrazine	1912249	1	EPA 8141A
	Bentazon	25057890	2	EPA 643/ 515.2
	Carbofuran	1563662	5	EPA 8318
	2,4-D	94757	10	EPA 8151A

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
	Dalapon	75990	10	EPA 8151A
	1,2-Dibromo-3-chloropropane (DBCP)	96128	0.01	EPA 8260B
	Di(2-ethylhexyl)adipate	103231	5	EPA 8270C
	Dinoseb	88857	2	EPA 8151A
	Diquat	85007	4	EPA 8340/ 549.1/HPLC
	Endothal	145733	45	EPA 548.1
	Ethylene Dibromide	106934	0.02	EPA 8260B/504
	Glyphosate	1071836	25	HPLC/EPA 547
	Methoxychlor	72435	10	EPA 8081A
	Molinate (Ordram)	2212671	2	EPA 634
	Oxamyl	23135220	20	EPA 8318/632
	Picloram	1918021	1	EPA 8151A
	Simazine (Princep)	122349	1	EPA 8141A
	Thiobencarb	28249776	1	HPLC/EPA 639
16	2,3,7,8-TCDD (Dioxin)	1746016	5.00E-06	EPA 8290 (HRGC) MS
	2,4,5-TP (Silvex)	93765	1	EPA 8151A
	Diazinon	333415	0.25	EPA 8141A/GCMS
	Chlorpyrifos	2921882	1	EPA 8141A/GCMS
	Ammonia (as N)	7664417		EPA 350.1
	Chloride	16887006		EPA 300.0
	Flow			
	Hardness (as $CaCO_3$)			EPA 130.2
	Foaming Agents (MBAS)			SM5540C
	Nitrate (as N)	14797558	2,000	EPA 300.0
	Nitrite (as N)	14797650	400	EPA 300.0
	pH		0.1	EPA 150.1
	Phosphorus, Total (as P)	7723140		EPA 365.3
	Specific conductance (EC)			EPA 120.1
	Sulfate		500	EPA 300.0
	Sulfide (as S)			EPA 376.2
	Sulfite (as SO_3)			SM4500-SO3

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
	Temperature			
	Total Disolved Solids (TDS)			EPA 160.1

FOOTNOTES:

III. Additional Study Requirements

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

B. Criterion Quantitation Limit (CQL). The criterion quantitation limits will be equal to or lower than the minimum levels (MLs) in Appendix 4 of the SIP or the detection limits for purposes of reporting (DLRs) below the controlling water quality criterion concentrations summarized in Table I-1 of this Order. In cases where the controlling water quality criteria concentrations are below the detection limits of all approved analytical methods, the best available procedure will be utilized that meets the lowest of the MLs and DLR. Table I-1 contains suggested analytical procedures. The Discharger is not required to use these specific procedures as long as the procedure selected achieves the desired minimum detection level.

C. Method Detection Limit (MDL). The MDL for the laboratory shall be determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).

D. Reporting Limit (RL). The reporting limit for the laboratory. This is the lowest quantifiable concentration that the laboratory can determine. Ideally, the RL should be equal to or lower than the CQL to meet the purposes of this monitoring.

E. Reporting Protocols. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

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

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

3. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may shortened to "Est. Conc.). The laboratory, if such information is available, may include numerical estimates of the data quantity for the reported result. Numerical estimates of data quality may be percent accuracy (+ or - a percentage of the reported value), numerical ranges (low and high), or any other means considered appropriate by the laboratory.

4. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

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

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