CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2011-XXXX

AMENDING WASTE DISCHARGE REQUIREMENTS
ORDER NO. R5-2008-0173 (NPDES PERMIT NO. CA0078662)

EL DORADO IRRIGATION DISTRICT
DEER CREEK WASTEWATER TREATMENT PLANT
EL DORADO COUNTY

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

1. On 4 December 2008, the Central Valley Water Board issued Waste Discharge Requirements Order R5-2008-0173, prescribing waste discharge requirements for the El Dorado Irrigation District's Deer Creek Wastewater Treatment Plant, El Dorado County. For the purposes of this Order, El Dorado Irrigation District is hereafter referred to as "Discharger" and the Deer Creek Wastewater Treatment Plant is hereafter referred to as "Facility."

2. The treatment system consists of preliminary treatment, primary treatment, flow equalization, secondary biological nutrient removal, activated sludge, clarification, tertiary filtration, and ultraviolet (UV) disinfection. Wastewater is discharged from Discharge Point No. 001 to Deer Creek, a water of the United States, and a tributary to the Cosumnes River within the San Joaquin River Basin, and to the Sacramento San Joaquin Delta.

3. The California Sportfishing Protection Alliance (CSPA) filed a petition for a writ of mandate challenging the Permit issued to the Discharger (Sacramento County Superior Court, Case No. 34-2009-80000309). On 26 January 2011, the Sacramento County Superior Court issued a Final Statement of Decision requiring the Central Valley Water Board to reconsider whether to impose an effluent limitation for aluminum; reconsider the effluent limitations for the hardness-dependent metals; add an effluent limitation for bromodichloromethane; modify sampling requirements for bis (2-ethylhexyl) phthalate; and consider whether use of a Department of Public Health (DPH) Environmental Accreditation Laboratory Program (ELAP) certified laboratory for temperature and pH monitoring is legally or factually possible. The Court entered judgment on 28 March 2011 (EID Court Order). This Order reopens and amends Order R5-2008-0173 to comply with the Final Statement of Decision. These revisions are discussed in findings four through ~~eight~~ seven, below, and in the revised Fact Sheet.

4. **Hardness.** In light of the Court's uncertainty as to whether the Central Valley ~~Regional~~ Water Board used effluent or receiving water hardness to calculate hardness-dependent CTR criteria, the Board revised Section IV.C.2.b of the Fact Sheet to demonstrate how the criteria are determined. The Central Valley Water Board relied on scientific literature to calculate protective hardness-dependent CTR criteria, considering all discharge conditions. The reasonable worst-case downstream ambient hardness was calculated to ensure the hardness-dependent metals do not cause receiving water toxicity under any downstream receiving water

condition. Additional information about this methodology is provided in Section IV.C.2.b of the NPDES Permit Fact Sheet.

5. **Aluminum.** The Court required the Central Valley Water Board to either use the USEPA chronic criterion for aluminum or "develop a site-specific standards ~~for aluminum~~ sufficient to protect freshwater aquatic life in Deer Creek. (See 40 C.F.R. §§ 131.20(c), 122.44(d)(1)(vi); see also AR000302 [discussing use of site-specific Water-Effect Ratios in lieu of EPA recommended criteria], AR014022 [same].)" (EID Court Order, p. 10.) Site-specific ~~objective was developed by using site-specific~~ data and other available information for aluminum~~studies~~, including site-specific evidence demonstrating that ~~the establishment of~~ the ~~a~~Arid West Technical Report as an applicable study for use at Deer Creek, were used to interpret the narrative toxicity objective in the Basin Plan. Based on the site-specific data the narrative toxicity objective is not exceeded but a conservative limit of 200 µg/L per year was added because the pollutant variability analysis estimated the MEC to be greater than 200 µg/L.

6. **pH / Temperature Sampling.** The Court required the Central Valley Water Board to "consider whether it is legally and factually possible for the District to comply with the requirements of Water Code section 13176 either (i) by having its on-site laboratory re-certified or (ii) by having certified laboratory personnel travel to the District's facility and conduct the testing on site." ~~Central Valley Water Board staff communicated separately with the District, with California Department of Public Health and State Water Resources Control Board staff, and with three private laboratories within the vicinity of the Deer Creek Facility.~~ The Central Valley Water Board finds that the District leased its on-site laboratory at its El Dorado Hills Wastewater Treatment Plant to Sierra Foothills Laboratory, a certified private contract lab for a minimum of 3 years beginning in April 2010 in an effort to save costs, and therefore, it is factually impossible for the District to recertify its own lab. Additionally, it is not legally possible for the Central Valley Water Board to require the Discharger to have an on-site laboratory.

~~The private contract lab now located on-site at the El Dorado Hills Wastewater Treatment Plant can conduct the in-situ monitoring for an approximate annual cost of $20,000 per facility (a total expense for both facilities of $40,000 to the District). However, the District's current 2011 budget is $19.661 million per year, and the 2012 projected budget is $20.362 million per year (www.eid.org/2011-2012_OpBudget.pdf); the current budget is in place after the sewer rates have been raised up to 15 percent. The District has already increased revenues and sewerage fees, and decreased staff as a part of the two year budget cycle.~~ The California Water Codes requires the Central Valley Water Board to set forth reasonable requirements. The Sierra Foothills Laboratory is not certified for pH and temperature. For the sampling of the Deer Creek WWTP discharge, a certified laboratory would have to send out its personnel and lab equipment to collect an onsite sample for pH and temperature. In this instance, it is not possible for the sample to be returned to a certified lab for proper analysis. In addition, it is not legally or factually possible to require Environmental Laboratory Accreditation Program (ELAP) certification of District personnel or equipment, because the personnel or equipment is affiliated with a certified laboratory.

The California Water Codes requires the Central Valley Water Board to set forth reasonable requirements. The Sierra Foothills Laboratory is not certified for pH and temperature. ELAP certification of a laboratory does not improve the data quality because the quality of the data is related to maintaining manufacturer specified calibration procedures, maintenance procedures,

proper use of the equipment and proper Quality Assurance/Quality Control (QA/QC) methods. In Section D, Standard Provisions, the permit contains QA/QC requirements for the Discharger to maintain equipment calibration and maintenance procedures on record for the past 5 years, which assures reliable results and maintenance of the equipment to manufacturer's standards. The Discharger presently has a QA/QC program in place where all operators are trained on proper calibration and use of the equipment. Per USEPA 40 CFR 136, methods 4500 H and B can be performed in the field with a handheld pH meter with a combination electrode that is calibrated with at least 2 standards that bracket the pH samples.

Therefore, the Central Valley Water Board determines that the additional ~~monitoring~~ expenses affiliated with ELAP certification makes it economically impossible for the District to comply with the requirements of Water Code section 13176~~ without an additional raise in local sewer rates~~.

7. **Bromodichloromethane and Bis (2-ethylhexyl) phthalate Sampling.** ~~In addition, t~~The Court required the Central Valley Water Board to include a bromodichloromethane effluent limit and to require future bis (2-ethylhexyl) phthalate sampling be conducted using laboratory equipment that does not contain bis (2-ethylhexyl) phthalate. These modifications have been included in the attached amended Order.

8. Issuance of this Order is exempt from the provisions of the California Environmental Quality Act (Public Resources Code section 21000, et seq.), in accordance with CWC section 13389.

9. The Central Valley Water Board has notified the Discharger and interested parties of its intent to amend Waste Discharge Requirements and the Monitoring Program Requirements for this discharge and has provided them with an opportunity to submit their written comments and recommendations.

10. Any person adversely affected by this action of the Board may petition the State Water Resources Control Board to review this action. The petition must be received by the State Water Resources Control Board, Office of the Chief Counsel, P.O. Box 100, Sacramento, CA 95812-0100, within 30 days of the date on which this action was taken. Copies of the law and regulations applicable to filing petitions will be provided on request.

IT IS HEREBY ORDERED THAT:

Waste Discharge Requirements Order R5-2008-0173 (NPDES No. CA0078662) is amended as shown in underline/strikeout format in Attachment A to this Order. Underlined text denotes additions and strikeout text represent deletions.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **XX June 2011**.

_____
PAMELA C. CREEDON, Executive Officer

Attachment A

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

ORDER NO. R5-2008-0173-01
NPDES NO. CA0078662

WASTE DISCHARGE REQUIREMENTS FOR EL DORADO IRRIGATION DISTRICT DEER CREEK WASTEWATER TREATMENT PLANT EL DORADO COUNTY

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

Table 1. Discharger Information

Discharger	El Dorado Irrigation District
Name of Facility	Deer Creek Wastewater Treatment Plant
Facility Address	1565 Deer Creek Road
	Cameron Park, CA 95682
	El Dorado County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by the El Dorado Irrigation District from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Treated Municipal Wastewater	38° 37' 37" N	120° 59' 10" W	Deer Creek

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**4 December 2008**
This Order shall become effective on:	**50 Days After Adoption Date**
This Order shall expire on:	**1 December 2013**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	**180 days prior to the Order expiration date**

IT IS HEREBY ORDERED, that Order No. R5-2002-0210 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 4 December 2008, and as amended on XX June 2011.

PAMELA C. CREEDON, Executive Officer

Table of Contents

I. Facility Information 1
II. Findings 1
III. Discharge Prohibitions 8
IV. Effluent Limitations and Discharge Specifications 8
A. Effluent Limitations – Discharge Point 001 8
1. Final Effluent Limitations – Discharge Point 001 8
2. Interim Effluent Limitations 11
B. Land Discharge Specifications 11
C. Reclamation Specifications 11
V. Receiving Water Limitations 11
A. Surface Water Limitations 11
B. Groundwater Limitations 14
VI. Provisions 14
A. Standard Provisions 14
B. Monitoring and Reporting Program (MRP) Requirements 19
C. Special Provisions 19
1. Reopener Provisions 19
2. Special Studies, Technical Reports and Additional Monitoring Requirements 20
3. Best Management Practices and Pollution Prevention 22
4. Construction, Operation and Maintenance Specifications 22
5. Special Provisions for Municipal Facilities (POTWs Only) 23
6. Other Special Provisions 27
7. Compliance Schedules 27
VII. Compliance Determination 27

List of Tables

Table 1. Discharger Information ..... Cover
Table 2. Discharge Location ..... Cover
Table 3. Administrative Information ..... Cover
Table 4. Facility Information 1
Table 5. Basin Plan Beneficial Uses 3
Table 6a. Effluent Limitations Schedule A 9
Table 6b. Effluent Limitations Schedule B 10
Table 7. Deer Creek Temperature Objectives (Table III-4A of the Basin Plan) 13

List of Attachments

Attachment A – Definitions A-1
Attachment B – Map B-1
Attachment C – Flow Schematic C-1
Attachment D – Standard Provisions D-1
Attachment E – Monitoring and Reporting Program (MRP) E-1
Attachment F – Fact Sheet F-1
Attachment G – Summary of Reasonable Potential Analysis G-1
Attachment H – Pretreatment Program Requirements H-1
Attachment I – Priority Pollutants and Other Constituents of Concern I-1

I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	El Dorado Irrigation District
Name of Facility	Deer Creek Wastewater Treatment Plant
Facility Address	1565 Deer Creek Road
	Cameron Park, CA 95682
	El Dorado County
Facility Contact, Title, and Phone	Vickie Caulfield, Division Manager, Operations - (530) 642-4058
Mailing Address	2890 Mosquito Road
	Placerville, CA 95667
Type of Facility	Publicly Owned Treatment Works (POTW)
Facility Design Flow	3.6 million gallons per day (MGD) average dry weather flow

II. FINDINGS

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

A. Background. El Dorado Irrigation District (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2002-0210 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078662. The Discharger submitted a Report of Waste Discharge, dated 2 July 2007, and applied for a NPDES permit renewal to discharge up to 3.6 MGD average dry weather flow of treated wastewater from the Deer Creek Wastewater Treatment Plant, hereinafter Facility. The application was deemed complete on 2 July 2007.

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

B. Facility Description. The Discharger owns and operates a municipal wastewater collection, treatment, disposal, and reclamation system. The treatment system consists of preliminary treatment, primary treatment, flow equalization, secondary biological nutrient removal, activated sludge, clarification, tertiary filtration, and ultraviolet (UV) disinfection. Wastewater is discharged from Discharge Point No. 001 (see table on cover page) to Deer Creek, a water of the United States, and a tributary to the Cosumnes River within the San Joaquin River Basin, and to the Sacramento San Joaquin Delta. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

C. **Legal Authorities.** This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California 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 Regional 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 H 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 Title 40 of the Code of Federal Regulations (CFR)[1], Part 122.44 (40 CFR 122.44) require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR 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 (Attachment F).

G. **Water Quality-based Effluent Limitations.** 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 water quality-based requirement that is necessary to achieve water quality standards. The Regional Water Board previously considered the factors listed in CWC Section 13241 in establishing these requirements in Order No. R5-2002-0210. 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,

[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

water quality-based effluent limitations (WQBELs) must be established using: (1) USEPA criteria guidance under CWA Section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed State criterion or policy interpreting the State's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

H. Water Quality Control Plans. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised October 2007), 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 Cosumnes River, to which Deer Creek is tributary. These beneficial uses are as follows: municipal and domestic supply; agricultural supply, including irrigation and stock watering; water contact recreation, including canoeing and rafting; non-contact water recreation, including aesthetic enjoyment; warm freshwater habitat; cold freshwater habitat; warm and cold migration of aquatic organisms; warm and cold spawning, reproduction, and/or early development; and wildlife habitat.

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	Existing: Municipal and domestic water supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Water contact recreation, including canoeing and rafting (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Cold freshwater habitat (COLD); Warm and cold migration of aquatic organisms (MIGR); Warm and cold spawning, reproduction, and/or early development (SPWN); and Wildlife habitat (WILD)

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 is not listed in the 303(d) list of impaired water bodies. The Cosumnes River, to which Deer Creek is tributary, is listed as a WQLS for exotic species on the 303(d) list of impaired water bodies. Portions of the Sacramento San Joaquin Delta are also listed as WQLS for exotic species, various pesticides, electrical conductivity, PCBs, organic enrichment/low dissolved oxygen, pathogens, and dioxins and furans. All portions of the Delta are WQLSs for unknown toxicity and mercury. Effluent limitations for some of these constituents are included in this Order as discussed in further in the Fact Sheet (Attachment F).

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 forty criteria in the NTR applied in California. On 18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.

J. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by the 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 Clean Water Act section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board has concluded that where the Regional Water Board's Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a narrative standard, it may include schedules of compliance in the permit to meet effluent limits that implement a narrative standard. See In the Matter of Waste Discharge Requirements for Avon Refinery (State Water Board Order WQ 2001-06 at pp. 53-55). See also Communities for a Better Environment et al. v. State Water Resources Control Board, 34 Cal.Rptr.3d 396, 410 (2005). The Basin Plan for the Sacramento and San Joaquin Rivers includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives that are adopted after the date of adoption of the Basin Plan, which was 25 September 1995 (see Basin Plan at page IV-16).

Consistent with the State Water Board's Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a "new interpretation" of a narrative water quality objective. This conclusion is also consistent with the United States Environmental Protection Agency policies and administrative decisions. See, e.g., Whole Effluent Toxicity (WET) Control Policy. The Regional Water Board, however, is not required to include a schedule of compliance, 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 Regional 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 Basin Plan, should consider feasibility of achieving compliance, and must impose a schedule that is as short as practicable to achieve compliance with the objectives, criteria, or effluent limit based on the objective or criteria.

For CTR constituents, Section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or 18 May 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order does not include a compliance schedule.

L. Alaska Rule. On 30 March 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. (40 CFR §131.21; 65 Fed. Reg. 24641 (April 27, 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 biochemical oxygen demand (BOD_5) and total suspended solids (TSS). The WQBELs consist of restrictions on ammonia, nitrate plus nitrite, pH, total coliform organisms, and zinc. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards. These limitations are more

stringent than required by the CWA. Specifically, this Order includes effluent limitations for BOD_5, TSS, and total coliform organisms that are more stringent than applicable federal standards, but that are nonetheless necessary to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in the Fact Sheet. In addition, the Regional Water Board has considered the factors in Water Code section 13241 in establishing these requirements.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA on 1 May 2001. 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 section 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. Section 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 is consistent with 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 Regional 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 section 131.12 and State Water Board Resolution No. 68-16.

O. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Some effluent limitations in this Order are less stringent that those in the previous Order. 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. Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.

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

S. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections IV.C, V.B, VI.A.2.v, and VI.C.4.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. Stormwater 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 obligated to comply with Federal Regulations.

U. Notification of Interested Parties. The Regional 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. Details of notification are provided in the Fact Sheet of this Order.

V. Consideration of Public Comment. The Regional 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 of this Order.

III. DISCHARGE PROHIBITIONS

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

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

C. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

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

E. Use of chlorine and/or chlorine containing substances within the treatment process that result in discharge of chlorine or chlorine containing substances into the receiving water is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

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 attached MRP (Attachment E):

a. **Effluent Limitations Schedule A -** When flow in Deer Creek provides less than a daily average stream flow-to-effluent dilution ratio of 20:1, the Discharger shall maintain compliance with the following effluent limitations:

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

Table 6a. Effluent Limitations Schedule A

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	30	--	--
	lbs/day [1]	300	450	901	--	--
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids	mg/L	10	15	30	--	--
	lbs/day [1]	300	450	901	--	--
Priority Pollutants						
Zinc, Total Recoverable	ug/L	28.6	--	57.5	--	--
Dichlorobromomethane	ug/L	0.56	--	0.80	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	1.1	--	2.1	--	--
	lbs/day [1]	33	--	63	--	--
Nitrate Plus Nitrite (as N)	mg/L	10	--	--	--	--
Total Coliform Organisms	MPN/100 mL	--	--	--	--	240

[1] Based on an average dry weather flow of 3.6 MGD.

ii. **Percent Removal.** The average monthly percent removal of BOD_5 and TSS shall not be less than 85 percent.

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

a) 70%, minimum for any one bioassay; and
b) 90%, median for any three consecutive bioassays.

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

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

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

vi. **Average Dry Weather Flow.** The average dry weather flow shall not exceed 3.6 MGD.

vii. **Mercury, Total Recoverable.** The total monthly mass discharge of total mercury shall not exceed 0.0024 lbs. This performance-based limitation shall be in effect until the Regional Water Board establishes final effluent

limitations after adoption of a TMDL for mercury in the Sacramento San Joaquin Delta.

viii. **Total Recoverable Aluminum.** For a calendar year, the annual average total recoverable aluminum concentration in the effluent shall not exceed 200 µg/L.

b. **Effluent Limitations Schedule B -** When flow in Deer Creek provides a daily average stream flow-to-effluent dilution ratio of 20:1 or more, the Discharger shall maintain compliance with the following effluent limitations:

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

Table 6b. Effluent Limitations Schedule B

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	45	60	--	--
	lbs/day [1]	901	1,351	1,801	--	--
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids	mg/L	30	45	60	--	--
	lbs/day [1]	901	1,351	1,801	--	--
Priority Pollutants						
Zinc, Total Recoverable	ug/L	28.6	--	57.5	--	--
Bromodichloromethane	ug/L	0.56	--	0.80~~79~~	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	1.1	--	2.1	--	--
	lbs/day [1]	33	--	63	--	--
Nitrate Plus Nitrite	mg/L	10	--	--	--	--
Total Coliform Organisms	MPN/100 mL	--	--	230	--	--

[1] Based on an average dry weather flow of 3.6 MGD.

ii. **Percent Removal.** The average monthly percent removal of BOD_5 and TSS shall not be less than 85 percent.

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

a) 70%, minimum for any one bioassay; and
b) 90%, median for any three consecutive bioassays.

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

v. **Total Coliform Organisms.** Effluent total organisms shall not exceed 23 MPN per 100 mL, as a 7-day median.

vi. **Average Dry Weather Flow.** The average dry weather flow shall not exceed 3.6 MGD.

vii. **Mercury, Total Recoverable.** The total monthly mass discharge of total mercury shall not exceed 0.0024 lbs. This performance-based limitation shall be in effect until the Regional Water Board establishes final effluent limitations after adoption of a mercury TMDL for the Sacramento San Joaquin Delta.

viii. **Total Recoverable Aluminum.** For a calendar year, the annual average total recoverable aluminum concentration in the effluent shall not exceed 200 µg/L.

2. Interim Effluent Limitations

a. **Electrical Conductivity.** Beginning the permit effective date, the maximum annual average discharge of salinity, measured as electrical conductivity, shall not exceed 570 umhos/cm.

B. Land Discharge Specifications

[Not Applicable]

C. Reclamation Specifications

1. All uses of reclaimed water shall be in accordance with Master Reclamation Permit, Order No. 5-01-146 (or updates thereto), for El Dorado Irrigation District, El Dorado Hills and Deer Creek WWTPs, issued to the Discharger in accordance with Title 22 and the California Water Code.

2. Conformance to reclaimed water effluent limitations shall be determined by the Master Reclamation Permit Order No. 5-01-146 (or updates thereto) issued to the Discharger in accordance with Title 22 and the California Water Code.

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 ten 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; or
   g. Thiobencarb to be present in excess of 1.0 ug/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**. Temperature changes due to controllable factors shall not cause creek temperatures to exceed the objectives specified below:

Table 7. Deer Creek Temperature Objectives (Table III-4A of the Basin Plan)

Date	Daily Maximum (ºF)[1]	Monthly Average (ºF)[2]
January and February	63	58
March	65	60
April	71	64
May	77	68
June	81	74
July through September	81	77
October	77	72
November	73	65
December	65	58

[1] Maximum not to be exceeded.
[2] Defined as a calendar month average.

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

17. **Turbidity**. The turbidity to increase as follows:

a. When the dilution ratio for discharges is less than 20:1:

   i. Where natural turbidity is less than 1 NTU, discharges shall not cause the receiving water daily average turbidity to exceed 2 NTUs or daily maximum turbidity to exceed 5 NTUs; and
   ii. Where natural turbidity is between 1 and 5 NTUs, discharges shall not cause receiving water daily average turbidity to increase more than 1 NTU or daily maximum turbidity to exceed 5 NTUs.
   iii. Where natural turbidity is between 5 and 50 NTUs, receiving water increases due to the discharge shall not exceed 20 percent;
   iv. Where natural turbidity is between 50 and 100 NTUs, receiving water increases due to discharge shall not exceed 10 NTUs; and
   v. Where natural turbidity is greater than 100 NTUs, receiving water increases due to discharge shall not exceed 10 percent.

b. Where the dilution ratio for discharges is 20:1 or greater:

   i. Where natural turbidity is between 0 and 5 NTUs, increases shall not exceed 1 NTU;
   ii. Where natural turbidity is between 5 and 50 NTUs, receiving water increases due to the discharge shall not exceed 20 percent;
   ii. Where natural turbidity is between 50 and 100 NTUs, receiving water increases due to discharge shall not exceed 10 NTUs; and
   iii. Where natural turbidity is greater than 100 NTUs, receiving water increases due to discharge shall not exceed 10 percent.

B. Groundwater Limitations

Release of waste constituents from any storage, treatment, or disposal component associated with the Facility shall not degrade groundwater.

VI. PROVISIONS

A. Standard Provisions

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

2. The Discharger shall comply with the following provisions:

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

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

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

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

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

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

   The causes for modification include:

   - *New regulations.* New regulations have been promulgated under Section 405(d) of the Clean Water Act, 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 Code of Federal Regulations (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 Regional Water Board may review and revise this Order at any time upon application of any affected person or the Regional 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 Regional 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. The discharge of any radiological, chemical or biological warfare agent or high-level, radiological waste is prohibited.

i. 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.

j. 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 Regional 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 Regional Water Board.

iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Regional Water Board that the existing safeguards

are inadequate, provide to the Regional 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 Regional Water Board, become a condition of this Order.

k. The Discharger, upon written request of the Regional 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 Regional Water Board Standard Provision VI.A.2.m.

   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 Regional 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.

l. A publicly owned treatment works (POTW) 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 Regional Water Board by 28 February. 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 Regional Water Board may extend the time for submitting the report.

m. 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.

n. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Regional Water Board and USEPA.

o. 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.

p. 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.

q. All monitoring and analysis 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.

r. The Discharger shall file with the Regional Water Board technical reports on self-monitoring performed according to the detailed specifications contained in the Monitoring and Reporting Program attached to this Order.

s. The results of all monitoring required by this Order shall be reported to the Regional 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.

t. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.

u. For POTWs, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (CWC section 1211).

v. 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 Regional 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 Regional Water Board waives confirmation. The written notification shall include the information required by Attachment D, Section V.E.1 [40 CFR section 122.41(l)(6)(i)].

B. Monitoring and Reporting Program (MRP) Requirements

1. The Discharger shall comply with the MRP, and future revisions thereto, as specified in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

a. 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.

b. Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, including:

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

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

c. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Regional Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.

d. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE.

Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.

e. **Water Effects Ratios (WER) and Metal Translators.** With the exception of copper, 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 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.

f. **Salinity.** If the Regional Water Board completes development of a new salinity policy for the Central Valley or upon availability of additional information, this Order may be reopened to include final effluent limitations for salinity.

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 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 exceeds the toxicity numeric monitoring trigger established in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent reoccurrence 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 whole 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 Work Plan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

i. **Toxicity Reduction Evaluation (TRE) Work Plan.** Within 90 days of the effective date of this Order, the Discharger shall submit to the Regional Water Board a TRE Work Plan for approval by the Executive Officer. The TRE Work Plan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Work Plan must be developed in accordance with USEPA guidance and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision.

ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity-monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. WET testing results exceeding the monitoring trigger during accelerated monitoring demonstrates a pattern of toxicity and requires the Discharger to initiate a TRE to address the effluent toxicity.

iii. **Numeric Monitoring Trigger.** The numeric toxicity monitoring trigger is > **1 TUc** (where TUc = 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.

iv. **Accelerated Monitoring Specifications.** If the monitoring trigger is exceeded during regular chronic toxicity testing, within 14 days of notification by the laboratory of the test results, the Discharger shall initiate accelerated monitoring. Accelerated monitoring shall consist of four (4) chronic toxicity tests in a 6-week period (i.e. one test every 2 weeks) using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

a) If the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern 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 (i.e. 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 initiate 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 the test results exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Regional Water Board including, at minimum:

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

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

3) A schedule for these actions.

b. **UV Disinfection Study.** The Discharger is required to evaluate various methods/alternatives for assuring UV disinfection capability in the event of a power failure. The technical evaluation shall identify alternatives, effectiveness, and describe any modifications/equipment necessary, as well as a time schedule to implement process or operational changes. The time schedule shall be as short as practicable, but in no case shall completion of the necessary modifications exceed 4 years past the Executive Officer's determination of the adequacy of the comprehensive technical evaluation, unless the schedule is reviewed and specifically approved by the Regional Water Board.

c. **Temperature Site-Specific Objective Study.** The Discharger shall continue to conduct temperature, flow, and biological monitoring of Deer Creek in accordance with section 8.1.1 of the January 2003 Staff Report for the Basin Plan amendment for temperature in Deer Creek. Annual reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1).

3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Report.** The Discharger shall prepare a salinity evaluation and minimization report that documents that the Discharger has evaluated all opportunities to control the discharge of salinity from the Facility. The report shall be completed and submitted to the Regional Water Board within 9 months of the adoption date of this Order for approval by the Executive Officer.

4. Construction, Operation and Maintenance Specifications

a. When flow in Deer Creek provides less than a daily average stream flow-to-effluent dilution of 20:1, wastewater shall be treated to achieve effluent limitations contained in section IV.A.1 of this Order that are consistent with the Department of Public Health (DPH; formerly the Department of Health Services) reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3, (Title 22), or equivalent.

b. When flow in Deer Creek provides a daily average stream flow-to-effluent dilution of 20:1, full secondary treatment shall be provided and the coagulation system and filtration shall be used to the maximum extent possible.

c. **UV Disinfection System Operating Specifications**

The Discharger shall operate the UV disinfection system to provide a minimum UV dose per bank of 100 millijoules per square centimeter (mJ/cm2) at peak daily flow, unless otherwise approved by the California DPH, and shall maintain an adequate dose for disinfection while discharging to Deer Creek, unless otherwise approved by the California DPH.

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

ii. When flow in Deer Creek provides less than a daily average stream flow-to-effluent dilution of 20:1, the Discharger shall operate the treatment system to insure that turbidity prior to disinfection shall not exceed 2 NTU as a daily average, and 5 NTU more than 5 percent of the time within a 24-hour period, and 10 NTU, at any time.

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

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

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

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

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

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Pretreatment Requirements.**

i. Within 1 year after the adoption date of this Order, the Discharger shall submit for review a written description of the pretreatment program. The written description of the pretreatment program shall be written in accordance with Attachment H – Pretreatment Program Requirements.

ii. Within 60 days after receiving approval of the ordinance and local limits, the Discharger shall adopt and implement its ordinance.

iii. Within 180 days after receiving approval of the ordinance and local limits, the Discharger shall issue all pending permits to its significant industrial users.

iv. The Discharger shall implement its approved pretreatment program and the program shall be an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Regional Water Board, the State Water Board or the USEPA may take enforcement actions against the Discharger as authorized by the CWA.

v. The Discharger shall enforce the Pretreatment Standards promulgated under sections 307(b), 307(c), and 307(d) of the Clean Water Act. The Discharger shall perform the pretreatment functions required by 40 CFR Part 403 including, but not limited to:

a) Adopting the legal authority required by 40 CFR 403.8(f)(1);

b) Enforcing the Pretreatment Standards of 40 CFR 403.5 and 403.6;

c) Implementing procedures to ensure compliance as required by 40 CFR 403.8(f)(2); and

d) Providing funding and personnel for implementation and enforcement of the pretreatment program as required by 40 CFR 403.8(f)(3).

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

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

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

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

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

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

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

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

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

vii. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:

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

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

b. **Sludge/Biosolids Discharge Specifications**

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

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

iii. The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate the Groundwater Limitations in section V.B. 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 the Groundwater Limitations in section V.B.

iv. The use and disposal of biosolids shall comply with existing Federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503. If the State Water Board and the Regional 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.

c. **Biosolids Disposal Requirements**

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

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

iii. The Discharger is encouraged to comply with the "Manual of Good Practice for Agricultural Land Application of Biosolids" developed by the California Water Environment Association.

d. **Biosolids Storage Requirements**

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

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

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

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

e. **Collection System.** On 2 May 2006, the State Water Board adopted State Water Board Order 2006-0003, a Statewide General WDR for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order 2006-0003 and any future revisions thereto. Order 2006-0003 requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the General WDR. By 2 November 2006**,** the Discharger is required by that Order, not incorporated by reference herein, to apply for coverage under State Water Board Order 2006-0003 for operation of its wastewater collection system.

Regardless of the coverage obtained under Order 2006-0003, the Discharger's collection system is part of the treatment system that is subject to this Order. As such, pursuant to federal regulations, the Discharger must properly operate and maintain its collection system [40 CFR section 122.41(e)], report any non-compliance [40 CFR section 122.41(l)(6) and (7)], and mitigate any discharge from the collection system in violation of this Order [40 CFR section 122.41(d)].

6. Other Special Provisions

a. 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 Regional 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 Regional 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 California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

7. Compliance Schedules

[Not Applicable]

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

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

B. **Total Mercury Mass Loading Effluent Limitations.** The procedures for calculating mass loadings are as follows:

1. The total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow. All monitoring data collected under the monitoring and reporting program, pretreatment program and any special studies shall be used for these calculations.
2. In calculating compliance, the Discharger shall count all non-detect measures at one-half of the detection level. If compliance with the effluent limitation is not

attained due to the non-detect contribution, the Discharger shall improve and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.

C. **Average Dry Weather Flow Effluent Limitations**. The average dry weather flow is intended to represent 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 3 consecutive dry weather months (i.e., July, August, and September).

D. **Total Coliform Organisms Effluent Limitations**. 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 which analyses have been completed. 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 for that parameter for that 1 day only within the reporting period.

E. **Mass Effluent Limitations.** Compliance with the mass effluent limitations will be determined during average dry weather periods only when groundwater is at or near normal and runoff is not occurring.

F. **20:1 Receiving Water to Effluent Flow Ratio.** Compliance with effluent limitations for BOD_5, TSS, and total coliform organisms and discharge specifications for turbidity will be determined based on the average daily flow of the receiving water and effluent.

G. **Chronic Whole Effluent Toxicity Effluent Limitation.** Compliance with the accelerated monitoring and TRE/TIE provisions contained at section VI.C.2.a shall constitute compliance with effluent limitation IV.A.1.a.iv and IV.A.1.b.iv for chronic whole effluent toxicity.

ATTACHMENT A – DEFINITIONS

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

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

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

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

Bioaccumulative pollutants are 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.

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

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

Coefficient of Variation (*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: 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 one 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) indicates that there are sample results less than the RL, but greater than or equal to the laboratory's MDL.

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) 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 are 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 confirmed detection of the substance by the analytical method below the ML value.

Estuaries are 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 include~~d~~, 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 are 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) is 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 is 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 $n/2+1$).

For example, for each day that an effluent sample is collected and analyzed for a constituent, the 7-day median shall be determined by calculating the median concentration of the constituent in the effluent utilizing the analytical results of the last 7 days for which analyses have been completed. If the 7-day median exceeds the 7-day median effluent limitation, the Discharger will be considered out of compliance for that constituent for that 1 day only within the reporting period.

Method Detection Limit (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 title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of 3 July 1999.

Minimum Level (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 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) are those sample results less than the laboratory's MDL.

Ocean Waters are 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 are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP): 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 Regional 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 is any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL) 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 Regional 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 is 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 is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

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

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

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

Toxicity Reduction Evaluation (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.)

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

Acronyms

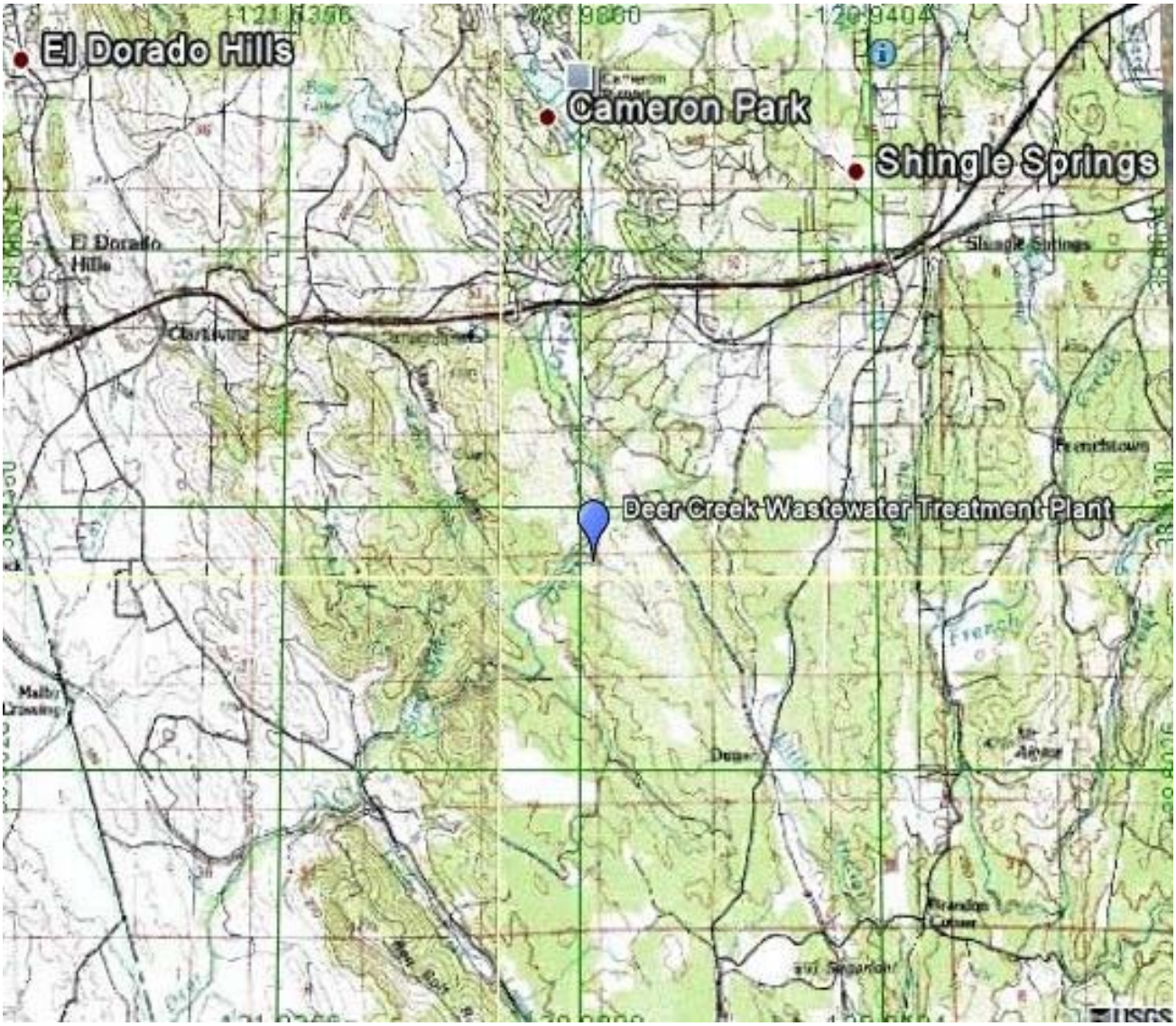
AGR – Basin Plan designation for Agricultural supply water
AMEL – Average monthly effluent limitation
AWWARF – American Water Works Association Research Foundation
BAT – Best available technology economically achievable
BCT – Best conventional pollutant control technology
BIO - A location where a representative sample of biosolids can be obtained
BOD_5 – 5-Day biochemical oxygen demand
BPJ – Best professional judgment
BPT – Best practical treatment control technology
BPTC – Best practical treatment or control
CBE - Communities for a Better Environment
CCC – Criteria continuous concentration
CCR – California Code of Regulations
CDO - Cease and Desist Order
CEI - Compliance Evaluation Inspections
CEQA – California Environmental Quality Act
CFR – Code of Federal Regulations

CMC – Criteria maximum concentration
COLD – Basin Plan designation for Cold freshwater habitat
CTR – California Toxics Rule
CV – Coefficient of variation
CWA – Clean Water Act
CWC – California Water Code
DFG – Department of Fish and Game
DPH – Department of Public Health
DMQA – Discharge Monitoring Quality Assurance
DNQ – Detected, but not quantified
DO - Dissolved Oxygen
EC_{50} - The Effective Concentration at which 50% of the population dies
EC – Electrical Conductivity (also known as Specific Conductance)
ECA – Effluent concentration allowance
EFF - A location where a representative sample of the effluent can be obtained
EPCRA - Emergency Planning and Community Right to Know Act
g/L - grams per liter
mg/L - Milligrams per liter
ng/L - Nanograms per liter
ug/L - Micrograms per liter
GWR - Basin Plan designation for groundwater supply
IC_{50} - Inhibition Concentration at with reproduction is inhibited by 50%
ICP/AES - Inductively Coupled Plasma Atomic Emission Spectroscopy (an analytical technique used for the detection of trace metals)
ICP/MS - Inductively Coupled Plasma Mass Spectrometry (a type of mass spectrometry that is highly sensitive in determining a range of metals concentrations)
IND - Basin Plan designation for Industrial Supply water
INF - A location where a representative sample of the influent can be obtained
Lbs/day - Pounds per day
LC_{50} - A concentration that is lethal to 50 percent of a population
LOEC - The Lowest Observable Effect Concentration
LTA – Long-term average
MCL – Maximum Contaminant Level
MDB&M - Mount Diablo Baseline and Meridian (a set point on Mount Diablo used as a reference for latitudes and longitudes)
MDEL – Maximum daily effluent limitation
MDL – Method detection limit
MEC – Maximum effluent concentration
MGD – Million gallons per day
mhos/cm - mhos per centimeter (a measure of electrical conductivity)
umhos/cm – micromhos per centimeter
MIGR – Basin Plan designation for Migration of aquatic organisms
mj/cm^2 - milli joules per square centimeter (a measure of UV dosage)
ML – Minimum level
MMP - Mandatory Minimum Penalties (Fines specified by California for violations of NPDES Permit requirements)
MPN/100 mL – Most probable number per 100 milliliters

MRP – Monitoring and Reporting Program
MUN – Basin Plan designation for Municipal and domestic supply water
NA - Not Applicable or Not Available
NAV - Basin Plan designation for Navigable waters
ND – Not detected
NOEC - No Observable Effect Concentration
NPDES – National Pollutant Discharge Elimination System
NTR – National Toxics Rule
NTU – Nephelometric turbidity unit
NWRI – National Water Research Institute
OAL - Office of Administrative Law for the State Water Resources Control Board
pCi/L - pico Curies per Liter (a measure of radioactivity)
pH - Measure of acidity or alkalinity of a solution using the activity of hydrogen ions
PMP – Pollutant Minimization Plan
PMSD - Percent Minimum Significant Difference
POTW – Publicly owned treatment works
PRO - Basin Plan designation for Industrial Process water
PVC - Polyvinyl Chloride (a common component of plastics)
QA - Laboratory designation for Quality Assurance protocols
QC - Laboratory designation for Quality Control protocols
REC - A location where a representative sample of reclaimed water can be obtained
REC-1 – Basin Plan designation for Water contact recreation
REC-2 – Basin Plan designation for Non-contact water recreation
RL – Reporting Level
RPA - Reasonable Potential Analysis (Procedure to determine whether a concentration of substance has potential to exceed water quality standards)
RSW - A location where a representative sample of receiving surface water can be obtained
RWD – Report of waste discharge
SIC – Standard Industrial Classification
SIP – *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* or State Implementation Policy
SPL - A location where a representative sample of supply water can be obtained
SPWN – Basin Plan designation for Spawning, reproduction, and/or early development
SSMP – Sanitary sewer management plan
SSO – Sanitary sewer overflow
TDS – Total dissolved solids
TIE – Toxicity Identification Evaluation
TMDL – Total Maximum Daily Load
TRE – Toxicity Reduction Evaluation
TSD – *Technical Support Document for Water Quality- Based Toxics Control* ((EPA/505/2-90-001)
TSO – Time schedule order
TSS – Total suspended solids
TUc – Chronic toxicity unit
USEPA – United States Environmental Protection Agency
UV – Ultraviolet

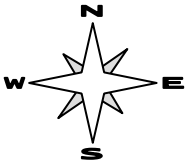
UVS - A location where a representative sample of the UV System can be obtained
WARM – Basin Plan designation for Warm freshwater habitat
WDR – Waste discharge requirements
WER – Water effects ratio
WET – Whole effluent toxicity
WILD – Basin Plan designation for Wildlife habitat
WLA – Waste load allocation
WQBEL – Water quality-based effluent limitation
WQLS – Water quality limited segment
WQS – Water quality standard
WWTP – Wastewater treatment plant

ATTACHMENT B – MAP



SITE LOCATION MAP

EL DORADO IRRIGATION DISTRICT
DEER CREEK WASTEWATER TREATMENT PLANT
EL DORADO COUNTY



ATTACHMENT C – FLOW SCHEMATIC

Figure C-1. Flow Schematic

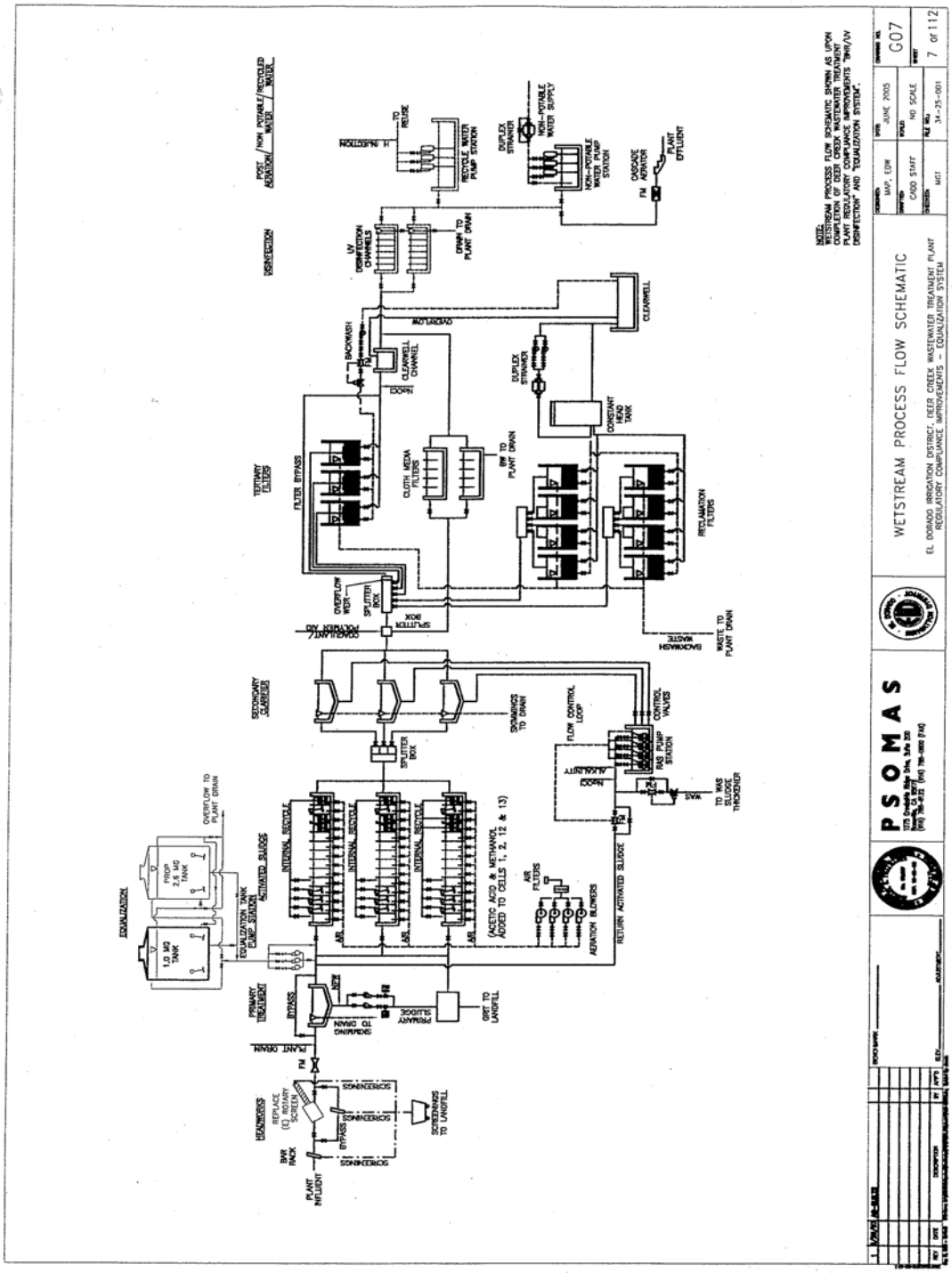
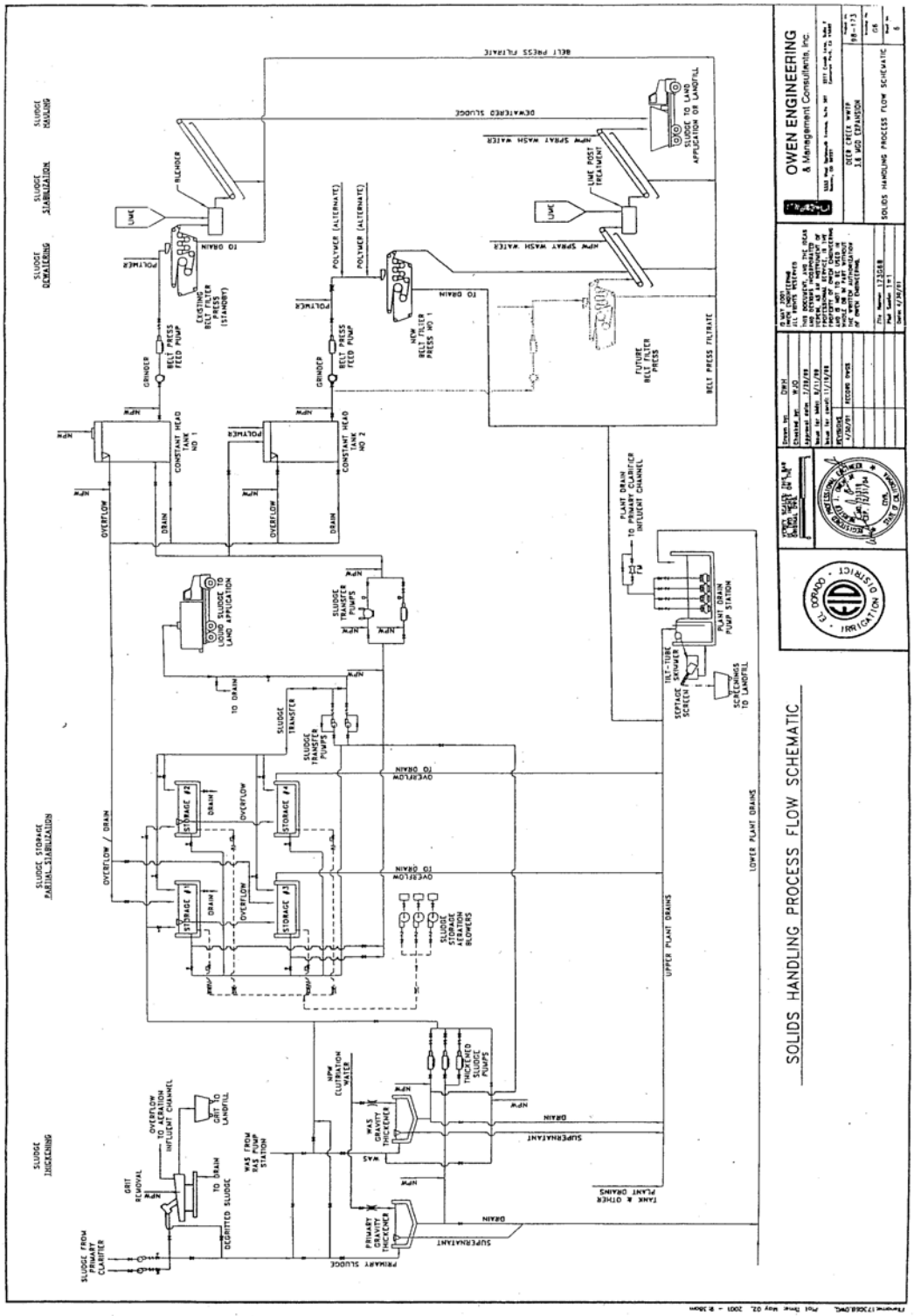


Figure C-2. Flow Schematic



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 and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR §122.41(a).)

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

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

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

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

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

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

G. Bypass

1. Definitions

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

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

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

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

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

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

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

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

5. Notice

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

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

H. Upset

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

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

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

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

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

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

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

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

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

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 CFR §122.41(l)(3); § 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 Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 CFR §122.41(j)(4); §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 Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 CFR §122.41(j)(2).)

B. Records of monitoring information shall include:

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

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

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

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

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

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

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

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

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

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

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

B. Signatory and Certification Requirements

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

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

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

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

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR §122.22(b)(2)); and

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

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall

operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR §122.22(c).)

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

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

C. Monitoring Reports

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

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR §122.41(l)(4)(i).)

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

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

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR §122.41(l)(6)(i).)

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

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

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

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

F. Planned Changes

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

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

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

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

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

VI. STANDARD PROVISIONS – ENFORCEMENT

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

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

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

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

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

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

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Table of Contents

Attachment E – Monitoring and Reporting Program (MRP) E-1
I. General Monitoring Provisions E-1
II. Monitoring Locations E-2
III. Influent Monitoring Requirements E-2
A. Monitoring Location INF-001 ..... E-2
IV. Effluent Monitoring Requirements E-3
A. Monitoring Location EFF-001 ..... E-3
V. Whole Effluent Toxicity Testing Requirements E-4
VI. Land Discharge Monitoring Requirements – [Not Applicable] E-7
VII. Reclamation Monitoring Requirements E-7
A. Monitoring Locations REC-001 ..... E-7
VIII. Receiving Water Monitoring Requirements – Surface Water E-8
A. Monitoring Locations RSW-001 and RSW-002 ..... E-8
IX. Other Monitoring Requirements E-8
A. Biosolids E-8
B. Municipal Water Supply E-9
C. Ultraviolet Disinfection System E-9
X. Reporting Requirements E-10
A. General Monitoring and Reporting Requirements E-10
B. Self Monitoring Reports (SMRs) E-11
C. Discharge Monitoring Reports (DMRs) E-13
D. Other Reports E-14

List of Tables

Table E-1. Monitoring Station Locations E-2
Table E-2. Influent Monitoring E-2
Table E-3. Effluent Monitoring E-3
Table E-4. Chronic Toxicity Testing Dilution Series E-6
Table E-5. Reclamation Monitoring Requirements E-7
Table E-6. Receiving Water Monitoring Requirements E-8
Table E-7. Municipal Water Supply Monitoring Requirements E-9
Table E-8. Ultraviolet Disinfection Monitoring Requirements E-9
Table E-9. Monitoring Periods and Reporting Schedule E-13
Table E-10. Reporting Requirements for Special Provisions Progress Reports E-14

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and state 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 Regional Water Board.

B. Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted in accordance with 40 CFR 136 by ~~at~~ a laboratory certified for such analyses by the State Department of Public Health (DPH~~); formerly the Department of Health Services)~~. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, turbidity, temperature, and residual chlorine, analyses performed by a noncertified laboratory will be accepted provided that the analysis is in accordance with 40 CFR 136 or an USEPA approved alternative test procedure, and a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by ~~Regional~~Central Valley -Water Board staff. The Discharger must demonstrate sufficient capacity (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 ~~Regional~~Central Valley -Water Board.

~~C.All analyses shall be performed in a laboratory certified to perform such analyses by the California DPH, with the exception of pH and temperature. Laboratories that perform sample analyses shall be identified in all monitoring reports. Analyses that cannot be transported to, and measured by, a certified laboratory within the maximum allowable holding time (e.g., measurement of pH within 15 minutes per Standard Methods) can be performed in a noncertified laboratory providing a Quality Assurance-Quality Control Program is instituted by the laboratory.~~

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

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description	
--	INF-001	A location where a representative sample of the influent into the Facility can be collected.	
001	EFF-001	A location where a representative sample of the effluent from the Facility can be collected after all treatment processes and prior to being discharged into Deer Creek. [Latitude 38º 37' 37" N and Longitude 120º 59' 10" W]	**Effluent Limitations Schedule A** Flow in Deer Creek provides less than a daily average stream flow-to-effluent dilution of 20:1.
			Effluent Limitations Schedule B Flow in Deer Creek provides a daily average stream flow-to-effluent dilution of 20:1 or more.
--	REC-001	A location where a representative sample of the reclaimed water can be collected.	
--	RSW-001	Gauging station upstream of the point of discharge at the first bridge crossing Deer Creek as part of the access road to the Facility.	
--	RSW-002	100 feet downstream of the confluence of the secondary channel and the main stem of Deer Creek.	
--	BIO-001	A location where a representative sample of biosolids can be obtained.	
--	SPL-001	A location where a representative sample of the municipal water supply can be obtained.	
--	UVS-001	Ultraviolet (UV) Disinfection System.	

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

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

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand	mg/L	24-hour	2/Week	[2]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
(5-day @ 20°C) [1]		Composite [3]		
Total Suspended Solids [1]	mg/L	24-hour Composite [3]	2/Week	[2]
Non-Conventional Pollutants				
Electrical Conductivity @ 25°C	umhos/cm	Grab	1/Quarter	[2]
Total Dissolved Solids	mg/L	Grab	1/Quarter	[2]

[1] BOD_5 and TSS samples shall be collected at approximately the same time as effluent samples and should be representative of the influent.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
[3] 24-hour flow proportional composite samples.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor the treated effluent at Monitoring Locations EFF-001 for Effluent Limitations Schedule A or Effluent Limitations Schedule B 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	Min Sampling Frequency	Analytical Test Method
Flow	MGD	Meter	Continuous [1]	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-Hr Composite [2]	5/Week	[3]
	lbs/day	Calculate	5/Week	[3]
pH	standard units	Grab	1/Day	[3]
Total Suspended Solids	mg/L	24-Hr Composite [2]	5/Week	[3]
	lbs/day	Calculate	5/Week	[3]
Priority Pollutants				
Bis (2-ethylhexyl) Phthalate	ug/L	Grab	1/Month	[3, 9]
Bromodichloromethane	µg/L	Grab	~~1/Month~~1/Quarter	[3, 4]
Mercury, Total Recoverable	ug/L	Grab	1/Month	[3, 4, 5]
Zinc, Total Recoverable	ug/L	Grab	1/Month	[3, 4]
Aluminum, Total Recoverable	ug/L	Grab	~~1/Month~~1/Quarter	[3, 4]
Priority Pollutants and Other Pollutants of Concern [6]	ug/L	24-Hr Composite [7]	[8]	[3, 4]
Non-Conventional Pollutants				
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week	[3]
Electrical Conductivity @ 25°C	umhos/cm	Grab	1/Week	[3]
Hardness (as $CaCO_3$)	mg/L	Grab	1/Week	[3]
Methyl mercury	ug/L	Grab	1/Month	[3, 5]
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Week	[3]
Nitrite Nitrogen, Total (as N)	mg/L	Grab	1/Week	[3]
Nitrate Plus Nitrite (as N)	mg/L	Grab	1/Week	[3]
Temperature	°F	Grab	1/Day	[3]
Total Coliform Organisms	MPN/100 mL	Grab	5/Week	[3]

Parameter	Units	Sample Type	Min Sampling Frequency	Analytical Test Method

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

[2] 24-hour flow proportional composite samples.

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

[4] 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.

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

[6] See List of Priority Pollutants and Other Pollutants of Concern in Attachment I.

[7] Volatile constituents shall be sampled in accordance with 40 CFR Part 136.

[8] Priority pollutants shall be sampled quarterly during the third year following the date of permit adoption and shall be conducted concurrently with upstream receiving water monitoring for hardness (as $CaCO_3$) and pH. The Discharger is not required to conduct effluent monitoring for priority pollutants that have already been sampled in a given quarter, as required in Table E-3.

[9] In order to verify if bis (2-ethylhexyl) phthalate is truly present in the effluent discharge, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

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 (*Oncorhynchus mykiss*).

4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition, and its subsequent amendments or revisions. The bioassay shall sample undiluted effluent after the UV disinfection process and prior to discharge to Deer Creek. The bioassay shall be started on different days to assure representative sampling of the wastestream. Temperature and pH shall be recorded each day of the test. No pH adjustment may be made unless approved by the Executive Officer.

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

B. **Chronic Toxicity Testing**. The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the

receiving water. The Discharger shall meet the following chronic toxicity testing requirements:

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

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

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

7. *Dilutions* – The routine quarterly chronic toxicity testing shall be performed, at a minimum, using 100 percent undiluted effluent. Should serial dilutions of the effluent also be tested for routine monitoring purposes, the dilution series identified in the table below shall be used. The receiving water control shall be used as the diluent for serial dilutions (unless the receiving water is toxic or dry upstream of the discharge). The dilution series identified in the table below must be used for accelerated monitoring tests and tests associated with a TRE.

Table E-4. Chronic Toxicity Testing Dilution Series

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

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

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

   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 Special Provisions VI. 2.a.iii.)

C. **WET Testing Notification Requirements**. The Discharger shall notify the Regional Water Board within 24-hrs 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 Regional 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 Toxicity Reduction Evaluations shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Work Plan.

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

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

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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS – [NOT APPLICABLE]

VII. RECLAMATION MONITORING REQUIREMENTS

A. Monitoring Locations REC-001

1. The Discharger shall monitor reclaimed water at REC-001 as follows:

Table E-5. Reclamation Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

A. Monitoring Locations RSW-001 and RSW-002

1. The Discharger shall monitor Deer Creek at RSW-001 and RSW-002 as follows:

Table E-6. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous [1]	--
Conventional Pollutants				
pH	standard units	Grab	1/Week	[2]
Priority Pollutants				
Priority Pollutants and other Constituents of Concern [3]	ug/L	Grab	[1, 4]	[2, 5]
Non-Conventional Pollutants				
Dissolved Oxygen	mg/L	Grab	1/Week	[2]
Electrical Conductivity @ 25°C	umhos/cm	Grab	1/Week	[2]
Hardness (as $CaCO_3$)	mg/L	Grab	1/Week	[2]
Radionuclides	pCi/l	Grab	1/Year	[2]
Temperature	ºF/ºC	Grab	1/Week	[2]
Turbidity	NTU	Grab	1/Week	[2]

1 Monitoring required at RSW-001 only.
2 Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
3 See List of Priority Pollutants and Other Pollutants of Concern in Attachment I.
4 Priority pollutants shall be sampled quarterly at RSW-001 during the third year following the date of permit adoption and shall be conducted concurrently with effluent monitoring for hardness (as CaCO3) and pH.
5 Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Appendix 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board. See Attachment H for specific requirements.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. **Monitoring Location BIO-001**

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

   b. A composite sample of sludge shall be collected once during the term of the Order at Monitoring Location BIO-001 in accordance with USEPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for the priority pollutants listed in 40 CFR section 122 Appendix D, Tables II and III (excluding total phenols).

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

d. Upon removal of sludge, the Discharger shall submit characterization of sludge quality, including sludge percent solids and the most recent quantitative results of chemical analysis for the priority pollutants listed in 40 CFR Part 122, Appendix D, Tables II and III (excluding total phenols). In addition to USEPA's POTW *Sludge Sampling and Analysis Guidance Document*, August 1989, suggested methods for analysis of sludge are provided in USEPA publications titled "*Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*" and "*Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater*". Recommended analytical holding times for sludge samples should reflect those specified in 40 CFR 136.6.3(e). Other guidance is available.

B. Municipal Water Supply

1. Monitoring Location SPL-001

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

Table E-7. Municipal Water Supply Monitoring Requirements

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

[1] If the water supply is from more than one source, electrical conductivity shall be reported as a weighted average and include copies of supporting calculations.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

C. Ultraviolet Disinfection System

1. Monitoring Location UVS-001

The Discharger shall monitor the ultraviolet disinfection system at Monitoring Location UVS-001 as follows.

Table E-8. Ultraviolet Disinfection Monitoring Requirements

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

Parameter	Units	Sample Type	Minimum Sampling Frequency

[1] For continuous analyzers, the Discharger shall report documented routine meter maintenance activities, including date, time of day, and duration, in which the analyzer(s) is not in operation.
[2] Report daily average turbidity and maximum. If the influent exceeds 10 NTU, collect a sample for total coliform organisms and report the duration of the turbidity exceedance.
[3] The turbidity meter shall be stationed immediately after the filters, prior to the UV disinfection process.
[4] Report daily minimum UV dose, daily average UV dose, and weekly average UV dose. For the daily minimum UV dose, also report associated number of banks, gallons per minute per lamp, and UV transmittance used in the calculation. If effluent discharge has received less than the minimum UV dose and is not diverted from discharging to Deer Creek, report the duration and dose calculation variables associated with each incident.

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 Regional 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 Regional 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 Regional Water Board by letter when it returns to compliance with the compliance time schedule.

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

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

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

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

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

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

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

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

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

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

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. Monitoring results shall be submitted to the Regional Water Board by the **first day** of the second month following sample collection. Quarterly, semi-annual, and annual monitoring results shall be submitted by the **first day of the second**

month following each calendar quarter, semi-annual period, and year, respectively.

3. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD and Total Suspended Solids, shall be determined and recorded as needed to demonstrate compliance.

   a. **Annual Average Limitations**. For constituents with effluent limitations specified as "annual average" 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.

4. With the exception of flow, all constituents monitored on a continuous basis (metered), shall be reported as daily maximums, daily minimums, and daily averages; flow shall be reported as the total volume discharged per day for each day of discharge.

5. If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

6. A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions.

7. SMRs must be submitted to the Regional 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

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

Table E-9. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	First day of second calendar month following month of sampling
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.	First day of second calendar month following month of sampling
X/Week	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	First day of second calendar month following month of sampling
1/Month	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	First day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
1/Quarter	Closest of 1 January, 1 April, 1 July, or 1 October following (or on) permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February
2/Year	Closest of 1 January or 1 July following (or on) permit effective date	1 January through 30 June 1 July through 31 December	1 August 1 February
1/Year	1 January following (or on) permit effective date	1 January through 31 December	1 February

C. Discharge Monitoring Reports (DMRs)

1. As described in Section X.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

Standard Mail	FedEx/UPS/ Other Private Carriers
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

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

D. Other Reports

1. **Progress Reports.** As specified in the Special Provisions, progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-10. Reporting Requirements for Special Provisions Progress Reports

Special Provision	Reporting Requirements
Temperature Site-Specific Objective Study (section VI.C.2.c)	**1 May 2009** **1 May 2010**

2. Within **60 days** of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in Section 2.3 and 2.4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, adopted 2 March 2000 by the State Water Resources Control Board. All peaks identified by analytical methods shall be reported.

3. 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.

4. **Annual Operations Report**. By **28 February** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

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

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

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

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

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

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

   The Discharger may combine annual pretreatment reporting requirements for both this Facility and their El Dorado Hills Wastewater Treatment Plant (CA0078671). If the reports are combined for both plants, then the Discharger shall note so in its transmittal letter accompanying the submission of the annual report.

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

   a. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent for those pollutants USEPA has identified under Section 307(a) of the CWA which are known or suspected to be discharged by industrial users.

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

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

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

d. An updated list of the Discharger's industrial users including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Discharger shall provide a brief explanation for each deletion. The list shall identify the industrial users subject to federal categorical standards by specifying which set(s) of standards are applicable. The list shall indicate which categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent than the federal categorical standards. The Discharger shall also list the noncategorical industrial users that are subject only to local discharge limitations. The Discharger shall characterize the compliance status through the year of record of each industrial user by employing the following descriptions:

   i. Complied with baseline monitoring report requirements (where applicable);
   ii. Consistently achieved compliance;
   iii. Inconsistently achieved compliance;
   iv. Significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);
   v. Complied with schedule to achieve compliance (include the date final compliance is required);
   vi. Did not achieve compliance and not on a compliance schedule; and
   vii. Compliance status unknown.

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

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

   i. the names and addresses of the industrial users subjected to surveillance and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and
   ii. the conclusions or results from the inspection or sampling of each industrial user.

f. A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:

   i. Warning letters or notices of violation regarding the industrial users' apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the federal categorical standards or local discharge limitations.
   ii. Administrative orders regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
   iii. Civil actions regarding the industrial users' noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
   iv. Criminal actions regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
   v. Assessment of monetary penalties. For each industrial user identify the amount of the penalties.
   vi. Restriction of flow to the POTW.
   vii. Disconnection from discharge to the POTW.

g. A description of any significant changes in operating the pretreatment program which differ from the information in the Discharger's approved Pretreatment Program including, but not limited to, changes concerning: the program's administrative structure, local industrial discharge limitations, monitoring program or monitoring frequencies, legal authority or enforcement policy, funding mechanisms, resource requirements, or staffing levels.

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

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

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

and the

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

ATTACHMENT F – FACT SHEET

Table of Contents

Attachment F – Fact Sheet F-1
I. Permit Information F-1
II. Facility Description F-3
A. Description of Wastewater and Biosolids Treatment or Controls F-3
B. Discharge Points and Receiving Waters F-4
C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data F-4
D. Compliance Summary F-5
E. Planned Changes F-6
III. Applicable Plans, Policies, and Regulations F-6
A. Legal Authority F-6
B. California Environmental Quality Act (CEQA) F-6
C. State and Federal Regulations, Policies, and Plans F-6
D. Impaired Water Bodies on CWA 303(d) List F-10
E. Other Plans, Polices and Regulations F-11
IV. Rationale For Effluent Limitations and Discharge Specifications F-11
A. Discharge Prohibitions F-12
B. Technology-Based Effluent Limitations F-13
1. Scope and Authority F-13
2. Applicable Technology-Based Effluent Limitations F-13
C. Water Quality-Based Effluent Limitations (WQBELs) F-15
1. Scope and Authority F-15
2. Applicable Beneficial Uses and Water Quality Criteria and Objectives F-15
3. Determining the Need for WQBELs F-28
4. WQBEL Calculations F-50
5. Whole Effluent Toxicity (WET) F-53
D. Final Effluent Limitations F-56
1. Mass-based Effluent Limitations F-56
2. Averaging Periods for Effluent Limitations F-56
3. Satisfaction of Anti-Backsliding Requirements F-57
4. Satisfaction of Antidegradation Policy F-58
E. Interim Effluent Limitations F-61
F. Land Discharge Specifications F-61
G. Reclamation Specifications F-61
V. Rationale for Receiving Water Limitations F-61
A. Surface Water F-62
B. Groundwater F-64
VI. Rationale for Monitoring and Reporting Requirements F-65
A. Influent Monitoring F-65
B. Effluent Monitoring F-65
C. Whole Effluent Toxicity Testing Requirements ..... F-68~~F-69~~
D. Reclamation Monitoring F-69
E. Receiving Water Monitoring F-69

F. Other Monitoring Requirements ..... F-69~~F-70~~
VII. Rationale for Provisions F-70
A. Standard Provisions F-70
B. Special Provisions ..... F-70~~F-71~~
1. Reopener Provisions ..... F-70~~F-71~~
2. Special Studies and Additional Monitoring Requirements F-71
3. Best Management Practices and Pollution Prevention F-75
4. Construction, Operation, and Maintenance Requirements F-75
5. Special Provisions for Municipal Facilities (POTWs Only) F-76
6. Other Special Provisions F-77
7. Compliance Schedules F-78
VIII. Public Participation F-78
A. Notification of Interested Parties F-78
B. Written Comments F-78
C. Public Hearing F-78
D. Waste Discharge Requirements Petitions F-79
E. Information and Copying F-79
F. Register of Interested Persons F-79
G. Additional Information F-79

List of Tables

Table F-1. Facility Information F-1
Table F-2. Historic Effluent Limitations and Monitoring Data F-4
Table F-3. Summary of Technology-based Effluent Limitations F-15
Table F-4. Copper ECA Evaluation F-21
Table F-5. Zinc ECA Evaluation F-22
Table F-6. Lead ECA Evaluation ..... F-25~~F-24~~
Table F-7. Summary of ECA Evaluations for CTR Hardness-dependent Metals ..... F-26~~F-25~~
Table F-8. Water Quality Characteristics of Hardness and pH in Deer Creek Compared to Arid West Surface Waters ..... F-32~~F-29~~
Table F-9. Fish Species Present in Deer Creek Compared to Arid West Surface Waters F-33~~F-30~~
Table F-10. Invertebrate Species Present in Deer Creek Compared to the Arid West Surface Waters ..... F-33~~F-30~~
Table F-11. Updated/Revised National Standards ..... F-35~~F-32~~
Table F-12. SMAVs, and ranked by GMAV ..... F-36~~F-33~~
Table F-13 . ..... F-36~~F-33~~
Table F-13. Central Valley Regional Site Specific Toxicity Data ..... F-36~~F-33~~
Table F-14. Salinity Water Quality Criteria/Objectives ..... F-47~~F-43~~
Table F-15. WQBEL Calculations for Ammonia ..... F-51~~F-48~~
Table F-16. WQBEL Calculations for Bromodichloromethane ..... F-52~~F-49~~
Table F-17. WQBEL Calculations for Zinc ..... F-52~~F-49~~
Table F-18. Summary of Water Quality-based Effluent Limitations ..... F-52~~F-49~~
Table F-19. Summary of Chronic Aquatic Toxicity Results ..... F-54~~F-51~~
Table F-20. Summary of Final Effluent Limitations ..... F-60~~F-57~~

Table F-21. Deer Creek Temperature Objectives ..... F-63~~F-60~~

ATTACHMENT F – FACT SHEET

As described 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	5B090102001
Discharger	El Dorado Irrigation District
Name of Facility	Deer Creek Wastewater Treatment Plant
Facility Address	1565 Deer Creek Road
	Cameron Park, CA 95682
	El Dorado County
Facility Contact, Title and Phone	Vickie Caulfield, Division Manager, Operations, (530) 642-4058
Authorized Person to Sign and Submit Reports	Tim Sullivan, Senior Engineer, (530) 642-4177 Vickie Caulfield, Division Manager, Operations, (530) 642-4058 Jason Lawrence, Plant Supervisor, (530) 672-9044
Mailing Address	2890 Mosquito Road
	Placerville, CA 95667
Billing Address	Same as Mailing Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Y
Reclamation Requirements	Master Reclamation Permit, Order No. 5-01-146 El Dorado Irrigation District, El Dorado Hills and Deer Creek WWTPs
Facility Permitted Flow	3.6 million gallons per day (MGD) average dry weather flow
Facility Design Flow	3.6 MGD average dry weather flow
Watershed	Upper Cosumnes
Receiving Water	Deer Creek
Receiving Water Type	Inland surface water

A. El Dorado Irrigation District (hereinafter Discharger) is the owner and operator of the Deer Creek Wastewater Treatment Plant (hereinafter Facility), a POTW.

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

B. The Facility discharges wastewater to Deer Creek, a water of the United States, and is currently regulated by Order No. R5-2002-0210, which was adopted on 6 December 2002 and expired on 31 December 2007. The Regional Water Board simultaneously adopted Cease and Desist Order (CDO) R5-2002-0211, providing a time schedule for the Discharger to comply with Receiving Water Limitations and complete amendments to the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan) water quality objectives for pH, turbidity and temperature by 1 December 2003. CDO R5-2002-0211 also provided a time schedule for the Discharger to comply with effluent limitations for nitrite, nitrate plus nitrite, and total trihalomethanes by 30 December 2006.

C. On 19 July 2002, site-specific Water Quality Objectives for pH and turbidity for Deer Creek in El Dorado County were adopted by the Regional Water Board, then approved by the State Water Resources Control Board (State Water Board), State of California Office of Administrative Law (OAL) and the USEPA, prior to becoming effective on 21 October 2003.

D. On 17 October 2003, the Regional Water Board adopted Amendment No. 1 to CDO No. R5-2002-0211 to extend the compliance period for the Discharger to comply with Receiving Water Limitations for pH, turbidity and temperature until 1 December 2004.

E. On 17 March 2005, the Regional Water Board adopted Amendment No. 1 to Order No. R5-2002-0210 (Resolution No. R5-2005-0028), amending the permit receiving water requirements to reflect the Basin Plan amendment for pH and turbidity. The Regional Water Board simultaneously adopted Resolution No. R5-2005-0029, amending the findings and orders of CDO No. R5-2002-0211 (as amended by Amendment No. 1), to reflect the amended receiving water limitations for pH and turbidity, require the Discharger's immediate compliance with the receiving water limitations for pH and turbidity, and include a new compliance schedule for the Discharger to comply with the receiving water limitation for temperature by 1 December 2005.

F. On 16 September 2005, the Site-Specific Temperature Objective for Deer Creek in El Dorado and Sacramento Counties was adopted by the Regional Water Board, then approved by the State Water Board, OAL, and USEPA, prior to becoming effective on 17 May 2006.

G. The Discharger complied with the requirements of CDO No. R5-2002-0211 (as amended by Amendment No.1 and Resolution No. R5-2005-0029), and the corresponding compliance dates. Therefore, the Regional Water Board adopted Resolution No. R5-2007-0008 on 25 January 2007, rescinding CDO No. R5-2002-0211 and subsequent amendments. The Regional Water Board simultaneously adopted Amendment No. 2 to Order No. R5-2002-0210 to include receiving water temperature limitations based on the objectives set by the Basin Plan amendment for temperature.

H. The terms and conditions of Order No. R5-2002-0210 and subsequent amendments have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are adopted pursuant to this Order.

I. The Discharger filed a report of waste discharge and submitted an application for renewal of its WDRs and NPDES permit on 2 July 2007. A site visit was conducted on 24 April 2008 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the communities of Cameron Park and Deer Creek/Motherlode and serves a population of approximately 20,000. The design average dry weather flow capacity is 3.6 MGD.

A. Description of Wastewater and Biosolids Treatment or Controls

The treatment system at the Facility consists of influent siphon system, headworks (consisting of fine screens with grinding, manual bar screens, and grit removal), primary clarification, influent equalization, emergency storage, secondary treatment including biological nutrient removal (BNR), polymer feed, tertiary filtration, and ultraviolet (UV) disinfection. Sodium hypochlorite is used only to maintain residual chlorine in the recycled water pipeline leaving the Facility. Sludge is aerobically digested, gravity thickened, dewatered using a belt filter press, and lime stabilized. Dried biosolids are applied to local farmland or hauled to a landfill.

The Facility has the design capacity to treat 3.6 MGD average dry weather flow, 13.1 MGD of unequalized peak daily flow, and 10.3 MGD of peak equalized flow to liquid treatment. Actual annual average daily flows experienced from May 2004 to April 2005, May 2005 to April 2006, and May 2006 to April 2007 are 3.06 MGD, 3.41 MGD, and 3.23 MGD, respectively. Actual maximum daily flows experienced for the same periods were 7.45 MGD, 10.38 MGD, and 7.14 MGD, respectively.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 109, T01, R15 and 16, 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 Cosumnes River at a point latitude 38° 37' 37" N and longitude 120° 59' 10" W. Deer Creek is tributary to the Cosumnes River and the Sacramento San Joaquin Delta. The Discharge Point is located within the San Joaquin Hydrologic Basin, Middle Sierra Hydrologic Unit, Cosumnes Hydrologic Area, and the Upper Deer Creek Hydrologic Subarea.

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

Effluent limitations contained in Order No. R5-2002-0210 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order No. R5-2002-0210 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (1 January 2005 - 31 December 2007)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Ammonia, Total (as N)	mg/L	[1]	--	[2]	<1.0	--	<1.0
	lbs/day	[3]	--	[3]	--	--	--
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10 [4]	15 [4]	30 [4]	4.9	14.4	89
		30 [5]	45 [5]	60 [5]			
	lbs/day	208 [4]	313 [4]	626 [4]	--	--	--
		625 [5]	938 [5]	1251 [5]			
	% Removal	85	--	--	95.9 [6]		
Chlorine Residual	mg/L	--	0.01	0.02 [7]	--	--	--
	lbs/day	--	0.21	0.42 [7]	--	--	--
Chlorodibromo methane	ug/L	0.41	--	--	2.2	--	--
	lbs/day	0.009	--	--	--	--	--
Dichlorobromo methane	ug/L	0.56			8.8	--	--
	lbs/day	0.012	--	--	--	--	--
Nitrite Nitrogen, Total (as N)	mg/L	1	--	--	<1.0	--	0.3
	lbs/day	21	--	--	--	--	--
Nitrite + Nitrate (as N)	mg/L	10	--	--	13.6	--	--
	lbs/day	208	--	--	--	--	--
Settleable Solids	ml/L	0.1	--	0.2	<0.05	--	0.10
Total Coliform Organisms	MPN/ 100 mL	--	2.2 [4, 8]	23 [4, 9]	--	4	900
		--	23 [5, 8]	230 [5]			

Parameter	Units	Effluent Limitation			Monitoring Data (1 January 2005 - 31 December 2007)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Total Suspended Solids	mg/L	10 [4]	15 [4]	30 [4]	1.5	3.8	11
		30 [5]	45 [5]	60 [5]			
	lbs/day	208 [4]	313 [4]	626 [4]	--	--	--
		250 [5]	376 [5]	750 [5]			
	% Removal	85	--	--	98.3 [6]	--	--
Total Trihalomethanes	ug/L	80	--	--	66.5	--	--
	lbs/day	1.66	--	--	--	--	--
Turbidity	NTU	2 [4, 10]	--	5 [4, 10]	--	--	4.2
pH	standard units	--	--	6.5 – 8.5	--	--	6.6 – 8.0
Acute Toxicity	% Survival	--	--	[11]	--	--	100

1 Floating effluent limitations calculated in accordance with Table A of Order No. R5-2002-0210.
2 Floating effluent limitations calculated in accordance with Table B of Order No. R5-2002-0210.
3 Using the value, in mg/L, determined from Table A or B of Order No. R5-2002-0210 as appropriate, calculate lbs/day using the formula: z mg/L x 8.345 x 2.5 MGD = y lbs/day.
4 Applies when flow in Deer Creek provides less dilution than 20:1 (stream flow:effluent).
5 Applies when flow in Deer Creek provides a minimum of 20:1 dilution (stream flow:effluent).
6 Minimum observed value.
7 Applied as a 1-hour average effluent limitation.
8 Applied as a 7-day median effluent limitation.
9 The total coliform organisms concentration shall not exceed 23 MPN/100 mL more than once in any 30-day period. No sample shall exceed a concentration of 240 MPN/100 mL.
10 The daily average turbidity shall not exceed 2 NTU. Turbidity shall not exceed 5 NTU more than 5 percent of the time within a 24-hour period. At no time shall the turbidity exceed 10 NTU.
11 Survival of aquatic organisms in 96-hour acute bioassays of undiluted waste shall be no less than:
Minimum for any one bioassay----------70%
Median for any three or more consecutive bioassays----------90%

D. Compliance Summary

1. Between 2002, when previous Order No. R5-2002-0210 was adopted, and April 2008, there have been four Compliance Evaluation Inspections (CEIs) performed by representatives of USEPA; 18 March 2003, 2 February 2005, 19 April 2006, and 22 May 2007. These inspections noted numerous maintenance and operation inadequacies. A fifth CEI was conducted on 14 May 2008. The results of the fifth CEI have not yet been compiled and additional enforcement, if necessary, will occur pending the outcome.

2. USEPA conducted a pretreatment performance evaluation inspection on 12 and 13 April 2003. As a result of the inspection, USEPA issued Administrative Order CWA-307-9-03-025 requiring the Discharger to: 1) begin monthly self-monitoring of the influent, effluent, and receiving water at the Deer Creek Facility and the El Dorado Hills WWTP by 1 January 2004; 2) submit a written description of the pretreatment program for approval by 28 September 2004; 4) adopt local limits and ordinance within 60 days of obtaining approval; and 4) issue all pending permits within 180 days of obtaining approval. The Discharger submitted their Industrial Pretreatment Program package to USEPA on 28 September 2004. The submittal

was reviewed by USEPA and comments were provided to the Discharger. However, the Discharger still does not have an approved pretreatment program. Therefore, this Order requires, within 1 year from adoption of this Order, the submission of a written pretreatment program. The organization and contents of the written description of the pretreatment program are based on guidance provided by USEPA for program submissions. Additionally, the pretreatment program covers both the Deer Creek Facility and the El Dorado Hills WWTP, therefore, a provision has been included in the Monitoring and Reporting Program that allows the Discharger to submit only one annual report for both facilities.

3. The Regional Water Board issued Administrative Civil Liability Complaint No. R5-2008-0502 on 6 February 2008 for Mandatory Minimum Penalties issued pursuant to CWC section 13385 for violations of Order Nos. 99-130 and R5-2002-0210. The complaint charged the Discharger with administrative civil liability in the amount of $24,000, which represents the sum of the statutory Mandatory Minimum Penalties (MMPs) for effluent limitation violations from 1 January 2000 through 30 November 2007.

E. Planned Changes

The Discharger has indicated they have planned to perform a complete SCADA system evaluation. In addition the Discharger is planning to continue optimization of plant processes through fine-tuning of the equalization system.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in section II of the Limitations and Discharge Requirements (Findings). This section provides supplemental information, where appropriate, for the plans, policies, and regulations relevant to the discharge.

A. Legal Authority

See Limitations and Discharge Requirements - Findings, Section II.C.

B. California Environmental Quality Act (CEQA)

See Limitations and Discharge Requirements - Findings, Section II.E.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans**. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised October 2007), for the Sacramento and San Joaquin River Basins* (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. In addition, State Water Board Resolution No. 88-63 requires that, with certain

exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. The beneficial uses of Deer Creek downstream of the discharge are municipal and domestic supply, agricultural irrigation, agricultural stock watering, water contact recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat, cold spawning habitat, and wildlife habitat.

2. 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.

   This Order contains effluent limitations requiring a tertiary level of treatment, or equivalent, which is necessary to protect the beneficial uses of the receiving water. The Regional Water Board has considered the factors listed in CWC section 13241 in establishing these requirements, as discussed in more detail in the Fact Sheet, Attachment F.

   In reviewing whether the existing and/or potential uses of the Cosumnes River apply to Deer Creek, the Regional Water Board has considered the following facts:

   a. Domestic Supply and Agricultural Supply

      The State Water Board's Resolution No. 88-63 "Sources of Drinking Water" provides that "*All surface and ground waters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply and should be so designated by the Regional Boards…*"

The State Water Board has issued water rights to existing water users along Deer Creek and the Cosumnes River downstream of the discharge for domestic and irrigation uses. Since Deer Creek is an ephemeral stream, the creek likely provides groundwater recharge during periods of low flow. The groundwater is a source of drinking water. In addition to the existing water uses, growth in the area downstream of the discharge is expected to continue, which presents a potential for increased domestic and agricultural uses of the water in Deer Creek.

b. Water Contact and Non-Contact Recreation and Esthetic Enjoyment

The Regional Water Board finds that the discharge flows through residential areas, there is ready public access to Deer Creek, exclusion of the public are unrealistic and contact recreational activities currently exist along Deer Creek and downstream waters and these uses are likely to increase as the population in the area grows. Prior to discharge into the Cosumnes River, Deer Creek flows through areas of general public access, meadows, residential areas and parks, to the Cosumnes River. The Cosumnes River also offers recreational opportunities.

c. Groundwater Recharge

In areas where groundwater elevations are below the stream bottom, water from the stream will percolate to groundwater. Since Deer Creek is at times dry, it is reasonable to assume that the stream water is lost by evaporation, flow downstream, and percolation to groundwater providing a source of municipal and irrigation water supply.

d. Freshwater Replenishment

When water is present in Deer Creek, there is hydraulic continuity between Deer Creek and the Cosumnes River. During periods of hydraulic continuity, Deer Creek adds water quantity and may impact the quality of water flowing downstream in the Cosumnes River.

e. Preservation and Enhancement of Fish, Wildlife, and Other Aquatic Resources

Deer Creek flows to the Cosumnes River. The California Department of Fish and Game (DFG) has verified that the fish species present in Deer Creek and downstream waters are consistent with both cold and warm water fisheries, that there is a potential for anadromous fish migration necessitating a cold designation and that trout, a cold water species, have been found both upstream and downstream of the Facility. The Basin Plan (Table II-1) designates the Cosumnes River as being both a cold and warm freshwater habitat. Therefore, pursuant to the Basin Plan (Table II-1, Footnote (2)), the cold designation applies to Deer Creek.

Upon review of the flow conditions, habitat values, and beneficial uses of Deer Creek, and the facts described above, the Regional Water Board finds that the beneficial uses identified in the Basin Plan for the Cosumnes River are applicable to Deer Creek.

3. **Antidegradation Policy.** Section 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 water quality be maintained unless degradation is justified based on specific findings. The Regional 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 (Attachment F, Section IV.D.4.) the discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Board Resolution 68-16.

4. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Compliance with the anti-backsliding requirements is discussed in Section IV.D.3.

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

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

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

6. **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.

7. **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.

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

1. Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 30 November 2006 USEPA gave final approval to California's 2006 Section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 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 is not listed in the 303(d) list of impaired water bodies. The Cosumnes River, to which Deer Creek is tributary, is listed as a WQLS for exotic species on the 303(d) list of impaired water bodies. Portions of the Sacramento San Joaquin Delta are also listed as WQLS for exotic species, various pesticides, electrical conductivity, PCBs, organic enrichment/low dissolved oxygen, pathogens, and dioxins and furans. All portions of the Delta are WQLSs for unknown toxicity and mercury. Effluent limitations for some of these constituents are included in this Order and discussed in further in the Fact Sheet (Attachment F).

2. **Total Maximum Daily Loads.** USEPA requires the Regional Water Board to develop total maximum daily loads (TMDLs) for each 303(d) listed pollutant and water body combination. TMDLs have not been developed for Deer Creek or the Cosumnes River.

E. Other Plans, Polices and Regulations

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

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

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

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

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

The Federal 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 discharges 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: 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 water quality-based

effluent limitations 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 Regional Water Board's Basin Plan, page IV-17.00, contains an implementation policy ("Policy for Application of Water Quality Objectives" that specifies that the Regional 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 Regional 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 Regional 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 contains a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*" (narrative toxicity objective). The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, discoloration, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. 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 Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

A. Discharge Prohibitions

1. As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal Regulations, 40 CFR 122.41 (m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41 (m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional 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.

2. The Discharger replaced their chlorination/dechlorination effluent disinfection process with a UV disinfection system in August 2006. On 20 October 2006, the Discharger submitted a letter to the Regional Water Board stating that chlorine is not used anywhere in the treatment process at the Facility. However, chlorine is used in the reclaimed water distribution system for flushing of pipelines and algae control. Therefore, the Regional Water Board adopted Amendment No. 2 to Order

No. R5-2002-0210, which discontinued the effluent limitations for chlorine residual and contained a prohibition of the use of chlorine and/or chlorine containing substances within the treatment process that result in discharge of chlorine and/or chlorine containing substances into the receiving water. This prohibition has been retained in this Order.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Regulations promulgated in section 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 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 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. As required in Order No. R5-2002-0210, 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. See

Table F-3 for final technology-based effluent limitations required by this Order. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. If 85 percent removal of 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.

Title 22 and other recommendations of the California Department of Public Health (DPH; formerly the Department of Health Services) generally recommend that it is necessary to treat wastewater to a tertiary level or provide 20:1 dilution for secondary treated wastewater in order to protect the public health for contact recreational activities or the irrigation of food crops. Order No. R5-2002-0210 contained an effluent limitation for BOD_5 and TSS based on secondary treatment standards applicable when flow in Deer Creek provides a daily average stream flow-to-effluent dilution of 20:1. Based on a review of data submitted by the Discharger, receiving water dilution is usually less than 20:1, however these effluent limitations are consistent with DPH recommendations and are retained in this Order.

b. pH. Regulations at 40 CFR Part 133 also establish technology-based effluent limitations for pH. The secondary treatment standards require the pH of the effluent to be no lower than 6.0 and no greater than 9.0 standard units.

c. Flow. The Facility was designed to provide a tertiary level of treatment for up to a design flow of 3.6 MGD. Therefore, this Order contains an average dry weather flow effluent limit of 3.6 MGD.

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

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

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10 [1]	15 [1]	30 [1]	--	--
		30 [2]	45 [2]	60 [2]	--	--
	lbs/day [3]	300 [1]	450 [1]	901 [1]	--	--
		901 [2]	1,351 [2]	1,801 [2]	--	--
	% Removal	85	--	--	--	--
Total Suspended Solids	mg/L	10 [1]	15 [1]	30 [1]	--	--
		30 [2]	45 [2]	60 [2]	--	--
	lbs/day [3]	300 [1]	450 [1]	901 [1]	--	--
		901 [2]	1,351 [2]	1,801 [2]	--	--
	% Removal	85	--	--	--	--
pH	standard units	--	--	--	6.0	9.0
Average Dry Weather Flow	MGD	--	--	3.6	--	--

[1] Applies when flow in Deer Creek provides less than a daily average stream flow-to-effluent dilution of 20:1.
[2] Applies when flow in Deer Creek provides a daily average stream flow-to-effluent dilution of 20:1.
[3] Based on an average dry weather flow of 3.6 MGD.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in section 122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an in-stream excursion above any state water quality standard. 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

a. **Receiving Water.** Deer Creek is tributary to the Cosumnes River. The Basin Plan does not identify beneficial uses for Deer Creek, but does identify uses for the Cosumnes River. Therefore, the beneficial uses of the Cosumnes River as described in Section III.C.1 are applied to Deer Creek.

b. **Hardness.** While no effluent limitation for hardness is necessary in this Order, hardness is critical to the assessment of the need for, and the development of,

effluent limitations for certain metals. 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 hardness-dependent metal 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[2] and the CTR[3] . The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR § 131.38(c)(4) ~~,Table 4, note 4~~.) The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream or downstream hardness conditions. Guidance on the selection of the appropriate ambient hardness was provided by the State Water Board in Order No. WQO 2008-0008 (City of Davis) and the Sacramento Superior Court in its decision regarding the El Dorado Irrigation Deer Creek Wastewater Treatment Plant (see *California Sportsfishing Protection Alliance v. California Regional Water Quality Control Board, Central Valley Region,* Sacramento Superior Court Case No. 34-2009-80000309) (EID Court Order). The Sacramento Superior Court defined "ambient" as the surface water surrounding the aquatic life and concluded that the metal criteria should be calculated based on the actual ambient hardness of the surface water after the effluent and receiving water mix (i.e., downstream receiving water hardness). (EID Court Order, p. 15)[4] The court found that "it would be unreasonable to interpret the regulation as requiring States to ignore the effect of the effluent on the hardness (and consequent toxicity) of the downstream receiving water." (*Ibid.*) ~~The court concluded that the board could determine whether to use upstream or mixed downstream hardness on a case-by-case basis, "whichever is most protective." (*Id.* at ___.) Hardness cannot be calculated based on effluent alone. (*Id.* at ___.)~~

The State Water Board allows, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream

[2] 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.

[3] 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.

[4] The Sacramento Superior Court clarified in footnote #7 of the EID Court Order that this means after the effluent and receiving water *fully* mix. However, this is not consistent with the CTR, which states in paragraph (c)(2) (p.31717), "For all waters with mixing zone regulations or implementation procedures, the criteria apply at appropriate locations within or at the boundaries of the mixing zones; otherwise the criteria apply throughout the water body ***including at the point of discharge into the water body***". (emphasis added) Because the CTR metals criteria are calculated using the hardness, the hardness at the point of discharge defines the metals criteria at the point of discharge. Regardless, the procedures described in this Order result in protective effluent limits for the "fully mixed" condition, and throughout the water body including at the point of discharge into the water body.

receiving water hardness, after mixing with the effluent. (Order WQO 2008-0008, p. 11.) Regional water boards have considerable discretion in determining ambient hardness as long as the hardness values are protective under all flow conditions. (*Id.*, pp. 10-11.) The court evaluated the State Water Board's determinations and concluded, "The Court agrees, in part. Nothing in the CTR itself gives the Board discretion to define the term "ambient" on a case-by-case basis. However, under the federal Clean Water Act, each state is free to enforce its own water quality laws so long as its standards are not less stringent than those established by the federal government." (EID Court Order at p. 14)

As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces hardness-dependent CTR criteria based on the reasonable worst-case downstream ambient hardness that ensure these metals do not cause receiving water toxicity under any downstream receiving water condition. Under this methodology, the Central Valley Water Board considers all hardness conditions that could occur in the ambient downstream receiving water after the effluent has mixed with the water body[5]. 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. **Reasonable Potential Analysis (RPA).** Section 1.3 of the SIP 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 requires a step-by-step procedure for conducting the RPA. The procedure requires the comparison of the Maximum Effluent Concentration (MEC) and Maximum Ambient Background Concentration to the applicable criterion that has been properly adjusted for hardness. Unless otherwise noted, for the hardness-dependent CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.

- The SIP requires a WQBEL if the MEC 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 in the receiving water affected by the discharge. Therefore,

[5] 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. The Court concluded, "Stated differently, the criteria should be based on the upstream receiving water hardness, adjusted, as necessary, for effects of the effluent." (*Id.* at 14)

for comparing the MEC to the applicable criterion, the reasonable worst-case downstream ambient hardness was used to adjust the criterion. For this situation it is necessary to consider the hardness of the effluent in determining the applicable hardness to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream ambient hardness is outlined in subsection ii, below.

- The SIP requires a WQBEL 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[6]. 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. **Calculation of Water Quality-Based Effluent Limitations.** The remaining discussion in this section relates to the development of water quality-based effluent limits for constituents that have reasonable potential to cause or contribute to an exceedance of the CTR hardness-dependent metals criteria in the receiving water.

A 2006 Study[7] developed procedures that can be used for calculating the effluent concentration allowance (ECA)[8] for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g. high and low receiving water flow conditions) and the hardness and metals concentrations of the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. This method is superior to relying on downstream receiving water samples alone because it captures all possible mixed conditions in the receiving water. Both receiving water and effluent hardness vary based on flow and other factors, but the variability of receiving water and effluent hardness is sometimes independent. Using a calculated hardness value ensures that the 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.

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

[7] 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.

[8] The ECA is defined in Appendix 1 of the SIP (page Appendix 1-2). The ECA is used to calculate water quality-based effluent limitations in accordance with Section 1.4 of the SIP, and is equivalent to the water quality criterion when no dilution credits are allowed.

The equation describing the total recoverable regulatory criterion, as established in the CTR,[9] is as follows:

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

Where:

H = hardness (mg/L as $CaCO_3$)[10]
WER = water-effect ratio
m, b = metal- and criterion-specific constants

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

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

$$\text{ECA} = C \quad (\text{when } C \leq B)^{11} \qquad \text{(Equation 2)}$$

Where:

C = the CTR Criterion, adjusted for hardness (see Equation 1)
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 referred to as "Concave Down Metals". "Concave Down" refers to the shape of the curve represented by the relationship between hardness and the CTR criterion in Equation 1. Another similar procedure can be used for determining the ECA for acute cadmium, lead, and acute silver, which are referred to as "Concave Up Metals".

(1) 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. The 2006 Study

[9] 40 CFR § 131.38(b)(2).

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

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

proves that regardless of whether the effluent hardness is lower or greater than the upstream hardness, the reasonable worst-case flow condition is the effluent dominated condition (i.e., no receiving water flow)[12]. Consequently, for Concave Down Metals, the CTR criteria have been calculated using the downstream ambient hardness under this condition. ~~Where there is no receiving water flow, the "fully mixed" receiving water hardness that results in the most stringent criteria is equivalent to the effluent, because there is little or no natural flow for the effluent to mix with. Without receiving water flow, there is no upstream hardness value. Using the "fully mixed" downstream values at the downstream point where natural flow commences would allow toxicity in the effluent dominated segment of the receiving stream. Nevertheless, in order to comply with the EID Court Order, the Board has considered all possible combinations of upstream hardness and effluent.~~

The effluent hardness ranged from 42 mg/L to 100 mg/L, based on 157 samples from January 2005 to December 2007. The upstream receiving water hardness varied from 71 mg/L to 290 mg/L, based on 156 samples, and the downstream receiving water hardness ranged from 61 mg/L to 230 mg/L, based on 156 samples, during the same period. Under the effluent dominated condition, the reasonable worst-case downstream ambient hardness is 42 mg/L. ~~Using this hardness to calculate the ECA is clearly protective under the effluent dominated condition, because there is no upstream receiving water flow in this situation, so the only hardness and metals in the receiving water are from the effluent.~~ As demonstrated in the example shown in Table F-4, below, using this hardness to calculate the ECA for all Concave Down Metals will result in water quality-based effluent limitations that are protective under all flow conditions, from the effluent dominated condition to high flow conditions.

This example for copper assumes the following conservative (worst-case) conditions for the upstream receiving water:

- Upstream receiving water always at the lowest observed upstream receiving water hardness (i.e., 71 mg/L)
- Upstream receiving water copper concentration always at the CTR criteria (i.e., no assimilative capacity).

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

[12] 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.

$C_{ambient} = C_{upstream} \times (1-EF) + C_{Effluent} \times (EF)$ (Equation 3)

Where:

$C_{ambient}$ = Downstream ambient concentration
$C_{upstream}$ = Upstream receiving water concentration
$C_{Effluent}$ = Effluent concentration
EF = Effluent Fraction

In this example, for copper, for any receiving water flow condition (high flow to low flow), the fully-mixed downstream ambient copper concentration is in compliance with the CTR criteria.[13].

Table F-4. Copper ECA Evaluation

Lowest Observed Effluent Hardness	**42 mg/L**
Lowest Observed Upstream Receiving Water Hardness	**71 mg/L**
Highest Assumed Upstream Receiving Water Copper Concentration	**~~67.5~~6.8 µg/L[1]**
~~Reasonable Worst-Case Ambient Hardness~~	**~~42 mg/L~~**
Copper $ECA_{chronic}$[12]	**43.1 µg/L**

Effluent Fraction[65]		**Fully Mixed Downstream Ambient Conditions**			
		[3]Hardness[2] (mg/L)	**CTR Criterion[43] (µg/L)**	**Copper[45] (µg/L)**	**Complies with CTR**
High Flow	1%	71	67	~~67~~7	**Yes**
	5%	70	66	~~66~~9	**Yes**
	15%	67	64	~~64~~12	**Yes**
	25%	64	62	~~61~~16	**Yes**
	50%	57	56	~~55~~25	**Yes**
	75%	49	49	~~49~~34	**Yes**
Low Flow	100%	42	43	~~43~~43	**Yes**

~~[1] Highest assumed upstream receiving water copper concentration calculated using Equation 1 (WER = 9.7) for chronic criterion at a hardness of **71 mg/L**.~~

[13] This method considers the actual lowest upstream hardness and actual lowest effluent hardness to determine the reasonable worst-case ambient downstream hardness under all possible receiving water flow conditions. Table F-4 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.

[21] ECA calculated using Equation 1 (WER = 9.7) for chronic criterion at the reasonable worst-case ambient hardness (**42 mg/L**).

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

[43] Fully mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 (WER = 9.7) at the mixed hardness.

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

[65] 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).

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.

Table F-5. Zinc ECA Evaluation

Lowest Observed Effluent Hardness	**42 mg/L**
Lowest Observed Upstream Receiving Water Hardness	**71 mg/L**
Highest Assumed Upstream Receiving Water Zinc Concentration	**89.6 µg/L[1]**
~~**Reasonable Worst-Case Ambient Hardness**~~	~~**42 mg/L**~~
Zinc $ECA_{chronic}$[2]	**57.5 µg/L**

Effluent Fraction[6]		**Fully Mixed Downstream Ambient Conditions**			
		Hardness[3] (mg/L)	**CTR Criterion[4] (µg/L)**	**Zinc[5] (µg/L)**	**Complies with CTR**
High Flow	1%	71	89.3	89.3	**Yes**
	5%	70	88.1	88.0	**Yes**
	15%	67	85.0	84.8	**Yes**
	25%	64	81.8	81.6	**Yes**
	50%	57	73.9	73.5	**Yes**
	75%	49	65.7	65.5	**Yes**
Low Flow	100%	42	57.5	57.5	**Yes**

[1] Highest assumed upstream receiving water zinc concentration calculated using Equation 1 for chronic criterion at a hardness of **71 mg/L**.

[2] ECA calculated using Equation 1 for chronic criterion at the reasonable worst-case ambient hardness (**42 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).

~~The Discharger's effluent has a lower hardness value than the upstream receiving water, so metals become less toxic as the effluent mixes with the higher-hardness receiving water when flows are present in the receiving water.~~

~~For both copper and zinc, using the "fully mixed" hardness value results in criteria that are higher (less stringent) than using the effluent-dominated (100% effluent) condition in the receiving water. Effluent limitations based on the less stringent criteria would allow the effluent to cause receiving water toxicity during low-flow conditions. Even assuming that would be a correct interpretation of the CTR and SIP or the EID Court Order, a more stringent effluent limitation would required to comply with the Basin Plan's narrative toxicity objective unless the Board approves a mixing zone.[14] Accordingly, this Order sets effluent limitations for copper and zinc based on low-flow conditions as shown in the above tables.~~

(2) 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 the 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 aquatic 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).

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 from 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).

[14] "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, p. III-8.01.)

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

Where:

m, b = criterion specific constants (from CTR)

H_e = lowest observed effluent hardness

H_{rw} = reasonable worst-case upstream receiving water hardness

~~By rearranging the CTR Equation (Equation 1) to solve for the hardness, the reasonable worst-case ambient hardness associated with the ECA from Equation 4 can be determined, as shown in Equation 5, below.~~

~~Reasonable Worst-Case Ambient Hardness = $e^{(\ln(ECA)-b)/m)}$ (Equation 5)~~

~~Where:~~

~~m, b = criterion specific constants (from CTR)~~
~~ECA = effluent concentration allowance (from Equation 4)~~

An example is shown below for a Concave Up Metal. As previously mentioned, the lowest effluent hardness is 42 mg/L, while the upstream receiving water hardness ranged from 71 mg/L to 290 mg/L and the downstream receiving water hardness ranged from 61 mg/L to 230 mg/L. ~~In this example for lead, using Equation 4 the ECA is 1.3µg/L, which corresponds to a reasonable worst-case ambient hardness of 42 mg/L.~~

~~A reasonable worst-case ambient hardness of 40 mg/L has been used in this Order for lead.~~ In this case for lead, the lowest possible fully-mixed downstream hardness is 42 mg/L (see last row of Table F-6), which corresponds to a total recoverable chronic ECA of 1.1 µg/L, using Equations 1 and 2. However, a lower ~~hardness~~chronic ECA is required ~~to establish the criteria to calculate the ECA~~ to ensure the discharge does not cause toxicity at any location in the receiving water, at or downstream of the discharge ~~location~~, which would be a violation the Basin Plan's narrative toxicity objective[15]. This is because for concave up ~~criteria~~ metals, mixing two waters with different hardness with metals concentrations at their respective CTR criteria will always result in ~~toxicity~~CTR criterion exceedances[16] ~~when the waters mix~~. ~~Therefore, the effluent must contain some assimilative capacity for the metal to not cause toxicity as the~~

[15] "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, p. III-8.01.)

[16] 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. (p. 5702)

~~discharge mixes with the receiving water.~~ As shown in Table F-6, ~~using a hardness of 40 mg/L results in a~~n chronic ECA of 0.99 µg/L ~~that~~ is necessary to be protective under all discharge conditions. In this example for lead, for any receiving water flow condition (high flow to low flow), the fully-mixed downstream ambient lead concentration is in compliance with the CTR criteria.

Table F-6. Lead ECA Evaluation

Lowest Observed Effluent Hardness	**42 mg/L**
Lowest Observed Upstream Receiving Water Hardness	**71 mg/L**
Highest Assumed Upstream Receiving Water Lead Concentration	**2.1 µg/L[1]**
~~Reasonable Worst-Case Ambient Hardness~~	**~~40 mg/L~~**
Lead $ECA_{chronic}$[2]	**0.99 µg/L**

Effluent Fraction[6]		**Fully Mixed Downstream Ambient Conditions**			
		Hardness[3] (mg/L)	**CTR Criterion[4] (µg/L)**	**Lead[5] (µg/L)**	**Complies with CTR**
High Flow	1%	~~70.7~~71	2.0	2.0	**Yes**
	5%	~~69.6~~70	2.0	2.0	**Yes**
	15%	~~66.7~~67	1.9	1.9	**Yes**
	25%	~~63.8~~64	1.8	1.8	**Yes**
	50%	~~56.5~~57	1.5	1.5	**Yes**
	75%	~~49.3~~49	1.3	1.3	**Yes**
Low Flow	100%	~~42.0~~42	1.1	0.99	**Yes**

1 Highest assumed upstream receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of **71 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 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 1% at the high receiving water flow condition, to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

Based on the procedures discussed above, Table F-7 lists all the CTR hardness-dependent metals and the associated ~~reasonable worst-case ambient hardness and~~ ECA used in this Order.

Table F-7. Summary of ECA Evaluations for CTR Hardness-dependent Metals

CTR Metals	ECA (µg/L, total recoverable)		~~Ambient Hardness (mg/L)~~
	acute	chronic	
Copper[1]	60	43	~~42~~
Chromium III	890	42	~~42~~
Cadmium	1.7	1.3	~~41~~
Lead	25.3	0.99	~~40~~
Nickel	225	25	~~42~~
Silver	0.67	--	~~35~~
Zinc	57.5	57.5	~~42~~

[1] Site-specific water-effect-ratio of 9.7 used for total copper

~~Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, "floating" effluent limitations that are reflective of actual hardness conditions at the time of discharge, effluent limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. The SIP does not address how to determine 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. 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.[17] 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.~~

~~The point in the receiving water affected by the discharge is downstream of the discharge. As the effluent mixes with the receiving water, the hardness of the receiving water can change. Therefore, it is appropriate to use the ambient hardness downstream of the discharge that is a mixture of the effluent and receiving water for the determination of the CTR hardness-dependent metals criteria. Recent studies indicate that using the lowest recorded receiving water~~

[17] See 40 CFR 131.38(c)(4)(i)

~~hardness for establishing water quality criteria is not always protective of the receiving water under various mixing conditions (e.g. when the effluent hardness is less than the receiving water hardness). The studies evaluated the relationships between hardness and the CTR metals criterion that is calculated using the CTR metals equation. The equation describing the total recoverable regulatory criterion, as established in the CTR, is as follows:~~

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

~~Where:~~

~~H = Design Hardness~~
~~b = metal- and criterion-specific constant~~
~~m = metal- and criterion-specific constant~~

~~The constants "m" and "b" are specific to both the metal under consideration, and the type of total recoverable criterion (i.e. acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.~~

~~The relationship between the Design Hardness and the resulting criterion in Equation 1 can exhibit either a downward-facing (i.e., concave downward) or an upward-facing (i.e., concave upward) curve depending on the values of the criterion-specific constants. The curve shapes for acute and chronic criteria for the metals are as follows:~~

~~Concave Downward: cadmium (chronic), chromium (III), copper, nickel, and zinc~~

~~Concave Upward: cadmium (acute), lead, and silver (acute)~~

~~For those contaminants where the regulatory criteria exhibit a concave downward relationship as a function of hardness, use of the lowest recorded effluent hardness for establishment of water quality objectives is fully protective of all beneficial uses regardless of whether the effluent or receiving water hardness is higher. Use of the lowest recorded effluent hardness is also protective under all possible mixing conditions between the effluent and the receiving water (i.e., from high dilution to no dilution). Therefore, for cadmium (chronic), chromium (III), copper, nickel, and zinc, the reasonable worst case ambient hardness can be estimated by using the lowest effluent hardness. The water quality criteria for these metals were calculated for this Order using Equation 1 and a reported minimum effluent hardness of 42 mg/L as CaCO3, which was reported in a technical memorandum dated 18 October 2006 from the Discharger's contractor in support of the WER conducted for copper and reflects effluent hardness data collected from July 1997 through December 1998, February 2002, and September 2002 through August 2006.~~

~~For those metals where the regulatory criteria exhibit a concave upward relationship as a function of hardness, water quality objectives based on either the effluent hardness or the receiving water hardness alone, would not be protective under all mixing scenarios. Instead, both the hardness of the upstream receiving water and the effluent are required to determine the reasonable worst-case ambient hardness. In this case, using the lowest upstream receiving water hardness in Equation 2, below, is protective if the effluent hardness is ALWAYS higher than the receiving water hardness. Under circumstances where the effluent hardness is not ALWAYS higher than the receiving water hardness, it may be appropriate to use the highest reported upstream receiving water hardness in Equation 2. The following equation provides fully protective water quality criteria for those metals that exhibit a concave upward relationship.~~

$$\text{CTR Criterion} = \left[\frac{m}{H_{rw}} \cdot (H_{eff} - H_{rw}) + 1\right] \cdot e^{m \cdot \ln(H_{rw}) + b} \quad \text{(Equation 2)}$$

~~Where:~~

~~H_{eff} = effluent hardness~~
~~H_{rw} = upstream receiving water hardness~~
~~b = metal- and criterion-specific constant~~
~~m = metal- and criterion-specific constant~~

~~Therefore, for cadmium (acute), lead, and silver (acute) water quality criteria were calculated using Equation 2 with a lowest reported effluent hardness of 42 mg/L as $CaCO_3$ and a highest reported upstream receiving water hardness of 290 mg/L as $CaCO_3$, based on 156 samples taken between January 2005 and December 2007.~~

c. **Assimilative Capacity/Mixing Zone.** The ephemeral nature of Deer Creek means that the designated beneficial uses must be protected, but that credit for receiving water dilution is not available.

3. Determining the Need for WQBELs

a. CWA section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Regional Water Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Water Board-adopted standards, and federal standards, including the CTR and NTR. The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, 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.) With regards to the narrative chemical

constituents objective, the Basin Plan 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 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.*"

b. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional 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, nitrate plus nitrite, pH, total coliform organisms, and zinc. WQBELs for these constituents are included in this Order. A summary of the reasonable potential analysis (RPA) is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

c. The Regional Water Board conducted the RPA in accordance with Section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Board may use the SIP as guidance for water quality-based toxics control.[18] The SIP states in the introduction "*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency."* Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents.

d. WQBELs were calculated in accordance with section 1.4 of the SIP, as described in Attachment F, Section IV.C.4.

e. **Aluminum.** Absent numeric aquatic life criteria for aluminum, WQBELs are based on the narrative toxicity objective. The Basin Plan's *Policy for Application of Water Quality Objectives* requires the Central Valley Water Board to consider, "on a case-by-case basis, direct evidence of beneficial use impacts, all material and relevant information submitted by the discharger and other interested parties, and relevant numerical criteria and guidelines developed and/or published by other agencies and organizations. In considering such criteria, the Board evaluates whether the specific numerical criteria which are available through these sources and through other

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

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, USEPA recommended criteria. (Basin Plan, p. IV.-17.00; *see also,* 40 CFR 122.44(d)(vi).)

The Central Valley Water Board considered all available 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, the USEPA National Recommended Ambient Water Quality Criteria (NAWQC) and supporting studies, National Recommended Water Quality Criteria–Correction, the Arid West Water Quality Research Project and supporting studies, and site-specific aluminum studies conducted by other dischargers within the Central Valley Region in evaluating the appropriate criteria for protection of the beneficial uses of Deer Creek to comply with the narrative toxicity objective. As discussed in detail below, based on this information, the acute and chronic aquatic life criteria for aluminum are 2,891 (1-hour average) and 1,155 µg/L (4-day average), respectively. These criteria interpret the narrative toxicity objective and are protective of the aquatic life beneficial use

USEPA National Recommended Ambient Water Quality Criteria (NAWQC) USEPA developed the NAWQC for protection of freshwater aquatic life for aluminum. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for aluminum are 87 µg/L and 750 µg/L, respectively.

In April 1999, USEPA released the National Recommended Water Quality Criteria–Correction. There were no corrections to the 1988 aluminum recommended criteria; however, USEPA recognized that they were aware of field data indicating that many high quality waters in the U.S. contain more than 87 µg/L aluminum, when either total recoverable or dissolved is measured (i.e., the higher levels of aluminum did not affect beneficial uses). Therefore, Footnote L to the National Recommended Ambient Water Quality Criteria summary table for aluminum indicated a water effects ratio (WER) might be appropriate for implementation of its recommended chronic criterion for aluminum to protect aquatic organisms. (*National Recommended Water Quality Criteria–Correction* (April 1999).) USEPA explained that the chronic aquatic life criterion is based on studies (USEPA 1988, Table 5-6, "Other Data on Effects of Aluminum on Aquatic Organisms"), conducted under specific receiving water conditions with a low pH (6.5 to 6.8 pH units) and low hardness (<10 mg/L as $CaCO_3$) using the test species brook trout (*Salvelinus fontinalis*) and striped bass (*Morone saxatilis*)[19]. As discussed later in this finding, these

[19] Moreover, the Technical Report states that these two toxicity studies were deemed inappropriate by the USEPA for inclusion in the 1988 USEPA Aluminum chronic database used in calculating the USEPA 1988 NAWQC, but were still used by USEPA to reduce the calculated final chronic value (FCV) from 750 to 87 µg/L in the 1988 recommended criteria for aluminum (pp. 3-3 to 3-4, *Evaluation of the EPA Recalculation Procedure in the Arid West Technical Report*, May 2006).

species are not found in Deer Creek, and the pH and hardness water quality conditions are not similar to those in Deer Creek.

Arid West Water Quality Research Project ("Arid West Project")
Due to uncertainties with the NAWQC for aluminum, USEPA Region IX funded The Arid West Project, which was established in 1995, -under an Assistance Agreement between USEPA and Pima County Wastewater Management District. The Agreement allowed for research and recommendations of appropriate water quality criteria, standards and uses for effluent-dependent and ephemeral waters in the arid and semi-arid regions of the West, and to improve the scientific basis for regulating wastewater and storm water discharges in the arid and semi-arid West.

In May 2006, The Arid West Project produced its fifth in a series of research reports, *Evaluation of the EPA Recalculation Procedure in the Arid West Technical Report* ("Technical Report"). This Technical Report was "to evaluate use of the [USEPA's] Recalculation Procedure on selected water quality criteria with different modes of toxicity in specific arid and semi-arid West waters. In addition~~;~~, a *User's Guide for Development of Site-Specific Water Quality Standards in Arid West Effluent-dependent Streams Using USEPA's Recalculation Procedure* was also prepared as a practical guide for water quality standards practitioners regarding use of the Recalculation Procedure for developing site-specific water quality standards."

Arid West surface waters are characterized as waters that are "created by the discharge of treated effluent into ephemeral streambeds or streams that in the absence of effluent discharge would have only minimal flow." The Arid West Project studied nine surface waters in the arid and semi-arid West, and the recalculation study focused on five of these surface waters, their resident species data known to exist, and the most up-to-date toxicity data for species resident to North America. The Technical Report found that "*speciation and/or complexation of aluminum is highly dependent on ambient water quality characteristics and ultimately determines the mechanism of toxicity. [Increased] Concentrations of calcium in the water was shown to decrease toxic effects to fish.*" (p. ES-3) The Technical Report has received both technical and regulatory reviews from the USEPA (p. i).

As described previously in section IV.C.2.a of this Fact Sheet, Deer Creek is an ephemeral stream, which is effluent-dependent during dry weather months. Therefore, since Deer Creek has the same characteristics as the Arid West surface waters, Central Valley Water Board staff compared the ambient water quality characteristics of Deer Creek to those studied in the Arid West Project. Given aluminum speciation and behavior in complex solutions, the mechanism responsible for toxicity is highly likely to be dependent on pH and hardness values in ambient waters (Technical Report, p 3-3). As shown in Table F-8 below, the hardness and pH of Deer Creek is similar to the five Arid West surface waters studied in the Technical Report. There is no evidence that

aluminum behaves differently in Deer Creek than in the Arid West Project water bodies, and no basis to expect that it would behave differently. Therefore, the Technical Report's NAWQC may be appropriate criteria to protect the aquatic life in Deer Creek.

Table F-8. Water Quality Characteristics of Hardness and pH in Deer Creek Compared to Arid West Surface Waters

	Santa Ana River	Santa Cruz River	Salt/Gila River	Fountain Creek	South Platte River	Deer Creek
Mean Hardness (mg/L)	188	150[1]	388	218	280	133
Mean pH (s.u.)	7.2	7.5	7.4	7.4	7.4	8.1

[1] Mean hardness value recorded near Tucson, AZ

"Although the [USEPA 1988] NAWQC are intended to protect many aquatic species nation-wide, they may not always represent the contaminant sensitivity of species resident to the Arid West surface waters." (Technical Report, p. ES-1.) "If the site-specific [arid West surface waters] list is sufficiently different from that in the [NAWQC toxicity] database used to derive national WER, then water quality standards specific for the protection of the biota found in these stream segment could be developed." (Technical Report, p. 2-1.) Thus the Arid West Project compiled fish taxa and invertebrate taxa lists based on the communities currently or potentially occurring at the downstream reaches of the five Arid West surface waters. The studies produced a composite fish species list containing 75 taxa and a composite invertebrate species list containing 561 taxa (Chapter 2).

Central Valley Water Board staff compared the ~~a~~Arid West's fish and invertebrate taxa lists to the list of resident species in Deer Creek downstream of the discharge identified in a site-specific study, Robertson – Bryan, Inc., *Deer Creek Temperature, Flow, and Biological Monitoring and Implementation of Site-Specific Temperature Objectives: Final Report, May 2010*. The following tables show the comparison of the resident species. As shown below, the fish species and invertebrate species in Deer Creek are similar to those in the Arid West studies.

Table F-9. Fish Species Present in Deer Creek Compared to the Arid West Surface Waters

Genus	Species	Common Name	Santa Ana River, CA	Salt/Gila Rivers, AZ	Santa Cruz River, AZ	Fountain Creek, CO	South Platte River, CO
Deer Creek Native Species							
Lavinia	*Symmetricus*	California roach					
Mylopharodon	*Conocephalus*	hardhead					
Cottus	*Asper*	Prickly sculpin	X				
Ptychocheilus	*Grandis*	Sacramento pikeminnow					
Casostomus	*Occidentalis*	Sacramento sucker					
Deer Creek Non-Native Species							
Lepomis	*Macrochirus*	Bluegill	X	X		X	X
Lepomis	*Cyanellus*	Green sunfish	X	X	X	X	X
Gambusia	*Affinis*	Western mosquitofish	X	X	X		X

Table F-10. Invertebrate Species Present in Deer Creek Compared to the Arid West Surface Waters

Order	Family	Final ID	Santa Ana River, CA	Salt/Gila Rivers, AZ	Santa Cruz River, AZ	Fountain Creek, CO	South Platte River, CO
Coleoptera	Elmidae	Dubiraphia					X
Coleoptera	Elmidae	Microcylloepus	X		X		
Coleoptera	Elmidae	Optioservus				X	X
Coleoptera	Elmidae	Ordobrevia nubifera					
Coleoptera	Elmidae	Zatzevia				X	X
Coleoptera	Haliplidae	Peltodytes	X		X	X	
Coleoptera	Hydrophilidae	Hydrophilidae		X	X		
Coleoptera	Psephenidae	Eubrianax edwardsii					
Coleoptera	Psephenidae	Psephenus falli					
Diptera	Ceratopogonidae	Atrichopogon			X	X	
Diptera	Ceratopogonidae	Bezzia/Palpomyia					X
Diptera	Ceratopogonidae	Probezzia					X
Diptera	Chironomidae	Chironomini					
Diptera	Chironomidae	Orthocladiinae	X		X	X	X
Diptera	Chironomidae	Pseudochironomus	X		X		X
Diptera	Chironomidae	Tanypodinae	X		X		X
Diptera	Chironomidae	Tanytarsini					
Diptera	Empididae	Empididae	X				
Diptera	Psychodidae	Pericoma/Telmatoscopus			X		
Diptera	Simuliidae	Simulium	X		X	X	X
Diptera	Stratiomyidae	Caloparyphus/Euparyphus	X		X	X	X
Diptera	Stratiomyidae	Nemotelus			X	X	
Diptera	Tipulidae	Limonia	X		X	X	
Diptera	Tipulidae	Tipula	X		X	X	X
Ephemeroptera	Baetidae	Baetis	X		X	X	X
Ephemeroptera	Baetidae	Centroptilum/Procloeon					

Ephemeroptera	Baetidae	Fallceon quilleri	X		X	X	X
Ephemeroptera	Leptohyphidae	Tricorythodes	X		X	X	X
Odonata	Aeshnide	Aeshna				X	
Odonata	Coenagrionidae	Argia	X	X	X	X	X
Odonata	Gomphidae	Octogomphus specularis					
Trichoptera	Brachycentridae	Micrasema					
Trichoptera	Hydropsychidae	Hydropsyche				X	
Trichoptera	Hydroptilidae	Hydroptila	X			X	X
Trichoptera	Hydroptilidae	Oxyethira	X				
Trichoptera	Lepidostomatidae	Lepidostoma					
Trichoptera	Philopotamidae	Wormaldia	X				
Acari	Mideopsidae	Mideopsis					
Acari	Sperchontidae	Sperchon			X		
Amphipoda	Crangonyctidae	Crangonyx					
Amphipoda	Hyalellidae	Hyalella	X			X	X
		Ostracoda					
Arhynchobdellida	Erpobdellidae	Erpobdellidae			X		X
Rhyncobdellida	Glossiphoniidae	Glossiphoniidae			X		X
		Oligochaeta					
Hydroida	Hydridae	Hydra			X		
Veneroida	Sphaeriidae	Pisidium					
Veneroida	Corbiclidae	Corbicula	X				X
Basommatophora	Ancylidae	Ferrissia	X				X
Basommatophora	Physidae	Physa	X	X	X	X	X
Basommatophora	Planorbidae	Gyraulus	X				X
Basommatophora	Planorbidae	Helisoma					
Basommatophora	Planorbidae	Menetus	X				
Hypsogatropoda	Hydrobiidae	Hydrobiidae					
Basommatophora	Planorbidae	Planorbella					
	Tertastemmatida	Prostoma	X				
		Turbellaria	X	X		X	X

Based on this comparison of aquatic species, it is reasonable to assume that Deer Creek is able to support fish and invertebrate taxa similar to that of the Arid West surface waters. Also, note that neither brook trout nor striped bass reside in Deer Creek, which are the two species USEPA developed the chronic criterion at 87 µg/L to protect. Additionally, Deer Creek does not support a resident, self-sustaining population of rainbow trout, which exhibits similar sensitivities as brook trout.

The Arid West Project screened toxicological studies conducted from the years 1961 through 2005, and used the appropriate data to update and revise the NAWQC aluminum toxicity databases with 36 acute data points from 15 studies, and 11 chronic data points from nine studies. The updated databases were used for deriving the numerical water quality criteria in accordance with USEPA criteria development methods (*Guidelines for Deriving Numerical Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, 1985, Stephen et al). The Technical Report found "In general, the inclusion of more chronic data resulted in a better sample of ACRs [acute-chronic ratio], in which values ranged roughly within a factor of 10 from one another. Because the EPA was lacking data to legitimately generate a FACR [final ACR] using

multiple SMACRs [species mean ACRs], the FACR was set [by EPA] to the lowest organism then defaulted to 2.0. We [The Arid West Project] feel that using a multiple SMACR approach is an improvement over the EPA's FACR estimate, which was not used to derive the final chronic criteria [calculated at 750 µg/L but revised down to 87 µg/L) because it was not protective of [2] organisms within the chronic database. The revised FCV derived from the revised FACR is expected to be protective to every organism within the chronic database." (p 3-14) "An updated final acute value (FAV) was derived from the four most sensitive genera in the updated and revised acute toxicity database (*Ceriodaphnia, Salmo, Micropterus*, and *Asellus*), the total number of genera in the updated acute database, and newly derived acute toxicity hardness slope (Table 3-7). The resulting FAV (2560 µg/L) is over 1000 µg/L greater than the [EPA] 1988 FAV of 1496 µg/L, and was used to derive the hardness modified Al criteria equation...a chronic Al criterion equation was also calculated using this pooled acute-hardness slope (Table 3-7) (p. 3-15). The revised and updated Acute and Chronic Al Criterion Values based on The Technical Report's equations are presented in the following table:

Table F-11. Updated/Revised National Standards

	Mean Hardness (mg/L as $CaCO_3$)					
Equations	25	50	75	100	150	200
Acute Al Criterion (µg/L) $e^{(0.8327\ [\ln(hardness)]+3.8971)}$	719	1,280	1,794	2,280	3,195	4,060
Chronic Al Criterion (µg/L) $e^{(0.8327\ [\ln(hardness)]+2.9800)}$	287	512	717	911	1,277	1.623

After consideration and evaluation of the aquatic life's impacts, and all material and relevant information previously summarized, the Central Valley Water Board determined that the conditions, water characteristics, and resident species in Deer Creek are similar to the arid West surface waters, and thus, determined that the Technical Report's recalculated NAWQC acute and chronic criteria is appropriate criteria for protection of the beneficial uses of Deer Creek to comply with the narrative toxicity objective.

Central Valley Regional Site Specific Aluminum Toxicity Study Results
As previously discussed (Arid West Project section), USEPA NAWQC toxicity databases (and the updated database) are populated with EC_{50} toxicity results. From these results, the species mean acute and chronic value, SMAV and SMCV, respectively, were calculated for use in deriving the national criteria. However, the chronic toxicity database did not contain enough species (referred to as the 8 Species Rule) to derive the chronic criterion, and therefore, the four most sensitive SMAVs were used to calculate the acute and chronic criteria. The Arid West Project followed the same method in deriving the updated NAWQC criteria, and the SMAV are shown by rank in Table F-12 below.

Table F-12. SMAVs, and ranked by GMAV

Rank	.Species	Common Name	Method[1]	SMAV
1	*Ceriodaphnia dubia*[2]	Cladoceran	S, M	2466
2	*Salmo salar*	Atlantic Salmon	S, M	3154
3	*Micropterus dolomieu*	Smallmouth Bass	S, M	3183
4	*Asellus aquaticus*	Isopod	S, U	4370

[1] S = Static renewal test exposure
M = Test media aluminum concentration was measured
U = Test media aluminum concentration was not measured

Site specific aluminum toxicity studies have also been conducted within the Central Valley Region. The most sensitive specie shown in previous Table F-12, *Ceriodaphnia dubia*, which was used in deriving the updated acute and chronic criteria, was also used as the test specie in many of these local site-specific studies. Therefore, if the toxicity results (EC50 value) from the Central Valley Region site-specific studies are equal to or greater than the SMAV (shown in Table F-12) used to derive the revised acute and chronic criteria, then the Arid West Project and Technical Report findings are applicable to Central Valley Region surface waters.

As shown in Table F-13 below, all EC_{50} toxicity study result values for *Ceriodaphnia dubia* exceed the updated SMAV of 2466. Even at a critically low hardness value of 16 mg/L as $CaCO_3$, aluminum toxicity effects in the Central Valley Region surface water (City of Auburn) shows the Total Aluminum EC_{50} value of >5160. Thus the toxic effects of aluminum in surface waters within the Central Valley Region is less toxic to resident species then in the five Arid West surface waters studied, and therefore, application of the revised NAWQC is conservative and protective of all species found in Central Valley Region surface waters that have similar conditions and water quality characteristics.

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

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

Manteca	*Oncorhynchus mykiss* (rainbow trout)	Surface Water/Effluent	124	>8600
Auburn	" "	Surface Water	16	>16500
Modesto	" "	Surface Water/Effluent	150-250	>34250
Yuba City	" "	Surface Water/Effluent	114/164	>8000

City of Auburn Site-Specific Aluminum Toxicity Study

As shown in the above table, the City of Auburn performed site-specific aluminum toxicity studies. The City of Auburn and the EID Deer Creek facilities are approximately ~~100~~20 miles apart, and are both located in the foothills surrounding the Sacramento Valley at approximately 800 to 900 feet above sea level. Therefore, Auburn Ravine and Deer Creek are expected to support ~~the same~~similar assemblages of aquatic life. However, Auburn Ravine pH and hardness characteristics are critically lower than Deer Creek water quality characteristics because pH in Auburn Ravine ranged from 6.3 to 7.4 and the hardness ranged between 10 mg/L and 110 mg/L as $CaCO_3$; in contrast, the minimum pH value measured in Deer Creek was 8.0 and hardness ranged between 71 mg/L and 290 mg/L as $CaCO_3$. Thus results of site-specific studies conducted on Auburn Ravine would represent conservative assumptions for Deer Creek since Deer Creek's water quality characteristics (pH and hardness) are higher, and therefore, aluminum is less toxic to aquatic life in Deer Creek. The results of the Auburn Ravine aluminum toxicity stud~~y~~ies, based on pH values from 6.6 to 7.5 and hardness concentrations from 16 to 38 mg/L, resulted in a calculated chronic aluminum water quality criterion of greater than 1079 µg/L. In comparison, using the same water quality characteristics in Auburn Ravine, the revised NAWQC (Table F-11) establishes an approximate chronic criterion of 287 µg/L, which is significantly less than 1079 µg/L. Therefore, application of the recalculated NAWQC criterion at Deer Creek is conservative, and thus, protective of aquatic life under all water quality conditions, minimum pH of 8.0 and hardness concentrations from 71 mg/L to 290 mg/L.

Reasonable Potential Analysis

As previously discussed in this section, the mean hardness value down stream of the discharge (Monitoring Location RSW-002) is 133 mg/L as $CaCO_3$, which is well within the Technical Report's model range of 1 to 220 mg of $CaCO_3$/L. Using the hardness value of 133 mg/L as $CaCO_3$, the revised NAWQC acute criterion is 2,891 µg/L and chronic criterion is 1,155 µg/L. ~~Thus, it is unlikely that application of the chronic criterion of 87 ug/L is necessary to protect aquatic life in Deer Creek and USEPA advises that a water effects ratio may be more appropriate to better reflect the actual toxicity of aluminum to aquatic organisms.~~ Therefore, the most stringent water quality criterion is the Secondary MCL - Consumer Acceptance Limit for aluminum of 200 ug/L. Effluent samples were analyzed for aluminum four times from 23 March 2006 through 21 August 2007; however, the Discharger submitted additional six aluminum effluent data analyses on 2 May 2011. The MEC was measured at 150 ug/L (March 2006) in the ~~first of this sample series~~10 analyses performed between February 2002 and August 2007. ~~In the three other samples,~~

~~aluminum concentrations were 25 ug/L, 21 ug/L, and <50 ug/L~~. Following the SIP methodology, in which the State Board determined the use of the MEC to be representative of the wastewater and receiving water and to be used in the RPA (Final Functional Equivalent Document for Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Phase 1 of the Inland Surface Waters Plan and the Enclosed Bays and Estuaries Plan) (approved 2 March 2000), pp. V-5 V-22.). ~~With an~~ The aluminum MEC of 150 ug/L~~, aluminum~~ in the discharge does not exhibit reasonable potential to exceed the revised NAWQC for the protection of aquatic life nor the Secondary MCL.[20] However, as required by the EID Court Order, staff conducted additional pollutant variability analys~~i~~es using the methods described in *Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row* (Basic Statistical Methods) and section 3.3.2 of EPA's *Technical Support Document for Water Quality-Based Toxics Control* (TSD). The projected MEC at 99.9% confidence interval using the Basic Statistical Methods is 201 µg/L. The projected MEC using the TSD approach with a 99% confidence interval is 450 µg/L~~this analysis in was 705 µg/L~~. The projected MECs from both approches ~~is~~ are below the revised NAWQC of 2,891 and 1,155 µg/L and the USEPA NAWQC acute criterion of 750 µg/L for protection of aquatic life. Therefore, aluminum in the discharge does not exhibit reasonable potential to exceed the narrative toxicity objective. However, the projected MECs from the Basic Statistical Methods and TSD approach exceed~~s~~ the Secondary MCL for protection of human health.

Water Quality Based Effluent Limitations (WQBELs)

Th~~us~~erefore, an effluent limitation~~s~~ for aluminum of 200 µg/L, based upon the Secondary MCL for the protection of the MUN beneficial use, ~~will not be~~is included in this Order ~~at this time~~. ~~This Order requires quarterly monitoring for aluminum along with priority pollutants and other constituents of concern during the third year of the permit term in order to further assess the potential to exceed water quality objectives.~~ For this specific situation, the frequency of the required compliance monitoring for aluminum has been reduced from monthly to quarterly.

[20] When CSPA submitted its original comments on the Permit, it did not comment on the reasonable potential methodology used for aluminum. Therefore, the original record in this matter did not address that issue. A reasonable potential analysis must account for "the variability of the pollutant or pollutant parameter in the effluent …". (40 CFR § 122.44(d)(ii).) The reasonable potential analysis is based on data the discharger submits with the renewal application. The samples themselves must be representative of the seasonal variation in the discharge. (40 CFR § 122.21(j)(4)(vi), (vii), (ix).) ~~The~~ Other than requiring representative data, the regulations do not establish any particular methodology for accounting for pollutant variability. The supporting documentation for the SIP demonstrates that the SIP RPA methodology accounts for pollutant variability, albeit in a different manner than the TSD does. (*Final Functional Equivalent Document for Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Phase 1 of the Inland Surface Waters Plan and the Enclosed Bays and Estuaries Plan)* (approved March 2, 2000), pp. V-5 – V-22.) EPA has reviewed the SIP on numerous occasions and has the opportunity to review all NPDES permits issued in California, including this one. (*NPDES Memorandum of Agreement Between USEPA and State Water Board* (1989).)

In USEPA's *Ambient Water Quality Criteria for Aluminum—1988* [EPA 440/5-86-008], USEPA states that "[a]*cid-soluble aluminum…is probably the best measurement at the present…*"; however, USEPA has not yet approved an acid-soluble test method for aluminum. Replacing the ICP/AES portion of the analytical procedure with ICP/MS would allow lower detection limits to be achieved. Based on USEPA's discussion of aluminum analytical methods, this Order allows the use of the alternate aluminum testing protocol described above to meet monitoring requirements.

f. **Ammonia.** Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia would violate the Basin Plan narrative toxicity objective. Applying 40 CFR 122.44(d)(1)(vi)(B), it is appropriate to use USEPA's Ambient National Water Quality Criteria for the Protection of Freshwater Aquatic Life for ammonia, which was developed to be protective of aquatic organisms.

USEPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, for total ammonia, recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. USEPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature.

The maximum permitted effluent pH is 8.5, as the site-specific Basin Plan objective for pH in the Deer Creek is the range of 6.5 to 8.5. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.5 was used to derive the acute criterion. The resulting acute criterion is 2.14 mg/L.

Since Deer Creek is an effluent dominated waterbody, effluent temperature and pH data from the Discharger's monthly monitoring reports from January 2005 through December 2007 were used to develop the chronic criteria. Using effluent data, the 30-day CCC was calculated for each day when temperature and pH were measured. The resulting lowest 99.9% 30-day CCC is 1.65 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

1.65 mg/L (as N), the 4-day average concentration that should not be exceeded is 4.13 mg/L (as N).

The Regional 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 1.1 ug/L and 2.1 ug/L, respectively, based on USEPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life (see Attachment F, Table F-5 for WQBEL calculations). Based on the sample results for the effluent, it appears the Discharger can meet this new limitation.

g. **Bis (2-ethylhexyl) phthalate.** Bis (2-ethylhexyl) phthalate is used primarily as one of several plasticizers in polyvinyl chloride (PVC) resins for fabricating flexible vinyl products. According to the Consumer Product Safety Commission, USEPA, and the Food and Drug Administration, these PVC resins are used to manufacture many products, including soft squeeze toys, balls, raincoats, adhesives, polymeric coatings, components of paper and paperboard, defoaming agents, animal glue, surface lubricants, and other products that must stay flexible and noninjurious for the lifetime of their use. The State MCL for bis (2-ethylhexyl) phthalate is 4 ug/L and the USEPA MCL is 6 ug/L. The NTR criterion for Human health protection for consumption of water and aquatic organisms is 1.8 ug/L and for consumption of aquatic organisms only is 5.9 ug/L.

The MEC for bis (2-ethylhexyl) phthalate was 2.1 ug/L, based on four samples collected between 23 March 2006 and 21 August 2007 (three samples were non-detect and the one detection was less than the reporting level of 2.5 ug/L). Upstream receiving water data were not available.

As described above, bis (2-ethylhexyl) phthalate is a commonly used plasticizer and is to some extent ubiquitous in the environment. Since bis (2-ethylhexyl) phthalate is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and sources of the detected bis (2-ethylhexyl) phthalate may be from plastics used for sampling or analytical equipment, it is

uncertain whether reasonable potential actually exists and therefore effluent limitations for bis (2-ethylhexyl) phthalate are not being established at this time. Instead of limitations, additional monitoring has been established for bis (2-ethylhexyl) phthalate; should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, then this Order may be reopened and modified by adding an appropriate effluent limitation.

h. **Copper.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. The criteria for copper are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The USEPA default conversion factors for copper in freshwater are 0.96 for both the acute and the chronic criteria. The default water effects ratio (WER) used for calculating criteria for copper is 1.

Based on the CTR criteria calculated using the default conversion factors and WER, the Regional Water Board found that effluent concentrations of copper demonstrated reasonable potential and effluent limitations were established in Order No. R5-2002-0210. During the term of Order No. R5-2002-0210, the Discharger conducted a WER study to determine the site-specific toxicity of copper in Deer Creek, which was submitted to the Regional Water Board in March 2005. The Regional Water Board staff evaluated the results of the study and determined that the results of the study are within the expected range for a WER for a municipal wastewater discharge, the study was conducted in accordance with applicable USEPA guidance (i.e., EPA-822-R-01-005 and EPA-821-R-02-012), and the results of the study are supported by data that generated scientifically defensible results. The study concluded that a site-specific WER of 9.7 for total recoverable copper and 8.6 for dissolved copper apply to the discharge. Based on this new information, effluent copper concentrations no longer demonstrated reasonable potential to exceed water quality criteria for copper. Therefore, the Regional Water Board adopted Amendment No. 2 to Order No. R5-2002-0210 on 25 January 2007 and effluent limitations for copper were removed.

Using the worst-case measured hardness from the effluent as described in section IV.C.2.b (42 mg/L as $CaCO_3$), the USEPA recommended dissolved-to-total translator, and the site-specific WER, the applicable chronic criterion (maximum 4-day average concentration) is 43 ug/L and the applicable acute criterion (maximum 1-hour average concentration) is 60 ug/L, as total recoverable.

The MEC for total copper was 15 ug/L, based 156 samples collected from January 2005 through December 2007. Effluent copper concentrations continue to remain below the applicable criteria. Therefore, the Regional Water Board finds that effluent copper concentrations do not demonstrate reasonable potential to exceed water quality criteria and effluent limitations have not been

included in this Order, consistent with Amendment No. 2 to Order No. R5-2002-0210.

i. **Chlorodibromomethane, Dichlorobromomethane, and Total Trihalomethanes.** Order No. R5-2002-0210 contained effluent limitations for chlorodibromomethane, dichlorobromomethane, and total trihalomethanes, which are the by-products of the chlorine disinfection process. The Discharger replaced the chlorine disinfection process with UV disinfection on 2 August 2006. Monitoring data for these parameters from 2 August 2006 through 31 December 2007 indicates that these parameters no longer exhibit reasonable potential to exceed water quality objectives. Because the Discharger has modified the treatment system, monitoring data no longer indicates reasonable potential to exceed water quality objectives. Additionally, this Order prohibits the use and discharge of chlorine and/or chlorine containing substances into the receiving water. Therefore, this Order does not retain the effluent limitations for chlorodibromomethane~~, dichlorobromomethane,~~ or total trihalomethanes.

In its brief in the matter of *California Sportfishing Protection Alliance v. Central Valley Water Board* (Sacramento County Superior Court, Case No. 34-2009-80000309), the Central Valley Water Board brought to the attention of the Court that an analytical sample collected on 9 April 2007 had a result of 0.58 µg/L for bromodichloromethane, which is above the human health criterion of 0.56 µg/L. After the court issued a Statement of Decision in the *CSPA* case, staff discovered that the reason this result was not included in the original reasonable potential analysis was that the sample was from the plant drain, not the effluent. The plant drain sample was collected in response to a power supply interruption that caused the recycled water pumps to stop abruptly and discharge the chlorinated recycled water to the plant drain. This event involved a discharge of already-chlorinated recycled water, not the treated effluent that is discharged pursuant to the Permit. Treated effluent is not chlorinated prior to discharge to Deer Creek. The spill was contained in the plant drain and pumped into the headworks of the plant. An effluent sample was collected the following day, 10 April 2007, and was non-detect for bromodichloromethane. Thus, the sample collected from the plant drain is not representative of plant effluent, and therefore, was appropriately not used in the original reasonable potential analysis. Unfortunately, the Discharger did not raise this issue during the litigation. Although representative data demonstrates that there is no reasonable potential, t~~T~~he Central Valley Water Board is including a bromodichloromethane effluent limit solely to comply with the EID Court Order. For this specific situation, the frequency of the required compliance monitoring for bromodichloromethane has been reduced from monthly to quarterly.

j. **Electrical Conductivity. (see Subsection for Salinity)**

k. **Mercury.** The current National Ambient Water Quality Criteria for protection of freshwater aquatic life, continuous concentration, for mercury is 0.77 ug/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 ug/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.
The maximum observed effluent mercury concentration was 0.00258 ug/L. Deer Creek, via the Cosumnes River and the Mokelumne River, discharges to the Delta waterways. The Delta waterways are listed as an impaired water body pursuant to section 303(d) of the Clean Water Act because of mercury. Mercury bioaccumulates in fish tissue and, therefore, discharge of mercury to the receiving water is likely to contribute to exceedances of the narrative toxicity objective and impact beneficial uses. The SIP recommends the Regional Water Board consider whether the mass loading of bioaccumulative pollutants should be limited in the interim to "representative current levels" pending development of applicable water quality standards or TMDL allocation. The intent is, at a minimum, to prevent further impairment while a TMDL for a particular bioaccumulative constituent is being developed. Any increase in loading of mercury to an already impaired water body would further degrade water quality. Because the Delta waterways are listed as an impaired water body for mercury, the discharge must not cause or contribute to increased mercury levels.

This Order contains a performance-based mass effluent limitation of 0.0024 lbs/month for mercury for the effluent discharged to the receiving water. This limitation is based on maintaining the mercury loading at the current level until a TMDL can be established and USEPA develops mercury standards that are protective of human health. The mass limitation was derived using the maximum observed effluent mercury concentration and the design average daily flow rate of the treatment plant (3.6 MGD):

(0.00000258 mg/L) * 3.6 MGD * 8.34 * [365 days/12 months] = 0.0024 lbs/month

If the Regional Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, this Order may be reopened to reevaluate the mercury mass loading limitation(s) and the need for a mercury offset program.

l. **Nitrite and Nitrate.** 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. The California DPH has adopted Primary MCLs at Title 22 of the California Code of Regulations (CCR), Table 64431-A, for the protection of

human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. Title 22 CCR, Table 64431-A, also includes a primary MCL of 10,000 µg/L for the sum of nitrate and nitrite, measured as nitrogen.

USEPA has developed a primary MCL and an MCL goal of 1,000 µg/L for nitrite (as nitrogen). For nitrate, USEPA has developed Drinking Water Standards (10,000 µg/L as Primary MCL) and Ambient Water Quality Criteria for protection of human health (10,000 µg/L for non-cancer health effects). Recent toxicity studies have indicated a possibility that nitrate is toxic to aquatic organisms.

Order No. R5-2002-0210 included an AMEL for the sum of nitrate and nitrite of 10 mg/L. The MEC for nitrate plus nitrite was 14.1 mg/L, based on 333 samples collected between January 2005 through December 2007. The maximum 30-day rolling average effluent concentration was 13.6 mg/L, which occurred in November 2006. Therefore a reasonable potential exists to exceed the applicable MCL for nitrate plus nitrite, and the AMEL for nitrate plus nitrite of 10 mg/L is retained from Order No. R5-2002-0210. This effluent limitation is also included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial use of municipal and domestic supply. The MEC occurred before recent plant upgrades were completed. The Discharger reported that the upgrades have improved nitrate plus nitrite removal to concentrations below the MEC, however, the monitoring reports do not yet contain enough data to show there is no reasonable potential to exceed water quality standards. The Discharger is confident that the upgrades will allow the discharge to meet the final effluent limitations and did not request a compliance schedule or interim limitation for nitrate plus nitrite.

Order No. R5-2002-0210 also included an AMEL for nitrite of 1 mg/L (21 lbs/day). The MEC for nitrite was 0.3 mg/L, based on 155 samples collected between January 2005 through December 2007. The maximum 30-day rolling average effluent concentration was 0.11 mg/L, which occurred in July 2006. The monitoring data collected for nitrite during the term of Order No. R5-2002-0210 indicated that there is no reasonable potential to exceed water quality objectives. Therefore, as described in section IV.D.3, nitrite effluent limitations have not been retained in this Order.

Monitoring data for nitrate is not available. Because nitrate and nitrite are generated as part of the wastewater treatment plant operations, weekly effluent monitoring is required to monitor the effectiveness of the tertiary treatment system to control these constituents.

m. **Pathogens**. The beneficial uses of Deer Creek and the Cosumnes River include municipal and domestic supply, water contact recreation, and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Regional Water Board finds that the

wastewater must be disinfected and adequately treated to prevent disease. The principal infectious agents (pathogens) that may be present in raw sewage may be classified into three broad groups: bacteria, parasites, and viruses. Tertiary treatment, consisting of chemical coagulation, sedimentation, and filtration, has been found to remove approximately 99.5% of viruses. Filtration is an effective means of reducing viruses and parasites from the waste stream. The wastewater must be treated to tertiary standards (filtered), or equivalent, to protect contact recreational and food crop irrigation uses.

The California 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 Regional Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by DPH's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. To protect human health, DPH recommends that discharges, to receiving streams with contact recreation beneficial uses and less than a 20:1 receiving water to effluent dilution ratio, be tertiary treated or equivalent.

Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DPH. In addition to coliform testing, an operational specification for turbidity has been included as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. The tertiary treatment process, or equivalent, is capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a

major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DPH recommended Title 22 disinfection criteria, weekly average specifications are impracticable for turbidity.

This Order retains effluent limitations for total coliform organisms and a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water when the receiving water to effluent dilution ratio is less than 20:1. The Regional Water Board previously considered the factors in CWC section 13241 in establishing these requirements in Order No. R5-2002-0210.

Municipal and domestic supply, agricultural irrigation, and body contact water recreation are beneficial uses of the receiving stream. Coliform limits are imposed to protect the beneficial uses of the receiving water, including public health through contact recreation and drinking water pathways. In a letter to the Regional Water Board dated 8 April 1999, the DPH indicated that they would consider wastewater discharged to water bodies with identified beneficial uses of irrigation or contact recreation and where the wastewater receives dilution of more than 20:1 to be adequately disinfected if the effluent coliform concentration does not exceed 23 MPN/100 mL as a 7-day median and if the effluent coliform concentration does not exceed 240 MPN/100 mL more than once in any 30-day period. Order No. R5-2002-0210 contained an effluent limitation of 23 MPN/100 mL as a 7-day median and an MDEL of 230 MPN/100 mL applicable when flow in Deer Creek provides a daily average stream flow-to-effluent dilution of 20:1. Based on a review of data submitted by the Discharger, receiving water dilution is usually less than 20:1, however these effluent limitations are retained in this Order as they are consistent with DPH recommendations.

n. **pH.** The Basin Plan includes a site-specific water quality objective for Deer Creek that the "*For Deer Creek, source to Cosumnes River, pH shall not be depressed below 6.5 nor raised above 8.5.*" Effluent limitations for pH are included in this Order based on this site-specific Basin Plan objective for pH.

o. **Salinity.** The discharge contains total dissolved solids (TDS), chloride, sulfate, and electrical conductivity (EC). These are water quality parameters that are indicative of the salinity of the water. Their presence in water can be growth limiting to certain agricultural crops and can affect the taste of water for human consumption. There are no USEPA water quality criteria for the protection of aquatic organisms for these constituents. The Basin Plan contains a chemical constituent objective that incorporates State MCLs, contains a narrative objective, and contains numeric water quality objectives for EC, TDS, sulfate, and chloride.

Table F-14. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal [1]	Secondary MCL [2]	Effluent	
			Average	Maximum
EC (umhos/cm)	Varies [3]	900, 1600, 2200	468	560
TDS (mg/L)	Varies	500, 1000, 1500	NA	NA
Sulfate (mg/L)	Varies	250, 500, 600	NA	NA
Chloride (mg/L)	Varies	250, 500, 600	NA	NA

[1] Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985).

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

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

NA= Not Available

i. **Electrical Conductivity (EC)**. The secondary MCL for EC is 900 umhos/cm as a recommended level, 1600 umhos/cm as an upper level, and 2200 umhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 umhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700 umhos/cm agricultural water quality goal is intended to prevent reduction in crop yield, i.e., a restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

The Discharger reported in their Salinity Minimization Plan for their El Dorado Hills Wastewater Treatment Plant that conversion to UV disinfection from sodium-based chlorination and dechlorination at the Facility in August 2006 reduced the effluent electrical conductivity by approximately 26 percent. A review of the Discharger's monitoring reports subsequent to the conversion to UV disinfection at the Facility until September 2008 shows an average effluent EC of 468 umhos/cm, with a range from 310 umhos/cm to 560 umhos/cm. The background receiving water EC averaged 430 umhos/cm in 156 sampling events collected by the Discharger from January 2005 through December 2007. These levels do not exceed the agricultural water quality goal of 700 umhos/cm.

ii. **Salinity Effluent Limitations.** Effluent limitations based on the MCL or the Basin Plan would likely require construction and operation of a reverse

osmosis treatment plant. The State Water Board, in Water Quality Order 2005-005 (for the City of Manteca), states, "*…the State Board takes official notice [pursuant to Title 23 of California Code of Regulations, Section 648.2] of the fact that operation of a large-scale reverse osmosis treatment plant would result in production of highly saline brine for which an acceptable method of disposal would have to be developed. Consequently, any decision that would require use of reverse osmosis to treat the City's municipal wastewater effluent on a large scale should involve thorough consideration of the expected environmental effects.*" The State Water Board states in that Order, "*Although the ultimate solution to southern Delta salinity problems have not yet been determined, previous actions establish that the State Board intended for permit limitations to play a limited role with respect to achieving compliance with the EC water quality objectives in the southern Delta.*" The State Water Board goes on to say, "*Construction and operation of reverse osmosis facilities to treat discharges…prior to implementation of other measures to reduce the salt load in the southern Delta, would not be a reasonable approach.*"

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

Based on the relatively low reported salinity, the discharge currently 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 Cosumnes River and eventually the Sacramento – San Joaquin Delta, of additional concern is the salt contribution to Delta waters.

The Antidegradation Policy (Resolution No. 68-16) requires that the Discharger implement best practicable treatment or control (BPTC) of its discharge. For salinity, the Regional Water Board considers an effluent salinity of an increment of 500 µmhos/cm over the salinity of the municipal water supply as representing BPTC for municipal wastewater treatment plants. The maximum annual average electrical conductivity concentration of the water supply was 70 µmhos/cm, which results in a BPTC limitation of 570 µmhos/cm. The maximum observed rolling annual average effluent

concentration observed from the Facility subsequent to conversion to UV disinfection in August 2006 was 473 µmhos/cm, which occurred during the period ending on 9 September 2008. As evidenced by the relatively low levels of salinity in the effluent, the Discharger has provided for BPTC of its discharge. Therefore, this Order establishes an interim annual average effluent limitation of 570 µmhos/cm for EC in order to ensure that the Discharger will continue to control the discharge of salinity. The interim limitation is applicable until the Regional Water Board completes development of a new salinity policy for the Central Valley or upon availability of additional information. This Order requires quarterly monitoring of EC and TDS of the Discharger's influent and water supply (see Attachment E sections III.A. and IX.B.).

As discussed above, the Discharger replaced sodium-based chlorination and dechlorination with UV disinfection, which resulted in a significant decrease in the effluent EC concentrations. In order to ensure that the Discharger has evaluated all opportunities to control the discharge of salinity, this Order includes a requirement to submit a salinity evaluation and minimization report.

p. **Settleable Solids.** Order No. R5-2002-0210 included numeric monthly average and daily maximum effluent limitations of 0.1 mL/L and 0.2 mL/L, respectively. Settleable solids was detected on 1 and 2 May 2007 at a concentration of 0.1 ml/L, based on 1,095 sampling events. These detections were below the applicable daily maximum limitation of 0.2 ml/L contained in Order No. R5-2002-0210. The monthly average for May 2007 was also below the monthly average limitation of 0.1 ml/L. Settleable solids was not detected in the remaining 1,093 sampling events with a detection limit of 0.1 ml/L. Therefore, monitoring data collected for settleable solids during the term of Order No. R5-2002-0210 indicates that there is no reasonable potential to exceed water quality objectives. Additionally, the Discharger has upgraded the Facility, which is a state-of-the-art wastewater treatment plant that does not rely on settleable solids monitoring information to determine the level of performance necessary to comply with secondary or tertiary level effluent limitations. Therefore, effluent limitations and monitoring requirements are not necessary to evaluate the performance of the Facility and, as described in section IV.D.3, settleable solids effluent limitations have not been retained in this Order.

q. **Toxicity.** See Section IV.C.5. of the Fact Sheet regarding whole effluent toxicity.

r. **Zinc.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. The criteria for zinc are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for zinc in freshwater are 0.978 for the acute criteria and 0.986 for the chronic criteria.

Using the worst-case effluent hardness of 42 mg/L as described in section IV.C.2.b of this Fact Sheet, the applicable chronic criterion (maximum 4-day average concentration) and the applicable acute criterion (maximum 1-hour average concentration) are both 57.5 ug/L, as total recoverable.

The MEC for total zinc was 85 ug/L, based on four samples collected between 13 March 2006 and 21 August 2007. Upstream receiving water data for zinc were unavailable. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for zinc. No dilution is allowed due to periods of no flow in the receiving water. An AMEL and MDEL for total zinc of 28.6 ug/L and 57.5 ug/L, respectively, are included in this Order based on CTR criteria for the protection of freshwater aquatic life (see Attachment F, Table F-6 for WQBEL calculations).

4. WQBEL Calculations

a. Effluent limitations for ammonia and zinc were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating effluent limitations for these parameters.

b. **Effluent Limitation Calculations.** In calculating effluent limitations based on aquatic life criteria, the effluent concentration allowances (ECAs) were calculated as follows:

$$ECA_{acute} = CMC + D(CMC-B) \quad when \ CMC > B$$
$$ECA_{chronic} = CCC + D(CCC-B) \quad when \ CCC > B$$

$$ECA_{acute} = CMC \quad when \ CMC \leq B \quad and\ when \ D = 0$$
$$ECA_{chronic} = CCC \quad when \ CCC \leq B$$

where:

ECA_{acute}	=	effluent concentration allowance for acute (one-hour average) toxicity criterion
$ECA_{chronic}$	=	effluent concentration allowance for chronic (four-day average) toxicity criterion
CMC	=	criteria maximum concentration (one-hour average)
CCC	=	criteria continuous concentration (four-day average, unless otherwise noted)
D	=	dilution credit
B	=	maximum receiving water concentration

For the human health, agriculture, or other long-term criteria/objectives, the ECA is calculated as follows:

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

where:

ECA_{HH}	=	effluent concentration allowance for human health, agriculture, or other long-term criterion/objective
HH	=	human health, agriculture, or other long-term criterion/objective
D	=	dilution credit
B	=	maximum receiving water concentration

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL).

AMELs based on human health criteria are set equal to the human health ECAs, and a statistical multiplier is 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 CMC to LTA
M_C = statistical multiplier converting CCC to LTA

c. WQBELs were calculated for ammonia and zinc as in Tables F-5 through F-6, below.

Table F-15. WQBEL Calculations for Ammonia

	Acute	4-Day Chronic	30-Day Chronic
Criteria (mg/L) [1]	2.14	4.13	1.65
Dilution Credit	No Dilution	No Dilution	No Dilution
ECA	2.14	4.13	1.65
ECA Multiplier	0.32	0.53	0.78
LTA [2]	0.68	2.18	1.29
AMEL Multiplier (95th%)	1.55	[3]	[3]
AMEL (mg/L)	**1.1**	[3]	[3]
MDEL Multiplier (99th%)	3.11	[3]	[3]
MDEL (mg/L)	**2.1**	[3]	[3]

[1] USEPA Ambient Water Quality Criteria.
[2] LTA developed based on Acute and Chronic ECA Multipliers calculated at 99th percentile level per sections 5.4.1 and 5.5.4 of TSD.
[3] Limitations based on acute LTA ($LTA_{acute} < LTA_{4\text{-day chronic}} < LTA_{30\text{-day chronic}}$).

Table F-16. WQBEL Calculations for Bromodichloromethane

	Human Health
Criteria (µg/L) [1]	0.56
Dilution Credit	No Dilution
ECA	0.56
AMEL (µg/L)	**0.56**
MDEL Multiplier (99th%)	1.41
MDEL (µg/L)	**0.80**

1 USEPA Ambient Water Quality Criteria.
2 LTA developed based on Acute and Chronic ECA Multipliers calculated at 99th percentile level per sections 5.4.1 and 5.5.4 of TSD.
3 Limitations based on acute LTA ($LTA_{acute} < LTA_{4\text{-day chronic}} < LTA_{30\text{-day chronic}}$).

Table F-~~6~~17. WQBEL Calculations for Zinc

	Acute	Chronic
Criteria, dissolved (ug/L) (1)	56.2	56.7
Dilution Credit	No Dilution	No Dilution
Translator (2)	0.978	0.986
ECA, total recoverable (3)	57.45	57.45
ECA Multiplier (4)	0.321	0.527
LTA	18.45	30.30
AMEL Multiplier (95th%) (5)(6)	1.55	(8)
AMEL (ug/L)	**28.6**	(8)
MDEL Multiplier (99th%) (7)	3.11	(8)
MDEL (ug/L)	**57.5**	(8)

1 CTR aquatic life criteria, based on a hardness of 42 mg/L as $CaCO_3$.
2 USEPA Translator used as default.
3 ECA calculated per section 1.4.B, Step 2 of SIP. This does not allow for the consideration of dilution.
4 Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
5 Assumes sampling frequency n=>4.
6 The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
7 The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
8 Limitations based on acute LTA (Acute LTA < Chronic LTA)

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

Table F-~~7~~18. Summary of Water Quality-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
pH	standard units	--	--	--	6.5	8.5

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Priority Pollutants						
Mercury, Total Recoverable	lbs/month	0.0024 [1]	--	--	--	--
Zinc, Total Recoverable	ug/L	28.6	--	57.5	--	--
Aluminum, Total Recoverable	µg/L	200 [2]	--	--	--	--
Bromodichloro-methane	µg/L	0.56		0.80		
Non-Conventional Pollutants						
Acute Toxicity	% Survival	--	--	[23]	--	--
Ammonia Nitrogen, Total (as N)	mg/L	1.1	--	2.1	--	--
	lbs/day [34]	33	--	63	--	--
Chronic Toxicity	--	--	--	[45]		
Nitrate Plus Nitrite (as N)	mg/L	10	--	--	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2 [56, 67]	23 [56, 78]	--	240 [56]
		--	23 [67, 89]	230 [89]	--	--

[1] Applied as a total monthly mass loading limitation.
[2] Annual average
[23] Survival of aquatic organisms in 96-hour acute bioassays of undiluted waste shall be no less than:
Minimum for any one bioassay ---------- 70%
Median for any three or more consecutive bioassays ---------- 90%
[34] Based on an average dry weather flow of 3.6 MGD.
[45] There shall be no chronic toxicity in the effluent discharge.
[56] Applies when flow in Deer Creek provides less than a daily average stream flow-to-effluent dilution of 20:1.
[67] Applied as a 7-day median effluent limitation.
[78] Effluent total coliform organisms are not to exceed 23 MPN/100 mL more than once in any 30-day period.
[89] Applies when flow in Deer Creek provides a daily average stream flow-to-effluent dilution of 20:1.

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 III-8) 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, and consistent with Order No. R5-2005-0028, effluent limitations for acute toxicity have been included in this Order as follows:

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

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

b. **Chronic Aquatic Toxicity.** The Discharger performed 12 quarterly whole effluent chronic toxicity tests with five different test endpoints for a total of 60 bioassay results for the period January 2005 through December 2007. Of those chronic toxicity test results, the following table summarizes the bioassay results when the endpoint was greater than 1 chronic toxicity unit (TUc).

Table F-~~8~~19. Summary of Chronic Aquatic Toxicity Results

Date	Species	Test Endpoint	Result (TUc)
23 October 2007	*Pimephales promelas*	Survival	8
23 October 2007	*Pimephales promelas*	Growth	8
23 October 2007	*Ceriodaphnia dubia*	Reproduction	8
20 November 2007	*Pimephales promelas*	Survival	1.3
20 November 2007	*Pimephales promelas*	Growth	1.3
20 November 2007	*Ceriodaphnia dubia*	Reproduction	8
15 January 2008	*Pimephales promelas*	Survival	2
15 January 2008	*Pimephales promelas*	Growth	2

Based on whole effluent chronic toxicity testing performed by the Discharger from January 2005 through December 2007, the discharge could cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective if there is not sufficient dilution in Deer Creek.

A narrative effluent limit does not allow the effluent limit to cause or contribute to chronic toxicity in the receiving water.

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[21] that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012*, "In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. However, the State Water Board found in WQO 2003-012 that, while it is not appropriate to include final numeric effluent limitations for chronic toxicity in NPDES permits for POTWs, permits must contain a narrative effluent limitation, numeric benchmarks for triggering accelerated monitoring, rigorous Toxicity Reduction Evaluation (TRE)/Toxicity Identification Evaluation (TIE) conditions, and a reopener to establish numeric effluent limitations for either chronic toxicity or the chemical(s) causing toxicity. Therefore, this Order includes a narrative effluent limitation for chronic toxicity and requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k). This Order also includes a reopener that allows the Regional Water Board to reopen the permit and include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE.

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

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

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

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

Title 40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Except for ammonia, an oxygen-demanding substance, for those pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based (i.e., zinc and nitrate plus nitrite), mass-based effluent limitations are not included in this Order. Mass-based effluent limitations for ammonia, BOD_5, and TSS were calculated based upon the permitted average dry weather flow allowed in sections IV.A.1.a.vi and IV.B.1.b.vi of the Limitations and Discharge Requirements.
The mass-based performance effluent limitations for mercury were based upon the permitted average dry weather flow allowed in sections IV.A.1.a.vi and IV.B.1.b.vi of the Limitations and Discharge Requirements.

2. Averaging Periods for Effluent Limitations

Title 40 CFR 122.45 (d) requires average weekly and average monthly discharge limitations for publicly owned treatment works (POTWs) unless impracticable. However, for toxic pollutants and pollutant parameters in water quality permitting, the USEPA recommends the use of a maximum daily effluent limitation in lieu of average weekly effluent limitations for two reasons. "*First, the basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge's potential for causing acute toxic effects would be missed.*" (TSD, pg. 96) This Order utilizes a maximum daily effluent limitation in lieu of or in addition to average weekly effluent limitations for ammonia and zinc as

recommended by the TSD for the achievement of water quality standards and for the protection of the beneficial uses of the receiving stream. DPH recommends that an AMEL is more appropriate for pollutants such as nitrate and nitrite for which the MCL is designed to be protective of acute health effects. Therefore, an AMEL has been applied for nitrate plus nitrite. Furthermore, for BOD, TSS, pH, 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 Attachment F, Section IV.C.3, above.

3. Satisfaction of Anti-Backsliding Requirements

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

Order No. R5-2002-0210 contained effluent limitations for turbidity. The limitations were solely an operational check to ensure the treatment system was functioning properly and could meet the limits for total suspended solids and total coliform organisms. The effluent limitations were not intended to regulate turbidity in the receiving water. Rather, turbidity is an operational parameter to determine proper system functioning and not a WQBEL.

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

The proposed revised operational specifications for turbidity are the same as the effluent limitations in Order No. R5-2002-0210. (See Special Provisions VI.C.4.c. UV System Operating Specifications for turbidity specifications.) This Order moves the point of compliance from the final effluent after disinfection to an internal compliance point prior to disinfection. These revisions are consistent with state regulations implementing recycled water requirements.

The revision in the turbidity limitation is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16 because this Order imposes equivalent or more stringent requirements than Order No. R5-2002-0210 and therefore does not allow degradation.

Some effluent limitations in this Order are less stringent that those in Order No. R5-2002-0210. As discussed below this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

Order No. R5-2002-0210 included effluent limitations for chlorodibromomethane, dichlorobromomethane, and total trihalomethanes. At the time of issuance, the Discharger was unable to comply with these limitations. These constituents were identified as chlorination by-products. The Discharger replaced chlorination with UV disinfection on 2 August 2006, thus eliminating the primary source of the trihalomethanes. On 20 October 2006, the Discharger submitted a letter to the Regional Water Board stating that chlorine is not used anywhere in the treatment process at the Facility. Therefore, the Regional Water Board adopted Amendment No. 2 to Order No. R5-2002-0210, which discontinued the effluent limitations for chlorine residual and contained a prohibition of the use of chlorine and/or chlorine containing substances within the treatment process and discharge of chlorine and/or chlorine containing substances into the receiving water. Because the Discharger has modified the treatment system, monitoring data no longer indicates reasonable potential to exceed water quality objectives, and because Amendment No. 2 to Order No. R5-2002-0210 established a prohibition of the use of chlorine and/or chlorine containing substances into the receiving water, this Order does not retain the effluent limitations for chlorodibromomethane, ~~dichlorobromomethane,~~ and total trihalomethanes. Therefore, this new information indicates that removal of the effluent limitation will not result in an exceedance of a water quality standard.

Order No. R5-2002-0210 established effluent limitations for settleable solids and nitrite. As discussed in section IV.C.3.p of this Fact Sheet, monitoring data over the term of Order No. R5-2002-0210 indicated that concentrations of settleable solids in the effluent from Discharge Point No. 001 no longer exhibit reasonable potential to cause or contribute to an exceedance of a water quality objective and effluent limitations and effluent limitations and monitoring requirements for settleable solids are not necessary to evaluate the performance of the Facility. Monitoring data also indicated that concentrations of nitrite were below the applicable effluent limitations and water quality objectives. Additionally, the detection limits for settleable solids and nitrite were all below the applicable water quality objectives. Therefore, the discharge no longer exhibits reasonable potential to exceed water quality objectives for settleable solids or nitrite and the effluent limitations are not retained in this Order. The monitoring data submitted by the Facility is considered new information by the Regional Water Board.

The removal of limitations for chlorodibromomethane, dichlorobromomethane, total trihalomethanes, settleable solids, and nitrite is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Any impact on existing water quality will be insignificant. This Order retains the prohibition of the use and discharge of chlorine and/or chlorine containing substances. Because nitrate and nitrite are generated as part of the wastewater treatment plant operations, weekly effluent monitoring is required to monitor the effectiveness of the tertiary treatment system to control these constituents.

4. Satisfaction of Antidegradation Policy

Upon adoption of Order No. R5-2002-0210, the Facility's flow was rated at 2.5 MGD (average dry weather flow). The Discharger was commencing a project to

increase the capacity to provide tertiary treatment for an average dry weather flow to 3.6 MGD as well as peak wet weather discharges. Order No. R5-2002-0210 specified that once the expansion of tertiary treatment capacity was complete and certified by a Registered Engineer, the capacity would be rated at 3.6 MGD and mass-based limitations would be calculated based on this flow as well. The Discharger provided certification on 4 April 2004. The Regional Water Board found in Order No. R5-2002-0210 that "*The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 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*." Therefore, an increase in the permitted average dry weather discharge flow was authorized under Order No. R5-2002-0210.

The permitted average dry weather flow of 3.6 MGD is retained from Order No. R5-2002-0210 and thus an increase in discharge flow is not authorized by this Order. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 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.

Summary of Final Effluent Limitations
Discharge Point No. 001

Table F-209. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Average Dry Weather Flow	MGD	3.6	--	--	--	--
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10 [1]	15 [1]	30 [1]	--	--
		30 [2]	45 [2]	60 [2]	--	--
	lbs/day [3]	300 [1]	450 [1]	901 [1]	--	--
		901 [2]	1,351 [2]	1,801 [2]	--	--
	% Removal	85	--	--	--	--
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids	mg/L	10 [1]	15 [1]	30 [1]	--	--
		30 [2]	45 [2]	60 [2]	--	--
	lbs/day[3]	300 [1]	450 [1]	901 [1]	--	--
		901 [2]	1,351 [2]	1,801 [2]	--	--
	% Removal	85	--	--	--	--
Priority Pollutants						
Mercury, Total Recoverable	lbs/month	0.0024 [4]	--	--	--	--
Zinc, Total Recoverable	ug/L	28.6	--	57.5	--	--
Aluminum, Total Recoverable	µg/L	200 [5]	--	--	--	--
Bromodichloromethane	µg/L	0.56	--	0.79	--	--
Non-Conventional Pollutants						
Acute Toxicity	% Survival	--	--	~~5~~6	--	--
Ammonia Nitrogen, Total (as N)	mg/L	1.1	--	2.1	--	--
	lbs/day[3]	33	--	63	--	--
Chronic Toxicity	--	--	--	~~6~~7	--	--
Nitrate Plus Nitrite (as N)	mg/L	10	--	--	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2 [1, ~~7~~8]	23 [1, ~~8~~9]	--	240 [1]
		--	23 [2, ~~7~~8]	230 [2]	--	--

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

[1] Applies when flow in Deer Creek provides less than a daily average stream flow-to-effluent dilution of 20:1.
[2] Applies when flow in Deer Creek provides a daily average stream flow-to-effluent dilution of 20:1.
[3] Based on an average dry weather flow of 3.6 MGD.
[4] Applied as a total monthly mass loading limitation.
[5] Annual average
[~~5~~6] Survival of aquatic organisms in 96-hour acute bioassays of undiluted waste shall be no less than:
Minimum for any one bioassay----------70%
Median for any three or more consecutive bioassays----------90%
[~~6~~7] There shall be no chronic toxicity in the effluent discharge.
[~~7~~8] Applied as a 7-day median effluent limitation.
[~~8~~9] Effluent total coliform organisms are not to exceed 23 MPN/100 mL more than once in any 30-day period.

E. Interim Effluent Limitations

1. **Electrical Conductivity**. This Order includes an interim effluent limitation for electrical conductivity of 570 µmhos/cm as an annual average, which represents the maximum annual average electrical conductivity concentration of the water supply plus an increment of 500 µmhos/cm.

F. Land Discharge Specifications

[Not Applicable]

G. Reclamation Specifications

On 22 June 1995, the State Water Board adopted Water Rights Order No. WR95-9, which established that the Discharger is required to maintain specified quantities of discharge to Deer Creek. Water Rights Order No. WR95-9 is a condition of operation of the Facility. Therefore, this Order requires the Discharger to report influent, effluent, and reclamation flows in order to validate compliance with the water rights order.

Treated wastewater discharged for reclamation is regulated under separate waste discharge requirements and must meet the requirements of California Code of Regulations, Title 22.

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 Regional Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that "*[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses*." The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains Receiving Surface Water Limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

2. **Dissolved Oxygen.** The Cosumnes River has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. The California Department of Fish and Game (DFG) has verified that the fish species present in Deer Creek and downstream waters are consistent with both cold and warm water fisheries, that there is a potential for anadromous fish migration necessitating a cold water designation and that trout, a cold water species, have been found both upstream and downstream of the Facility. Since the beneficial use of COLD does apply to Deer Creek as a tributary of the Cosumnes River, a receiving water limitation of 7.0 mg/L for dissolved oxygen was included in this Order. For surface water bodies outside of the Delta, the Basin Plan includes the water quality objective that "…*the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation.*" This objective was included as a receiving water limitation in this Order.

3. **pH.** The Regional Water Board adopted the Site-Specific Water Quality Objectives for pH and Turbidity for Deer Creek in El Dorado and Sacramento Counties, Resolution No. R5-2002-0127, on 19 July 2002. The Basin Plan amendment was approved by the State Water Board, the Office of Administrative Law, and USEPA

and became effective on 21 October 2003. The Basin Plan was amended to include a site specific pH objective for Deer Creek, which states "*For Deer Creek, source to Cosumnes River, pH shall not be depressed below 6.5 nor raised above 8.5.*"

The Regional Water Board adopted Resolution No. R5-2005-0028 (Amendment No. 1) on 17 March 2005, which amended Order No. R5-2002-0210 to include receiving water limitations based on objectives set forth by the Basin Plan amendment. The site-specific objectives contained in the Basin Plan are included in this Order as receiving water limitations, consistent with Amendment No. 1.

4. **Temperature.** The Regional Water Board adopted the Site-Specific Temperature Objective for Deer Creek in El Dorado and Sacramento Counties, Resolution No. R5-2005-0119, on 16 September 2005. The Basin Plan amendment was approved by the State Water Board, the Office of Administrative Law, and USEPA and became effective on 17 May 2006. The Basin Plan was amended to include a site specific temperature objective for Deer Creek, which states, "*For Deer Creek, source to Cosumnes River, temperature changes due to controllable factors shall not cause creek temperatures to exceed the objectives specified in Table III-4A.*" The objectives contained in Table III-4A are included in the following table.

Table F-~~10~~21. Deer Creek Temperature Objectives

Date	Daily Maximum (ºF) [1]	Monthly Average (ºF) [2]
January and February	63	58
March	65	60
April	71	64
May	77	68
June	81	74
July through September	81	77
October	77	72
November	73	65
December	65	58

[1] Maximum not to be exceeded.
[2] Defined as a calendar month average.

The Regional Water Board adopted Amendment No. 2 on 25 January 2007, which amended Order No. R5-2002-0210 to include receiving water limitations based on the objectives set forth by the Basin Plan amendment. The objectives contained in Table III-4A of the Basin Plan are included in this Order as receiving water limitations, consistent with Amendment No. 2.

5. **Turbidity.** The Regional Water Board adopted the Site-Specific Water Quality Objectives for pH and Turbidity for Deer Creek in El Dorado and Sacramento Counties, Resolution No. R5-2002-0127, on 19 July 2002. The Basin Plan amendment was approved by the State Water Board, the Office of Administrative Law, and USEPA and became effective on 21 October 2003. The Basin Plan was amended to include a site specific turbidity objective for Deer Creek which states,

- "*When the dilution ratio for discharges is less than 20:1 and where natural turbidity is less than 1 Nephelometric Turbidity Unit (NTU), discharges shall not cause the receiving water daily average turbidity to exceed 2 NTUs or daily maximum turbidity to exceed 5 NTUs. Where natural turbidity is between 1 and 5 NTUs, dischargers shall not cause receiving water daily average turbidity to increase more than 1 NTU or daily maximum turbidity to exceed 5 NTUs*

- *Where discharge dilution ratio is greater than 20:1 or greater, or where natural turbidity is greater than 5 NTUs, the general turbidity objectives shall apply.*"

The Regional Water Board adopted Resolution No. R5-2005-0028 (Amendment No. 1) on 17 March 2005, which amended Order No. R5-2002-0210 to include receiving water limitations based on objectives set forth by the Basin Plan amendment. The site-specific objectives contained in the Basin Plan are included in this Order as receiving water limitations, consistent with Amendment No. 1.

B. Groundwater

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

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

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

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), 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 MRP for this 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). Monitoring requirements for flow, BOD_5, and TSS are retained from Order No. R5-2002-0210.

2. For salinity, the Regional Water Board is limiting effluent salinity of municipal wastewater treatment plants to an increment of 500 umhos/cm over the electrical conductivity of the municipal water supply as representing BPTC. This Order requires quarterly monitoring of EC and TDS of the Discharger's influent and water supply to continue to characterize contributions of salinity to the Facility.

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.

2. Effluent monitoring requirements for flow, pH, temperature, BOD_5, TSS, total coliform organisms, ammonia, electrical conductivity, and hardness have been retained from Order No. R5-2002-0210 to characterize the effluent and determine compliance with applicable effluent limitations.

   The Court required the Central Valley Water Board to "consider whether it is legally and factually possible for the District to comply with the requirements of Water Code section 13176 either (i) by having its on-site laboratory re-certified or (ii) by having certified laboratory personnel travel to the District's facility and conduct the testing on site." California Water Code section 13176 requires that the analysis of water qualify be performed by a laboratory that has accreditation or certification under the Health and Safety Code. The Central Valley Water Board cannot specify the Discharger's manner of compliance with section 13176. (Wat. Code § 13360.) Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that that apply to NPDES permits pursuant to the Clean Water Act. (Wat. Code §§ 13370, subd. (c), 13372,

13377.) The holding time requirements are 15 minutes for pH, and immediate analysis for temperature. (40 C.F.R. § 136.3(e), Table II (lines 28 and 69, respectively).)

The Environmental Laboratory Accreditation Program (ELAP) certification for the lab located at the El Dorado Hills WWTP was transferred to Sierra Foothill Laboratory in 2010, where Sierra Foothill Laboratory entered into a 3-year contract in April 2010 with the El Dorado Irrigation District for sole use of the onsite laboratory. The Central Valley Water Board does not have the authority to require this or any third-party laboratory to be certified. Furthermore, even if the laboratory was certified for pH and temperature analysis, it is approximately 10 mile away, which is at minimum a 14 minute drive from Deer Creek WWTP to the laboratory at El Dorado Hills WWTP, which does not account for sample collection time. Therefore it is factually not possible to transport samples from the sample location to the El Dorado Hills WWTP laboratory within the 15 minute hold time for a pH sample and the near-immediate analysis for temperature samples.

There are four private certified labs with mobile units located within the vicinity of the District's facilities, which includes the private contract lab now located at the El Dorado Hill WWTP. However, none of the labs' mobile units are currently certified for pH and temperature nor provide this service. However, the Central Valley Water Board cannot legally require these labs to be ELAP certified for on-site monitoring and analysis of pH and temperature.

Additionally, it is not legally possible for the Central Valley Water Board to specify the manner of complying with section 13176 by requiring the Discharger to have an on-site laboratory or certification for specific constituents. Sierra Foothill Laboratory is not ELAP certified for pH or temperature and therefore is not available to the Discharger for contracting out for pH and temperature sample analysis as a certified laboratory. Based on conversations with three of the four private labs, it would be possible to acquire certification, but the monitoring fees are approximately $100 per hour, which includes travel time to and from the monitoring locations. Thus, the cost to the District ranges from $51,000 to $81,000 per year for each Facility.

The District provided information that the on-site private lab at the El Dorado Hills Wastewater Treatment Plant can conduct the in-situ monitoring for an approximate annual cost of $20,000 per facility; however, the District's current budget is $19.661 million per year after recent local sewer fee increases, and the 2012 budget is projected at $20.362 million per year (www.eid.org/2011-2012_OpBudget.pdf). The District states that they have reduced staff since 2008 by 34.8%, and increased sewerage fees up to 15%. The District states that it is not economically (factually) possible to pay these costs.

A certified laboratory would have to send out its personnel and lab equipment to collect an onsite sample for pH and temperature. In this instance, it is not possible for the sample to be returned to a certified lab for proper analysis. In

addition, it is not legally or factually possible to require ELAP certification of individual personnel or equipment not affiliated with a certified laboratory, because ELAP only certifies laboratories.

ELAP certification of a laboratory does not improve the data quality because the quality of the data is related to maintaining manufacturer specified calibration procedures, maintenance procedures, proper use of the equipment and proper Quality Assurance/Quality Control (QA/QC) methods. In Section D, Standard Provisions, the proposed permit requires QA/QC requirements for the Discharger to maintain equipment calibration and maintenance procedures on record for the past 5 years, which assures reliable results and maintenance of the equipment to manufacturer's standards. The Discharger presently has a QA/QC program in place where all operators are trained on proper calibration and use of the equipment. Per USEPA 40 CFR 136, methods 4500 H and B can be performed in the field with a handheld pH meter with a combination electrode that is calibrated with at least two standards that bracket the pH samples. Therefore, based on the above discussion, it is not legally or factually possible for the Regional Board to require pH or temperature analysis in accordance with California Water Code section 13176.

3. Nitrate and nitrite are generated as part of the wastewater treatment plant operations. Additionally, effluent limitations for nitrate plus nitrite have been retained from Order No. R5-2002-021-. Therefore, weekly effluent monitoring is required to monitor the effectiveness of the tertiary treatment system to control these constituents.

4. As discussed in section IV.C.3 of this Fact Sheet, it is unlikely that application of the chronic criterion for aluminum of 87 ug/L is necessary to protect aquatic life in Deer Creek. In the absence of an applicable chronic criterion, this Order requires monitoring for aluminum along with priority pollutants and other constituents of concern quarterly during the third year of the permit term to assess the potential to exceed other applicable water quality objectives.

5. As discussed in section IV.C.3 of this Fact Sheet, although there were detections of bis (2-ethylhexyl) phthalate, due to concerns with contamination from plastics in monitoring equipment, it is uncertain whether bis (2-ethylhexyl) phthalate is truly present in the effluent discharge. To collect the data necessary to determine the prevalence in the effluent, this Order requires monthly monitoring for bis (2-ethylhexyl) phthalate.

6. Order No. R5-2002-0210 contained effluent limitations and monitoring requirements for chlorodibromomethane, dichlorobromomethane, and total trihalomethanes. Order No. R5-2002-0210 also contained monitoring requirements for chloroform. The Discharger has replaced the chlorine disinfection process with UV disinfection and monitoring data no longer indicates reasonable potential to exceed water quality objectives. Furthermore, Amendment No. 2 to Order No. R5-2002-0210 established a prohibition of the

use of chlorine and/or chlorine containing substances into the receiving water. Therefore this Order does not retain the monitoring requirements for chlorodibromomethane, dichlorobromomethane, total trihalomethanes, or chloroform.

7. Monitoring data collected over the term of Order No. R5-2002-0210 for copper and settleable solids did not demonstrate reasonable potential to exceed water quality objectives. Thus, specific monitoring requirements for these parameters have not been retained from Order No. R5-2002-0210.

8. Monitoring data collected over the term of Order No. R5-2002-0210 for zinc indicates reasonable potential to exceed water quality criteria. Therefore, monthly effluent monitoring for zinc has been established in this Order.

9. The Sacramento – San Joaquin Delta downstream of the discharge is on the 303(d) list for mercury. The Regional Water Board is proposing to adopt a TMDL for total mercury and/or methylmercury. Therefore, this Order establishes monthly monitoring for total mercury and methylmercury in order to collect data on the presence of mercury in the effluent.

10. This Order includes operational specifications for turbidity that are the same as the effluent limitations in Order No. R5-2002-0210. (See Special Provisions VI.C.4.c. UV System Operating Specifications for turbidity specifications.) This Order moves the point of compliance from the final effluent after disinfection to an internal compliance point prior to disinfection. Therefore, monitoring for turbidity is required at Monitoring Location UVS-001 and effluent monitoring requirements have not been retained in this Order.

11. Priority pollutant data for the effluent has been provided by the Discharger over the term of Order No. R5-2002-0210, and was used to conduct a meaningful reasonable potential analysis. In accordance with Section 1.3 of the SIP, periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. Periodic priority pollutant monitoring is also necessary to provide data that would account for changes in the service population. The monitoring frequency for priority pollutants has been reduced from semi-annually to quarterly during the third year of the permit term because the data provided during the term of Order No. R5-2002-0210 indicated no reasonable potential for those pollutants for which no WQBELs were established. See Attachment I for more detailed requirements related to performing the priority pollutant study.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Quarterly 96-hour bioassay testing, consistent with Order No. R5-2002-0210, is required to demonstrate compliance with the effluent limitations for acute toxicity.

2. **Chronic Toxicity.** Quarterly chronic whole effluent toxicity testing, consistent with Order No. R5-2002-0210, is required to demonstrate compliance with the Basin Plan's narrative toxicity objective and the narrative effluent limitation contained in this Order.

D. Reclamation Monitoring

1. As discussed in section IV.G of this Fact Sheet, this Order requires the Discharger to report influent, effluent, and reclamation flows in order to validate compliance with Water Rights Order No. WR95-9. Therefore, this Order requires continuous flow monitoring of recycled water, consistent with the requirements of Order No. R5-2002-0210.

E. Receiving Water Monitoring

1. Surface Water

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

b. Receiving water monitoring requirements for flow, dissolved oxygen, electrical conductivity, hardness, pH, temperature, turbidity, and radionuclides have been retained from Order No. R5-2002-0210. See previous section B.2. regarding the Court requirement for pH and temperature monitoring.

c. Quarterly monitoring during the third year of the permit term for priority pollutants and other constituents of concern is required to collect the necessary data to determine reasonable potential as required in section 1.2 of the SIP. The hardness (as $CaCO_3$) of the upstream receiving water shall also be monitoring concurrently with the priority pollutants as well as pH to ensure the water quality criteria/objectives are correctly adjusted for the receiving water when determining reasonable potential as specified in section 1.3 of the SIP. See Attachment I for more detailed requirements related to performing the priority pollutant study.

F. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements (Special Provisions VI.C.6.a.). Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

2. Water Supply Monitoring

The Antidegradation Policy (Resolution No. 68-16) requires that the Discharger implement best practicable treatment or control (BPTC) of its discharge. For salinity, the Regional Water Board is limiting effluent salinity of municipal wastewater treatment plants to an increment of 500 umhos/cm over the electrical conductivity of the municipal water supply as representing BPTC. This Order requires the Discharger to monitor quarterly for effluent conductivity and total dissolved solids in the municipal water supply to continue to characterize contributions of salinity to the Facility.

3. **UV Disinfection System Monitoring**

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

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

Section 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. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 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 Regional 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 Regional 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, with the exception of copper. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for inorganic constituents (i.e., zinc). If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

d. **Salinity.** This Order requires weekly effluent monitoring of for electrical conductivity. The Regional Water Board may reopen this Order to include a final effluent limitations upon the availability of new information or if the Regional Water Board completes development of a new salinity policy for the Central Valley.

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 III-8.00.) Based on quarterly whole effluent chronic toxicity testing performed by the Discharger from January 2005 through December 2007, the discharge has reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

This provision requires the Discharger to develop a Toxicity Reduction Evaluation (TRE) Work Plan in accordance with USEPA guidance. In addition, the provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity has been demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of > 1 TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not

allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits a pattern of 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 a pattern of toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests every 2 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 a pattern 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 Work Plan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

- *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants,* EPA/833B-99/002, August 1999.
- Generalized Methodology for Conducting Industrial TREs, EPA/600/2-88/070, April 1989.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures,* Second Edition, EPA 600/6-91/005F, February 1991.
- *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA 600/6-91/005F, May 1992.

- *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting acute and Chronic Toxicity,* Second Edition, EPA 600/R-92/080, September 1993.

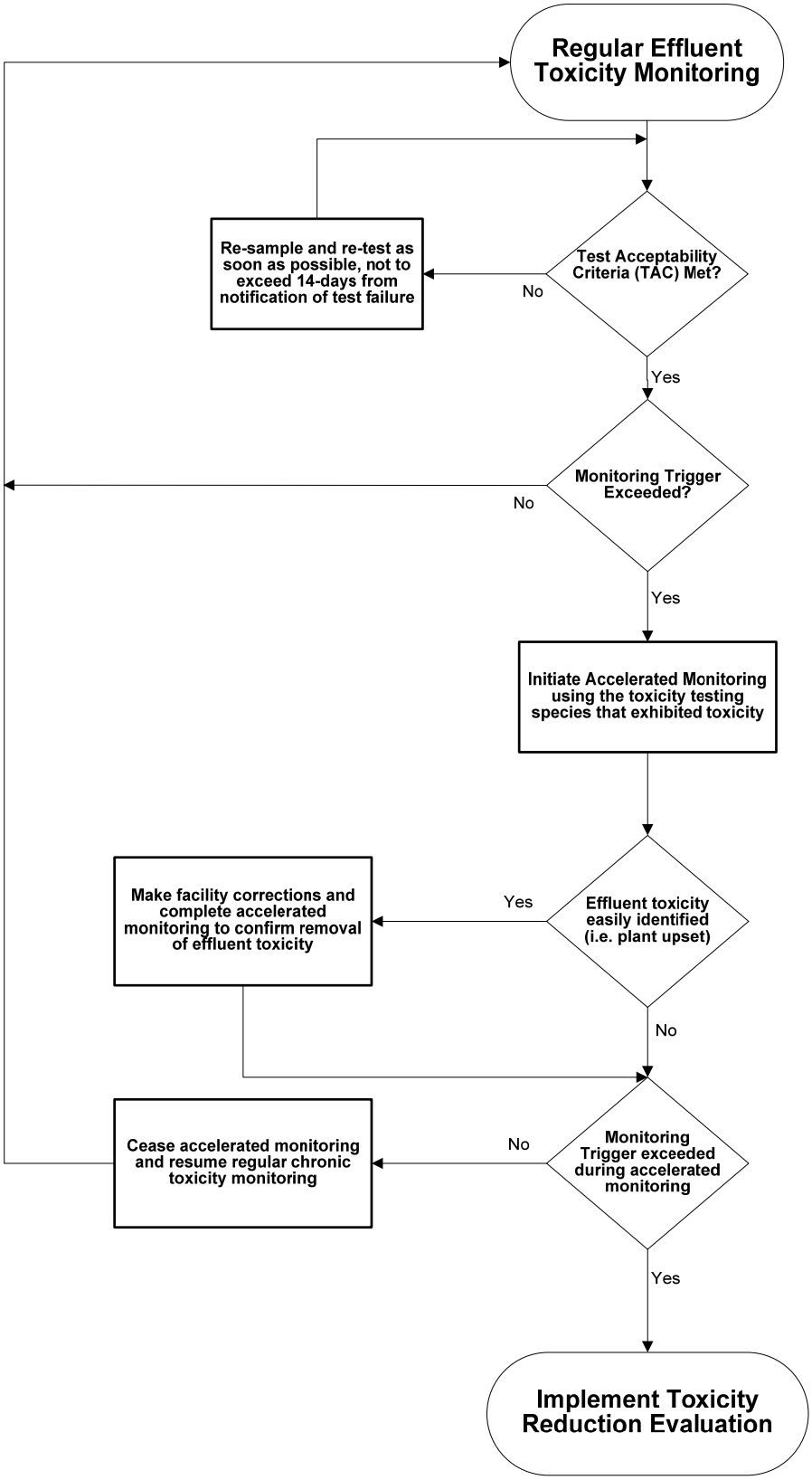
- *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/081, September 1993.

- *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, EPA-821-R-02-012, October 2002.

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

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

Figure F-1
WET Accelerated Monitoring Flow Chart



b. **UV Disinfection Study.** During power failures, the UV disinfection system experiences a lag time prior to the start-up of the backup generators. The Discharger currently uses additional lamps to provide a margin of safety during the lag time. However, the use of additional lamps results in increased energy usage and more frequent lamp replacement. Therefore, this Order requires the Discharger to evaluate various methods/alternatives for assuring UV disinfection capability in the event of a power failure. The technical evaluation shall identify alternatives, effectiveness, and describe any modifications/equipment necessary, as well as a time schedule to implement process or operational changes.

c. **Temperature Site-Specific Objective Study.** Regional Water Board Resolution No. R5-2003-0006, which amended the Basin Plan to include site-specific temperature objectives for Deer Creek, directed the Executive Officer to require temperature, flow, and biological monitoring consistent with section 8.1.1 of the January 2003 Staff Report for the Basin Plan amendment. Subsequent to the Basin Plan amendment, the Regional Water Board amended the Monitoring and Reporting Program for Order No. R5-2002-0210 to require the Discharger to submit a technical report including a monitoring plan and schedule that demonstrates compliance with section 8.1.1 of the Staff Report. Section 8.1.1 of the Staff Report requires that annual reports be submitted to the Regional Water Board for each of 3 years following adoption of the temperature objectives. The Discharger submitted the first annual report on 1 May 2008. This Order requires the Discharger to submit the remaining annual reports as specified in section 8.1.1 of the Staff Report.

3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Report.** An Evaluation and Minimization Report for salinity is required in this Order to ensure adequate measures have been developed and implemented by the Discharger to reduce the discharge of salinity to Deer Creek.

4. Construction, Operation, and Maintenance Requirements

a. **UV Disinfection System Operating Specifications.** UV System specifications and monitoring and reporting is required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g. viruses in the wastewater). UV dosage is dependent on several factors such as UV transmittance, UV power setting, wastewater turbidity, and wastewater flow through the UV system. Monitoring and reporting of these parameters is necessary to determine compliance with minimum dosage requirements established by the California DPH and the National Water Research Institute (NWRI) and American Water Works Association Research Foundation NWRI/AWWARF's "Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse" first published in December 2000 revised as a Second Edition dated May 2003. In addition, a memorandum dated 1 November 2004 issued by DPH to Regional Water Board executive officers recommended that

provisions be included in permits for water recycling treatment plants employing UV disinfection requiring Dischargers to establish fixed cleaning frequency of quartz sleeves as well as include provisions that specify minimum delivered UV dose that must be maintained (as recommended by the NWRI/AWWARF UV Disinfection Guidelines).

Turbidity is included as an operational specification as an indicator of the effectiveness of the treatment process and to assure compliance with effluent limitations for total coliform organisms when flow in Deer Creek provides less than a daily average stream flow-to-effluent dilution of 20:1. The tertiary treatment process is capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity and could impact UV dosage. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity prior to disinfection shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period, and an instantaneous maximum of 10 NTU.

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

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Pretreatment Requirements.**

i. USEPA conducted a pretreatment performance evaluation inspection on 12/13 April 2003, and issued an inspection report to the Discharger on 10 June 2003 summarizing the findings of the inspection. As a result of the inspection, USEPA issued Administrative Order CWA-307-9-03-025 requiring the Discharger to begin monthly self-monitoring of the influent, effluent, and receiving water at the Facility and the El Dorado Hills WWTP by 1 January 2004; submit a written description of the pretreatment program for approval by 28 September 2004; adopt local limits and ordinance within 60 days of obtaining approval; and issue all pending permits within 180 days of obtaining approval. The Discharger submitted their Industrial Pretreatment Program package to USEPA on 28 September 2004. The submittal was reviewed by USEPA and comments on the submittal were provided to the Discharger. However, the Discharger still does not have an approved pretreatment program. Therefore, this Order requires, within 1 year from adoption of the Order, the submission of a written pretreatment program. The organization and contents of the written description of the pretreatment program are based on guidance provided by USEPA Region 9

for program submissions and include the requirements contained in Attachment H of this Order.

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

iii. The Discharger shall implement and enforce its approved pretreatment program and is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Regional Water Board, the State Water Board or the USEPA may take enforcement actions against the Discharger as authorized by the CWA.

b. **Collection System.** The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 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 1 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

[Not Applicable]

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the Deer Creek Wastewater Treatment Plant. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional 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 publishing in a local newspaper by 3 October 2008 and by posting at the nearest city hall or courthouse, the nearest post office (if allowed), and at the entrance to the Facility.

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

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on 3 November 2008.

C. Public Hearing

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

Date: ~~4/5 December 2008~~8/9/10 June 2011
Time: 8:30 am
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 Regional 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 http://www.waterboards.ca.gov/rwqcb5/ 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 Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional 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 (RWD), 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 Regional 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 Regional 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 ~~Ken Landau~~Joshua Palmer at (916) ~~464-4726~~ 464-4674.

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	ug/L	150	--	200	750 [1]	--	--	--	--	200	No
Ammonia Nitrogen, Total (as N)	mg/L	<0.1	--	1.65	2.14 [1]	1.65 [2]	--	--	--	--	Yes[3]
Arsenic, Total Recoverable	ug/L	0.39	--	10	340	150	--	--	--	10	No
Bis (2-Ethylhexyl) Phthalate	ug/L	2.1	--	1.8	--	--	1.8	5.9	--	4	No [4]
Chlorodibromomethane	ug/L	0.286	--	0.41	--	--	0.41	34	--	80	No
Chloroform	ug/L	0.78	--	80	--	--	--	--	--	80	No
Chromium, Total Recoverable	ug/L	0.72	--	50	--	--	--	--	--	50	No
Copper, Total Recoverable	ug/L	15	--	43	60	43	1,300	--	--	1,000	No
Dichlorobromomethane	ug/L	0.336	--	0.56	--	--	0.56	46	--	80	No
Electrical Conductivity @ 25°C	umhos/cm	560	710	700 [5]	--	--	--	--	--	900	No
Lead, Total Recoverable	ug/L	0.27	--	8.62	85	8.62	--	--	--	15	No
Mercury, Total Recoverable	ug/L	0.00258	--	0.050	--	--	0.050	0.051	--	2.0	No
Methyl Bromide	ug/L	15	--	48	--	--	48	4,000	--	--	No
Nickel, Total Recoverable	ug/L	4.6	--	25.04	225	25.04	610	4,600	--	100	No
Nitrite Nitrogen, Total (as N)	ug/L	300	--	1,000	--	--	--	--	--	1,000	No
Nitrate Plus Nitrite (as N)	mg/L	14.1	--	10	--	--	--	--	--	10	Yes
Thallium, Total Recoverable	ug/L	0.27	--	1.7	--	--	1.7	6.3	--	2	No
Total Trihalomethanes	ug/L	1.7	--	80	--	--	--	--	--	80	No
Zinc, Total Recoverable	ug/L	85	--	57.5	57.5	57.5	--	--	--	5,000	Yes

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

Footnotes:
1 USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour Average
2 USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day Average
3 Reasonable potential is established because municipal wastewater contains ammonia and inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. See section IV.C.3.f of the Fact Sheet (Attachment F).
4 Due to potential contamination of effluent samples, reasonable potential for bis (2-ethylhexyl) phthalate cannot be determined.
5 Water Quality for Agriculture

ATTACHMENT H – PRETREATMENT PROGRAM REQUIREMENTS

The Discharger shall prepare a pretreatment program submission in accordance with the following organization.

A. Chapter 1 – Organization and Multi-jurisdiction Implementation

This chapter should describe the overall program structure as well as contain descriptions of the treatment plants, collection systems, reclaim systems and the service area including political boundaries.

B. Chapter 2 – Legal Authority

This chapter should contain the revised and adopted sewer use ordinance and all necessary multi-jurisdictional agreements.

C. Chapter 3 – Local Limits

This chapter should contain the technical basis for the local limits. This would include the analyses performed to determine the maximum headworks loadings for both wastewater treatment plants and the maximum pollutant levels protective of the collection system, as well as the method of allocating allowable loadings to the users, a schedule of public hearings and outreach, and the ordinance adoption procedures. The local limits can be numerical concentrations, loading limits, prohibitions, or control strategies.

D. Chapter 4 – Identification of Non-domestic Users

This chapter should contain the procedures used in the initial industrial user survey as well as the procedures to be used for on-going updates. This chapter should also include the current inventory of industrial users, by non-domestic sewer connection, and of the zero-discharging categorical industrial users who comply with their federal standards by not discharging process wastewaters.

The inventory must indicate the following for each industrial user and zero-discharging categorical industrial user:

1. Whether it qualifies as a significant industrial user;
2. The average and peak flow rates;
3. The SIC code;
4. The pretreatment-in-place; and
5. The local permit status.

E. Chapter 5 – Permits and Fact Sheets

This chapter should describe the permitting procedures and include a fact sheet and final draft permit for each significant industrial user to be issued upon approval of the local limits and revised ordinance by the Regional Water Board. The fact sheets must indicate the following for each significant industrial user and zero-discharging categorical industrial user:

1. The industry name, address, owner or plant manager;
2. The permit expiration date (not to exceed 5 years in duration);
3. A description of the facility including the products made or services provided, building names, the process in each building, and when current operations began;
4. The identification of each sewer connection;
5. A description of the contributing waste streams that comprise each identified non-domestic discharge into the sewers;
6. The pretreatment-in-place for each identified non-domestic discharge to the sewers;
7. The classification by federal point source category and the reasons justifying this classification;
8. The applicable federal categorical pretreatment standards (adjusted if necessary to account for dilution), supporting production data (if necessary), and the compliance sampling point(s) where the standards apply;
9. The pollutants of concern and the compliance sampling point(s) where the local limits apply;
10. A site map indicating the locations of all compliance sampling point(s), sewer connections, and sewer laterals;
11. The sampling frequency by regulated pollutant for each compliance sampling point, and the supporting statistical rationale, to ensure that the sampling is representative of the wastewater discharge variability over the reporting period; and
12. The sampling protocol by regulated pollutant for each compliance sampling point to ensure that the samples collected to determine compliance with federal standards are representative of the sampling day's discharge.

F. Chapter 6 – Compliance Monitoring

This chapter should describe the industrial user self-monitoring program and Discharger's oversight monitoring program. The compliance monitoring program must ensure that all sampling is representative over the reporting period and that each sample collected to determine compliance with federal standards is representative of the sampling day's

discharge. The compliance monitoring program must also set analytical detection limits that are sufficiently below federal standards and local limits to allow the determination of non-compliance.

G. Chapter 7 – Enforcement

This chapter should establish the enforcement response plan to be used to address, at a minimum, each of the following types of violations:

1. Isolated and chronic violations of permit effluent limits;
2. Violations of permit effluent limits that result in any adverse impacts upon the treatment works such as pass-through, interference, sludge contamination, sewer line degradation, explosive or inflammability risks, or worker health and safety risks;
3. Failure to self-monitor or report;
4. The bypassing of pretreatment necessary to comply with permit effluent limits;
5. Dilution as a substitute for treatment necessary to comply with Federal categorical pretreatment standards;
6. The bypassing of compliance sampling or the tampering with sampling equipment; and
7. Willful or negligent violations.

H. Chapter 8 – Resources

This chapter would cover the budget, staffing and equipment needs of the pretreatment program.

I. Chapter 9 – Public Participation and Confidentiality

This chapter would describe the administrative procedures required under 40 CFR 403.8(f)(1)(vii) and 403.8(f)(2)(vii).

ATTACHMENT I – CONSTITUENTS OF CONCERN

CTR CONSTITUENTS

Priority Pollutants

1	Antimony	41	1,1,1-Trichloroethane	81	Di-n-butyl Phthalate
2	Arsenic	42	1,1,2-Trichloroethane	82	2,4-Dinitrotoluene
3	Beryllium	43	Trichloroethylene	83	2,6-Dinitrotoluene
4	Cadmium	44	Vinyl Chloride	84	Di-n-Octyl Phthalate
5a	Chromium III	45	2-Chlorophenol	85	1,2-Diphenylhydrazine
5b	Chromium VI	46	2,4-Dichlorophenol	85	Fluoranthene
6	Copper	47	2,4-Dimethylphenol	87	Fluorene
7	Lead	48	2-Methyl-4,6-Dinitrophenol	88	Hexachlorobenzene *
8	Mercury	49	2,4-Dinitrophenol	89	Hexachlorobutadiene
9	Nickel	50	2-Nitrophenol	90	Hexachlorocyclopentadiene
10	Selenium	51	4-Nitrophenol	91	Hexachloroethane
11	Silver	52	4-Chloro-3-Methylphenol	92	Indeno(1,2,3-c,d)Pyrene
12	Thallium	53	Pentachlorophenol *	93	Isophorone
13	Zinc	54	Phenol	94	Naphthalene
14	Cyanide	55	2,4,6-Trichlorophenol	95	Nitrobenzene
15	Asbestos	56	Acenaphthene	96	N-Nitrosodimethylamine
16	2,3,7,8-TCDD (Dioxin)	57	Acenaphthylene	97	N-Nitrosodi-n-Propylamine
17	Acrolein	58	Anthracene	98	N-Nitrosodiphenylamine
18	Acrylonitrile	59	Benzidine	99	Phenanthrene
19	Benzene	60	Benzo(a)anthracene	100	Pyrene
20	Bromoform	61	Benzo(a)pyrene	101	1,2,4-Trichlorobenzene
21	Carbon Tetrachloride	62	Benzo(b)fluoranthene	102	Aldrin *
22	Chlorobenzene	63	Benzo(g,h,i)perlycene	103	Alpha BHC *
23	Chlorodibromomethane	64	Benzo(k)fluoranthene	104	Beta BHC *
24	Chloroethane	65	Bis(2-chloroethoxy) Ether	105	Gamma BHC (Lindane)*
25	2-Chloroethylvinyl ether	66	Bis(2-chloroethyl) Ether	106	Delta BHC *
26	Chloroform	67	Bis(2-chloroisopropyl) Ether	107	Chlordane *
27	Dichlorobromomethane	68	Bis(2-ethylhexyl) Phthalate	108	4,4'-DDT *
28	1,1-Dichloroethane	69	4-Bromophenyl Phenyl Ether	109	4,4'-DDE *
29	1,2-Dichloroethane	70	Butylbenzyl Phthalate	110	4,4'-DDD *
30	1,1-Dchloroethylene	71	2-Chloronaphthalene	111	Dieldrin *
31	1,2-Dichloropropane	72	4-Chlorophenyl Phenyl Ether	112	Alpha Endosulfan *
32	1,3-Dichloropropylene	73	Chrysene	113	Beta Endosulfan *
33	Ethylbenzene	74	Dibenzo(a,h)anthracene	114	Endosulfan Sulfate *
34	Methyl Bromide	75	1,2-Dichlorobenzene	115	Endrin *
35	Methyl Chloride	76	1,3-Dichlorobenzene	116	Endrin Aldehyde *
36	Methylene Chloride	77	1,4-Dichlorobenzene	117	Heptachlor *
37	1,1,2,2-Tetrachloroethane	78	3,3-Dichlorobenzidine	118	Heptachlor Epoxide *
38	Tetrachloroethylene	79	Diethyl Phthalate	119 to 125	PCBs (Aroclors)
39	Toluene	80	Dimethyl Phthalate		
40	1,2-trans-Dichloroethylene			126	Toxaphene *

* Persistent Chlorinated Hydrocarbon Pesticides

Attachment I (continued)

NON-CTR CONSTITUENTS OF CONCERN

Standard Minerals:

Boron	Iron	Potassium
Calcium	Magnesium	Sodium
Chloride	Manganese	Total Alkalinity (including alkalinity series)
Hardness	Phosphorus	

Analysis will include verification that the analysis is complete (i.e. cation/anion balance)

Non-CTR Persistent Chlorinated Hydrocarbon Pesticides:

Captan	Dicofol	Mirex
2,4-D	Dinoseb	PCNB (Pentachloronitrobenzene)
2,4-DB	Isodrin (an isomer of Aldrin)	Perthane
2,4-D compounds	Kepone (Chlordecone)	Strobane
Dalapon	MCPA	2,4,5-T
Dicamba	MCPP	2,4,5,TP (Silvex)
Dichloran	Methoxychlor	2,4,5-T compounds
Dichloroprop		

See Attachment A for complete list of Persistent Chlorinated Hydrocarbon Pesticides, including CTR Constituents.

Other Constituents of Concern:

Alachlor	Di(2-ethylhexyl)adipate	Radionuclides
Aluminum	Endothal	Simazine
Atrazine	Ethylene dibromide	Styrene
Barium	Flouride	Sulfate
Bentazon	Glyphosate	Sulfide
Carbofuran	MBAS	Sulfite
Chlorpyrofos	Methoxychlor	Thiobencarb
Chromium, Total	Molinate (ordram)	Tributyltin
Dalapon	MTBE	Trichlorofluoromethane
Diazinon	Oil and Grease	1,1,2-trichloro-1,2,2-trifluoromethane
Diquat	Oxamyl	Xylenes
Dinoseb	Phosphorus	
1,2-dibromo-3-chloropropane (DBCP)	Picloram	