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. R5-2008-0006
NPDES NO. CA0082660

WASTE DISCHARGE REQUIREMENTS FOR THE CITY OF BRENTWOOD WASTEWATER TREATMENT PLANT CONTRA COSTA COUNTY

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

Table 1. Discharger Information

Discharger	City of Brentwood
Name of Facility	Wastewater Treatment Plant
Facility Address	2251 Elkins Way
	Brentwood, CA 94513
	Contra Costa County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a **major** discharge.	

The discharge by the City of Brentwood from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Tertiary treated municipal effluent	37º 57' 46.10" N	121º 41' 02.59" W	Marsh Creek, tributary to the San Joaquin River/Delta

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**25 January 2008**
This Order shall become effective on:	**15 March 2008**
This Order shall expire on:	**31 December 2012**
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IT IS HEREBY ORDERED, that Order No. 5-00-171 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code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 **25 January 2008.**

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 No. 001 8
  B. Land Discharge Specifications for Discharges to Disposal Ponds 11
  C. Reclamation Specifications (Set forth in WDR Order No. R5-2004-0132) 12
V. Receiving Water Limitations 12
  A. Surface Water Limitations 12
  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 23
    4. Construction, Operation and Maintenance Specifications 23
    5. Special Provisions for Municipal Facilities (POTWs Only) 24
    6. Other Special Provisions 27
    7. Compliance Schedules 27
VII. Compliance Determination 28

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 6. Effluent Limitations 8
Table 7. Interim Effluent Limitations 10
Table 8. Interim Effluent Limitations 10
Table 9. Interim Effluent Limitations 11
Table 10. Monthly Average Flow Restrictions for the Disposal Ponds 11
Table 11. Land Discharge Specifications 12

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 – Requirements for Monitoring Well Work Plans and Installation Reports 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	City of Brentwood
Name of Facility	Wastewater Treatment Plant
Facility Address	2251 Elkins Way
	Brentwood, CA 94513
	Contra Costa County
Facility Contact, Title, and Phone	Kris Vickers, Wastewater Operations Manager, (925) 516-6060
Mailing Address	708 Third Street, Brentwood, CA 94513
Type of Facility	Publicly Owned Treatment Works
Facility Design Flow	5.0 million gallons per day ADWF (mgd)

II. FINDINGS

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

A. Background. The City of Brentwood (hereinafter Discharger) is currently discharging pursuant to Order No. 5-00-171 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0082660. The Discharger submitted a Report of Waste Discharge, dated 30 November 2004**,** and applied for a NPDES permit renewal to discharge up to 5.0 mgd of tertiary treated wastewater from the City of Brentwood Wastewater Treatment Plant (WWTP)**,** hereinafter Facility. The application was deemed complete.

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 publicly owned wastewater treatment plant. The treatment system consists of a headworks (screening and grit removal), two extended aeration activated sludge basins, two denitrification basins, , two secondary clarifiers, two banks of two single media filters (total of four filters), a chlorine contact chamber, dechlorination, and a cascade aeration system. Wastewater is discharged from Discharge Point No. 001 (see table on cover page) to Marsh Creek, a water of the United States, within 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 G are also incorporated into this Order.

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

F. Technology-based Effluent Limitations*.* Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (CFR)[1] 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 Part 133 and Best Professional Judgment (BPJ) in accordance with Part 125, section 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 section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The Regional Water Board has considered the factors listed in CWC Section 13241 in establishing these requirements. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in the Fact Sheet.

Section 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, water quality-based effluent limitations (WQBELs) must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary

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

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 section 122.44(d)(1)(vi).

H. Water Quality Control Plans. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised August 2006), 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. 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.

The Basin Plan does not directly specify beneficial uses for Marsh Creek. However, Footnote 9 to Table II-1 of the Basin Plan states: "*Per State Board Resolution No. 90-28, Marsh Creek and Marsh Creek Reservoir in Contra Costa County are assigned the following beneficial uses: REC-1 and REC-2*". State Board Resolution 90-28, entitled, *Approval of Revision (Editing and Updating) of the Water Quality Control Plan for the Sacramento River Basin (Basin 5A), Sacramento-San Joaquin Delta Basin (Basin 5B), and San Joaquin River Basin (Basin 5C*", approved a revised Basin Plan edition adopted by the Regional Water Board under Resolution No. 89-056, with several exceptions. State Water Board Resolution No. 90-28 states: "*That the State Board… disapproves the deletion of Marsh Creek and Marsh Reservoir and their beneficial uses. These water bodies and their beneficial uses are incorporated into Chapter II, Present and Potential Beneficial Uses.*" Prior to the edition of the Basin Plan updated by the Regional Water Board under Resolution No. 89-056, the beneficial uses identified for Marsh Creek included water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); wildlife habitat (WILD); and rare, threatened, or endangered species (RARE). For surface waters, the Fourth Edition of the Basin Plan states on page II-2.00: "*In making any exemptions to the beneficial use designation of MUN, the Regional Board will apply the exceptions listed in Resolution 88-63.*" However, the exceptions in Resolution 88-63 only apply to waterbodies that are not specifically listed in the Basin Plan as having designated beneficial uses. The beneficial uses of Marsh Creek are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Marsh Creek	Existing: Contact water recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); wildlife habitat (WILD); preservation of rare, threatened or endangered species (RARE).

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.*" Marsh Creek (Marsh Creek Reservoir to San Joaquin River) is listed as a WQLS for mercury and metals in the 303(d) list of impaired water bodies. No final TMDLs have been adopted for Marsh Creek, however effluent limitations for mercury and certain metals are included in this Order.

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

I. National Toxics Rule (NTR) and California Toxics Rule (CTR). USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About 40 criteria in the NTR apply 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 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 September 25, 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 that 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 includes compliance schedules and interim effluent limitations and/or discharge specifications. A detailed discussion of the basis for the compliance schedule(s) and interim effluent limitation(s) and/or discharge specifications is included in the Fact Sheet.

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

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on total suspended solids (TSS). The water quality-based effluent limitations consist of restrictions on pathogens, turbidity, biochemical oxygen demand, dissolved oxygen, oil and grease,

pH, selenium, 4,4'-DDT, alpha-endosulfan, lindane (gamma BHC), chloride, aluminum, ammonia, chlorine residual, iron, copper, and temperature. 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 turbidity and pathogens 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.

Water quality-based effluent limitations 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 water quality-based effluent limitations 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 than those in the previous Order and effluent limitations

contained in the previous Order for several constituents have been removed. 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. 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.

Additional quarterly monitoring of the effluent and receiving water is required during the third year of this permit for CTR priority pollutants to provide the data necessary to determine reasonable potential of the discharge to exceed water quality criteria and objectives during the next permit term.

Q. 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.

The Regional Water Board has determined pollution prevention is necessary to achieve compliance with water quality objectives for aluminum, selenium, 4,4'-DDT, alpha-endosulfan, and gamma-BHC. In accordance with Water Code section 13263.3(d)(C), this Order requires the Discharger to develop and implement pollution prevention plans for aluminum,selenium, 4,4'-DDT, alpha-endosulfan, and gamma-BHC. In addition, implementation of existing source controls for salinity and mercury is required in the Order.

R. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections IV.B, IV.C, V.B, and VI.C.2.b., VI.C.2.c., VI.C.2.d., and VI.C.4. 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.

S. 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.

T. 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.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point No. 001

1. Final Effluent Limitations – Discharge Point No. 001

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

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (BOD_5) (5-day @ 20 Deg. C)	mg/L	7	12	15	--	--
	lbs/day[1]	292	500	625	--	--
Dissolved Oxygen	mg/L	--	--	--	5.5	--
Oil and Grease	mg/L	10	--	15	--	--
pH	Standard Units	--	--	--	6.5	8.5
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	417	625	834	--	--
Selenium[4], Total Recoverable	µg/L	4.4	--	7.3	--	--
	lbs/day[1]	0.18	--	0.30	--	--
Ammonia Nitrogen, Total (as N)	mg/L	0.8	--	2.1	--	--
	lbs/day[1]	33.3	--	87.6	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Iron, Total Recoverable	µg/L	--	--	300	--	--
4,4'-DDT[3]	µg/L	--	--	--	--	ND[2]
alpha-endosulfan[3]	µg/L	--	--	--	--	ND[2]
lindane (gamma-BHC)[3]	µg/L	--	--	--	--	ND[2]
Aluminum, Total Recoverable	µg/L	76.5	--	126	--	--
Chloride[3]	mg/L	226	--	246	--	--
Copper, Total Recoverable	µg/L		--	10.4	--	--
Turbidity	NTU	--	--	--	--	10
Total Coliform Organisms	MPN/ 100 mL	--	--	--	--	240

[1] Based on a design flow of 5.0 mgd.
[2] ND indicates non-detect. See Section VII.F. for the protocol for evaluating compliance with the ND effluent limitations.
[3] Full compliance required by **1 January 2013**
[4] Full compliance required by **18 May 2010**.

b. **Percent Removal:** The average monthly percent removal of BOD 5-day 20°C and total suspended solids shall not be less than 85 percent.

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

   i. 70 percent, minimum for any one bioassay; and
   ii. 90 percent, median for any three consecutive bioassays.

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

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

e. **Turbidity.** Effluent turbidity shall not exceed:

   i. 2 NTU, as a daily average; and
   ii. 5 NTU, more than 5 percent of the time within a 24-hour period.

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

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

g. **Average Daily Discharge Flow.** The average daily discharge flow shall not exceed 5.0 mgd.

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

2. Interim Effluent Limitations

a. **Effective immediately and until 17 May 2010**, the Discharger shall maintain compliance with the following limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP. These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated in this provision.

Table 7. Interim Effluent Limitations

Parameters	Units	Maximum Daily Effluent Limit
Selenium, Total Recoverable	µg/L	10.1
	lbs/day[1]	0.42
4,4'-DDT	µg/L	0.025
	lbs/day[1]	1.04×10^{-3}

[1] Based on a design flow of 5.0 mgd.
[2] On 18 May 2010 the interim effluent limits contained in section IV.A.2.c of this Order become effective and shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated in this provision.

b. **Effective immediately and until 31 December 2012,** the Discharger shall maintain compliance with the following limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP. These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated by this provision.

Table 8. Interim Effluent Limitations

Parameters	Units	Maximum Daily Effluent Limit
alpha-Endosulfan	µg/L	0.019
	lbs/day[1]	7.9×10^{-4}
gamma-BHC	µg/L	0.044
	lbs/day[1]	1.8×10^{-3}
Chloride	mg/L	455

[1] Based on a design flow of 5.0 mgd.

c. **Effective 18 May 2010 and until 31 December 2012,** the Discharger shall maintain compliance with the following limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP. These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated by this provision.

Table 9. Interim Effluent Limitations

Parameters	Units	Average Monthly Effluent Limit	Maximum Daily Effluent Limit
4,4'-DDT	µg/L	0.0008	0.0016
	lbs/day[1]	3.3×10^{-5}	6.7×10^{-5}

[1] Based on a design flow of 5.0 mgd.

d. **Effective immediately**, the total monthly mass discharge of total mercury shall not exceed 0.083 pounds.

e. **Effective immediately**, the electrical conductivity of the discharge shall not exceed 2,495 µmhos/cm as a monthly average.

B. Land Discharge Specifications for Discharges to Disposal Ponds

1. Land disposal shall be limited to Disposal Pond Nos. 006, 007, and 008, with compliance determined at Monitoring Location LND-001. The monthly average discharge flow to Disposal Pond Nos. 006, 007, and 008 shall not exceed the following discharge flow rates:

Table 10. Monthly Average Flow Restrictions for the Disposal Ponds

Disposal Pond No.	Disposal Capacity Non-Winter (15 April through 15 October) (mgd)	Disposal Capacity Winter (16 October through 14 April) (mgd)
006	0.27	Restricted[1]
007	0.22	0.22
008	0.18	0.18

[1] During winter months, Disposal Pond No. 006 is reserved and is only to be used in the event that Marsh Creek is at flood stage as defined by the Contra Costa Flood Control District.

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

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

4. As a means of discerning compliance with Land Discharge Specification IV.B.3, the dissolved oxygen content in the upper zone (1 foot) of wastewater in the disposal ponds shall not be less than 1.0 mg/L.

5. Wastewater in the ponds shall not have a pH less than 6.5 or greater than 9.0.

6. **Effective immediately**, the Discharger shall maintain compliance with the following limitations for the discharge of effluent into Disposal Pond Nos. 006, 007, and 008, with compliance measured at Monitoring Location No. LND-001, as described in the attached MRP.

Table 11. Land Discharge Specifications

Parameters	Units	Effluent Limitations	
		Average Monthly	Maximum Daily
Biochemical Oxygen Demand (BOD_5) (5-day @ 20 Deg. C)	mg/L	40	80
Settleable Solids	mL/L	0.2	0.5

C. Reclamation Specifications (Set forth in WDR Order No. R5-2004-0132)

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

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, raised above 8.5, nor changed by more than 0.5 units. A 1-month averaging period may be applied when calculating the pH change of 0.5 units.

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

10. **Radioactivity**:

   a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
   b. Radionuclides to be present in excess of the maximum contaminant levels specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations.

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

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

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

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

15. **Temperature:** The Thermal Plan is applicable to this discharge. The Thermal Plan requires that the discharge shall not cause the following in Marsh Creek:

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

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

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. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs.
b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
c. More than 10 NTU where natural turbidity is between 50 and 100 NTUs.
d. More than 10 percent where natural turbidity is greater than 100 NTUs.

When wastewater is treated to a tertiary level (including coagulation) or equivalent, a 1-month averaging period may be used when determining compliance with this Receiving Surface Water Limitation for turbidity.

B. Groundwater Limitations

1. Release of waste constituents from any storage, treatment, or disposal component associated with the Facility, in combination with other sources, shall not cause the underlying groundwater to contain waste constituents in concentrations greater than background water quality or water quality objectives, whichever is greater. The discharge shall not cause the groundwater to exceed water quality objectives, unreasonably impact beneficial uses, or cause pollution or nuisance.

2. Release of waste constituents from any storage, treatment, or disposal component associated with the Facility shall not, in combination with other sources of the waste constituents, cause groundwater within influence of the Facility to exceed a total coliform organisms median of 2.2 MPN/100 mL over any 7-day period or exceed background water quality, whichever is greater.

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 Regional Water 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 that 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 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The 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 five 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, 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 for mercury, this Order shall be reopened and the interim mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed.

d. **Pollution Prevention Plan.** This Order requires the Discharger prepare and implement pollution prevention plans following CWC section 13263.3(d)(3) for chloride; selenium; 4,4'-DDT; alpha-endosulfan; and gamma-BHC. Based on a review of the pollution prevention plans, this Order may be reopened for addition and/or modification of effluent limitations and requirements for these constituents.

e. **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.

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

g. **Receiving Water Temperature Limitaions.** Based on a review of the results of the receiving water temperature and fisheries study that is to be conducted after completion of the fisheries restoration project on Marsh Creek, this Order may be reopened to add and/or modify the receiving surface water temperature limitations contained in this Order.

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, if applicable, the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exhibits a pattern of toxicity exceeding 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. **Initial Investigative 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 an Initial Investigative TRE Work Plan for approval by the Executive Officer. This should be a one to two page document including, at minimum:

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

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

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

ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, 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 TU_c** (where TU_c = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE when the effluent exhibits a pattern of toxicity.

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 six-week period (i.e. one test every two 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.

Within sixty (60) days of notification by the laboratory of the test results, 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[2].

b. **Groundwater Evaluation Study.** To determine compliance with Groundwater Limitations V.B., the groundwater monitoring network shall include one or more background monitoring wells and a sufficient number of designated monitoring wells downgradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater. **Within 4 months following adoption of this Order,** the Discharger shall submit a Work Plan and Time Schedule, for approval by the Executive Officer, to evaluate the existing monitoring well network, characterize groundwater quality, and conduct a Best Practicable Treatment or Control (BPTC) Study, if necessary. The time schedule for completing the Groundwater Evaluation Study shall be as short as practicable, and shall not exceed the deadlines required in subsections i. through iii., below.

i. **Groundwater Monitoring Work Plan.** If additional groundwater monitoring wells are needed, **within 9 months following adoption of this Order**, the Discharger shall submit a Groundwater Monitoring Work Plan prepared in accordance with, and including the items listed in, the first section of Attachment I: *"Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports."* All monitoring wells shall comply with the appropriate standards as described in California Well Standards Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 74-81 (December 1981), and any more stringent standards adopted by the Discharger or County pursuant to CWC section 13801.

ii. **Groundwater Water Quality Characterization.** The Discharger shall characterize natural background quality of monitored constituents in a technical report using at least 2 years of monitoring data, and shall submit a report **within 42 months following adoption of this Order.** For each groundwater monitoring parameter/constituent identified in the Monitoring and Reporting Program, the report shall present a summary of monitoring data, calculation of the concentration in background monitoring wells, and a

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

comparison of background groundwater quality to that in wells used to monitor the facility. Determination of background quality shall be made using the methods described in Title 27 California Code of Regulations Section 20415(e)(10), and shall be based on data from at least eight consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare measured concentrations for compliance monitoring wells with the calculated background concentration.

iii. **Best Practical Treatment or Control (BPTC)**. If the groundwater monitoring results show that the discharge of waste is threatening to cause or has caused groundwater to contain waste constituents in concentrations statistically greater than background water quality, the Discharger shall submit, **within 48 months following adoption of this Order**, a BPTC Evaluation Work Plan that sets forth a scope and schedule for a systematic and comprehensive technical evaluation of each component of the facilities' waste management system to determine best practicable treatment or control for each the waste constituents of concern. The work plan shall include a preliminary evaluation of each component of the waste management system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed 1 year.

3. Best Management Practices and Pollution Prevention

a. **Mercury Source Reduction Program**. The Discharger shall continue implementation of the existing mercury source reduction program. Annual progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.).

b. **Salinity Source Control Program.** The Discharger shall continue to implement the Salinity Source Control Program (SSCP) and update as necessary. Annual progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.).

4. Construction, Operation and Maintenance Specifications

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

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

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

ii. weeds shall be minimized; and

iii. dead algae, vegetation, and debris shall not accumulate on the water surface.

c. Public contact with wastewater in the disposal ponds shall be precluded through such means as fences, signs, and other acceptable alternatives.

d. Freeboard of ponds shall never be less then 2 feet (measured vertically to the lowest point of overflow).

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Pretreatment Requirements**

i. Within 6 months after the adoption date of Order R5-2008-0006, 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. After approval by the Regional Water Board of the Discharger's pretreatment program, 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).

iii. 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_5, *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.

iv. 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 quality control board will satisfy these specifications.

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

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

Groundwater Limitations 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 Groundwater Limitations 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 No. 2006-0003, a Statewide General WDR for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order No. 2006-0003 and any future revisions thereto. Order No. 2006-0003 requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the General WDR. On 16 August 2006**,** the Discharger applied

for coverage under State Water Board Order No. 2006-0003 for operation of its wastewater collection system.

Regardless of the coverage obtained under Order No. 2006-0003, the Discharger's collection system is part of the treatment system that is subject to this Order. As such, pursuant to federal regulations, the Discharger must properly operate and maintain its collection system [40 CFR 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. Wastewater discharged to Marsh Creek shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the DPH reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3, (Title 22), or equivalent.

b. 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

a. **Compliance Schedules for Final Effluent Limitations for Selenium, Chloride, 4,4'-DDT; alpha-endosulfan; and gamma-BHC.**

i. **By 18 May 2010,** the Discharger shall comply with the final effluent limitations specified in Section IV.A.1.a. for selenium, and the interim effluent limitations specified in Section IV.A.2.c. for 4,4"-DDT. **By 1 January 2013,** the Discharger shall comply with the final effluent limitations specified in Section IV.A.1.a. for chloride, 4,4'-DDT, alpha-endosulfan, and gamma-BHC. On 15 October 2007, the Discharger submitted a compliance schedule justification for these constituents that included all items specified in Paragraph 3, items (a) through (d), of section 2.1 of the SIP. As this compliance schedule is greater than 1 year, the Discharger shall submit annual progress reports in

accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.)

ii. **Pollution Prevention Plan.** The Discharger shall prepare and implement pollution prevention plans for selenium, chloride, 4,4'-DDT, alpha-endosulfan, and gamma-BHC in accordance with CWC section 13263.3(d)(3). . The minimum requirements for the pollution prevention plans are outlined in the Fact Sheet, Attachment F, VII.B.3.c. A work plan and time schedule for preparation of the pollution prevention plans shall be completed and submitted to the Regional Water Board **within 9 months of the effective date of this Order for approval by the Executive Officer**. The Pollution Prevention Plans shall be completed and submitted to the Regional Water Board **within two (2) years following work plan approval by the Executive Officer**, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1).

iii. **Treatment Feasibility Study.** The Discharger is required to perform an engineering treatment feasibility study examining the feasibility, costs and benefits of different treatment options that may be required to remove selenium chloride, 4,4'-DDT, alpha-endosulfan, and gamma-BHC from the discharge. A work plan and time schedule for preparation of the treatment feasibility study shall be completed and submitted to the Regional Water Board **within 9 months of the effective date of this Order for approval by the Executive Officer**. The treatment feasibility study shall be completed and submitted to the Regional Water Board within two (2) years following work plan approval by the Executive Officer, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.).

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 Section IV.A.1.a shall be ascertained by 24-hour composite samples. Compliance with effluent limitations IV.A.1.b for percent removal shall be calculated using the arithmetic mean of 20°C BOD_5 (5-day) and total suspended solids in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

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

C. Total Mercury Mass Loading Effluent Limitations. 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.

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

E. Total Coliform Organisms Effluent Limitations (Section IV.A.1.f). 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 seven 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.

F. Instantaneous Maximum Effluent Limitations for 4,4'-DDT, Alpha-endosulfan, and Gamma-BHC (lindane). The Discharger shall use USEPA standard analytical techniques for analyzing 4,4'-DDT, alpha-endosulfan, and gamma-BHC (lindane) with a maximum reporting level not to exceed the minimum levels listed in Appendix 4 of the SIP (Table 2d). If the analytical result of a single effluent grab sample is detected for 4,4'-DDT, alpha-endosulfan, or gamma-BHC (lindane) and the result is greater than or equal to the minimum levels listed in Appendix 4 of the SIP, a violation will be flagged and the Discharger will be considered out of compliance for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

G. Total Residual Chlorine Effluent Limitations (Section IV.A.1.d). Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. A positive residual dechlorination agent in the effluent indicates that chlorine is not present in the discharge, which demonstrates compliance with the effluent limitations. This type of monitoring can also be used to prove that some chlorine residual exceedances are

false positives. Continuous monitoring data showing either a positive dechlorination agent residual or a chlorine residual at or below the prescribed limit are sufficient to show compliance with the total residual chlorine effluent limitations, as long as the instruments are maintained and calibrated in accordance with the manufacturer's recommendations.

Any excursion above the 1-hour average or 4-day average total residual chlorine effluent limitations is a violation. If the Discharger conducts continuous monitoring and the Discharger can demonstrate, through data collected from a back-up monitoring system, that a chlorine spike recorded by the continuous monitor was not actually due to chlorine, then any excursion resulting from the recorded spike will not be considered an exceedance, but rather reported as a false positive.

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

ATTACHMENT A – DEFINITIONS

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

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

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

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

Best Practicable Treatment or Control (BPTC): BPTC is a requirement of State Water 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 those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

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

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

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

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

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

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters 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) means 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).

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.

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

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The 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 means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL) 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:

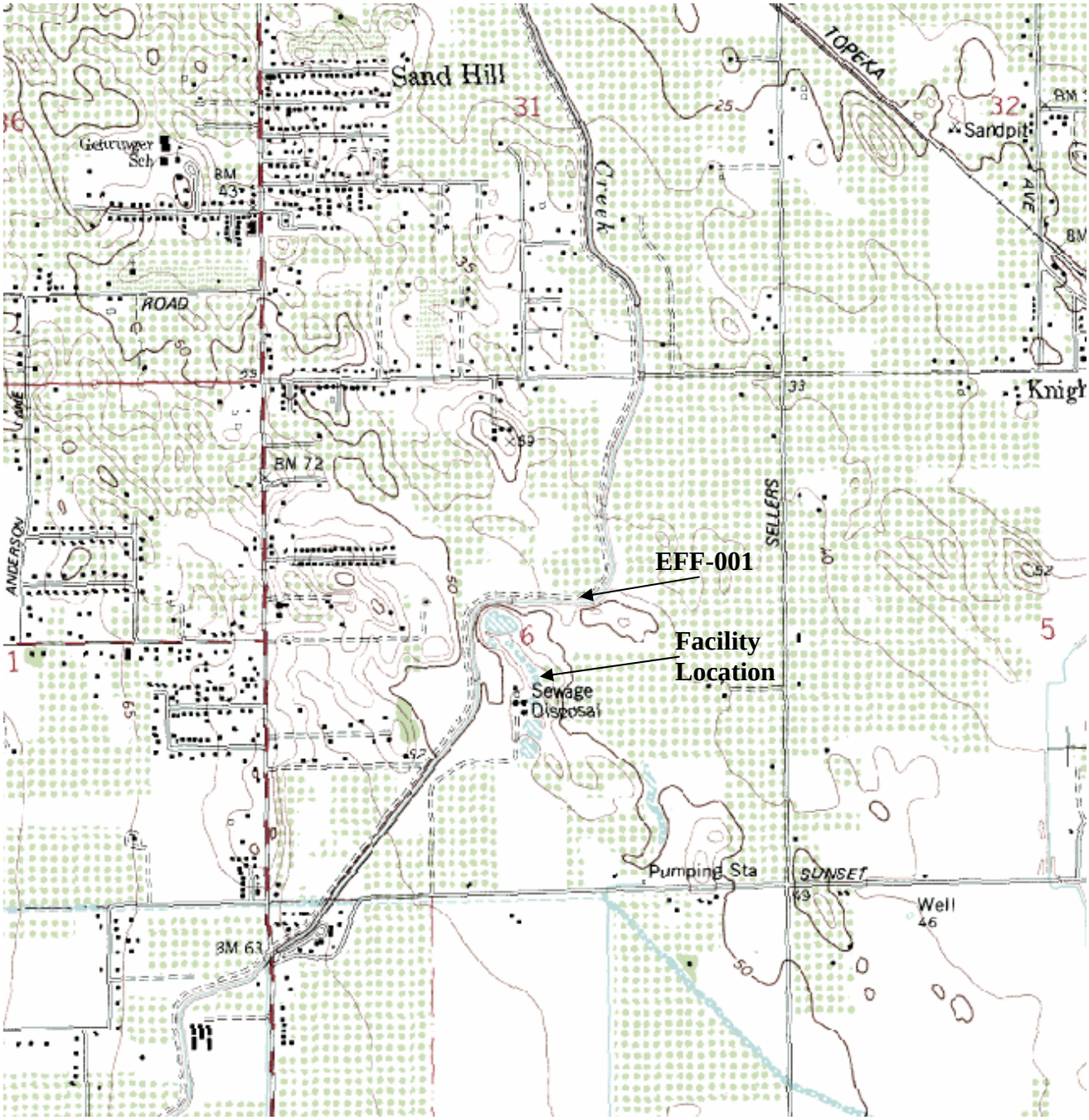
$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

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

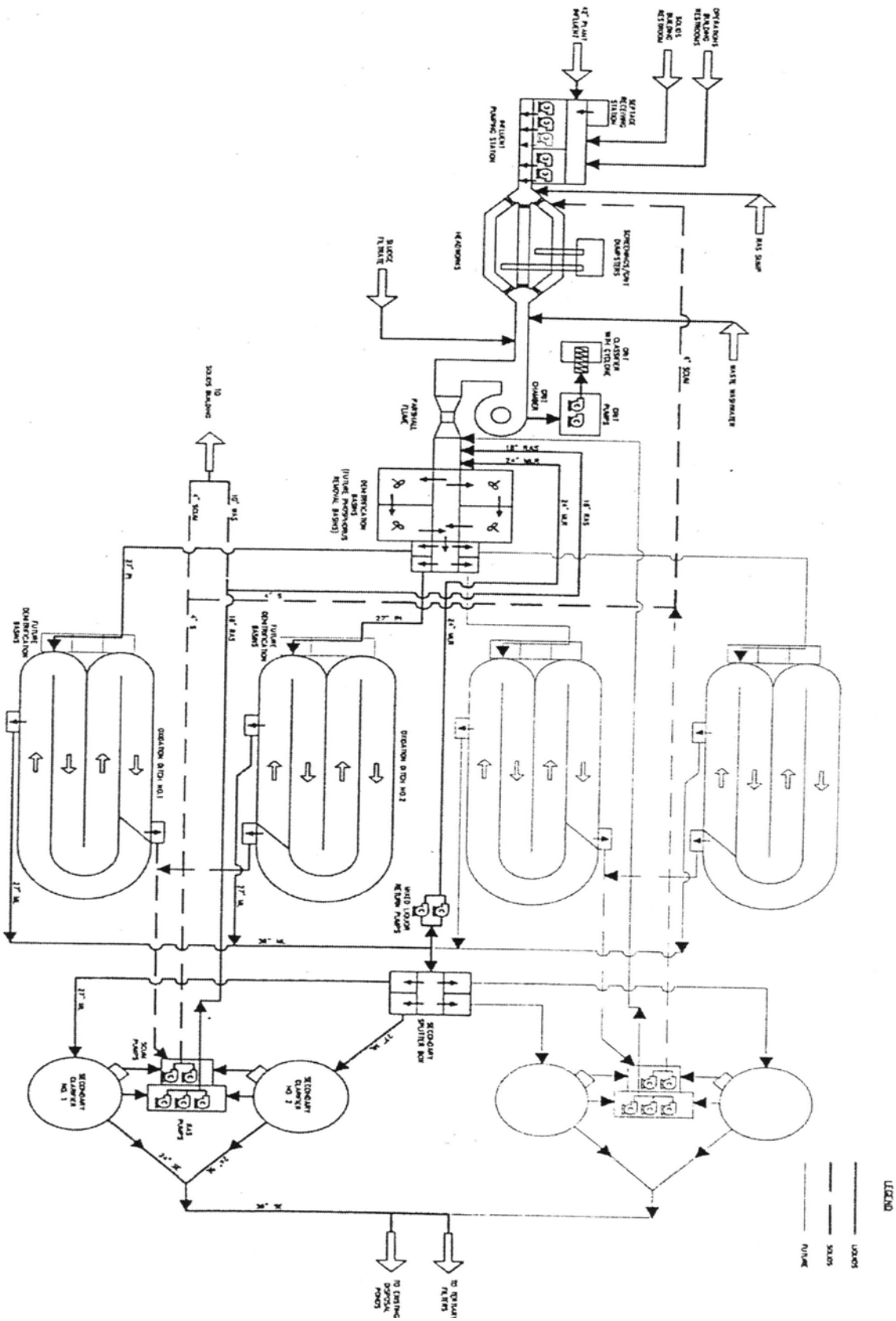
Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps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

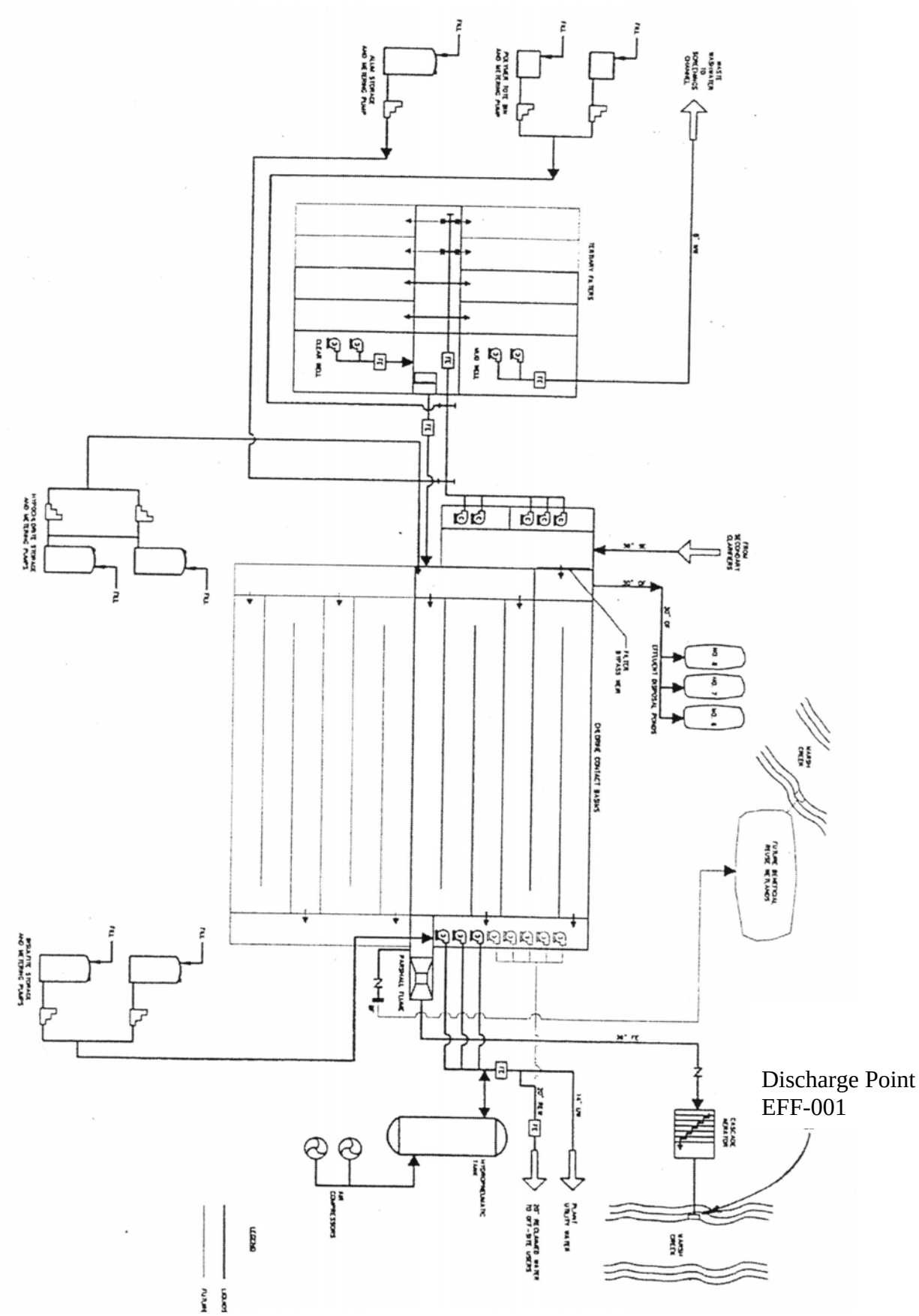
ATTACHMENT B – MAP



Drawing Reference: **BRENTWOOD (CA)** U.S.G.S TOPOGRAPHIC MAP 7.5 MINUTE QUADRANGLE *Currentness year 1978* *Not to scale*	SITE LOCATION MAP CITY OF BRENTWOOD WASTEWATER TREATMENT PLANT CONTRA COSTA COUNTY	N W E S

ATTACHMENT C – FLOW SCHEMATIC




Discharge Point
EFF-001

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 five 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-1
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-5
VI. Land Discharge Monitoring Requirements E-7
A. Monitoring Locations LND-001 ..... E-7
B. Monitoring Locations PND-006, PND-007, and PND-008 ..... E-8
VII. Reclamation Monitoring Requirements (Set forth In Order R5-2004-0132) E-8
VIII. Receiving Water Monitoring Requirements – Surface Water and Groundwater E-8
A. Monitoring Locations RSW-001 and RSW-003 ..... E-8
B. Monitoring Location RSW-002 ..... E-9
C. Groundwater Monitoring Program E-9
IX. Other Monitoring Requirements E-10
A. Biosolids E-10
B. Municipal Water Supply E-10
X. Reporting Requirements E-11
A. General Monitoring and Reporting Requirements E-11
B. Self Monitoring Reports (SMRs) E-12
C. Discharge Monitoring Reports (DMRs) E-14
D. Other Reports E-15

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. Land Discharge Monitoring Requirements E-8
Table E-6. Land Discharge Monitoring Requirements E-8
Table E-7. Receiving Water Monitoring – RSW-001 and RSW-003 ..... E-8
Table E-8. Groundwater Monitoring Requirements E-9
Table E-9. Municipal Water Supply Monitoring Requirements E-11
Table E-10. Monitoring Periods and Reporting Schedule E-14
Table E-11. Reporting Requirements for Special Provisions Progress Reports E-15

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 shall be conducted at a laboratory certified for such analyses by the State Department of Public Health. In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.

C. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Public Health. Laboratories that perform sample analyses shall be identified in all monitoring reports.

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

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

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 (include Latitude and Longitude when available)
--	INF-001	A location where a representative sample of the influent into the facility can be collected prior to any plant return flows or treatment processes.
001	EFF-001	A location where a representative sample of the effluent from the facility can be collected after all treatment processes and prior to commingling with other waste streams or being discharged into Marsh Creek. [Latitude: 37° 57' 46.10" N; Longitude: 121° 41 02.59" W]
--	LND-001	A location where a representative sample of the effluent being discharged into Disposal Ponds 006, 007, and 008 can be collected.
--	PND-006	Representative sampling location for wastewater in Disposal Pond 006.
--	PND-007	Representative sampling location for wastewater in Disposal Pond 007.
--	PND-008	Representative sampling location for wastewater in Disposal Pond 008.
--	RSW-001	100 feet upstream of Discharge Point No. 001.
--	RSW-002	Flow monitoring upstream of Discharge Point No. 001. Shall be located as specified by the Contra Costa Flood Control District.
--	RSW-003	300 feet downstream of Discharge Point No. 001.
--	BIO-001	Representative sample location for biosolids.
--	SPL-001	A location where a representative sample location for the municipal water supply can be collected. If the water supply is from more than one source, a weighted average should be calculated.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

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

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	[1]
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[2]	5 days/week	[1]
Total Suspended Solids	mg/L	24-hr Composite[2]	5 days/week	[1]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/week	[1]

[1] As required by 40 CFR Part 136.

[2] 24-hour flow proportional composite.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

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

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	[1]
Total Residual Chlorine[2]	mg/L	Meter	Continuous	[1]
Turbidity	NTU	Meter	Continuous	[1]
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[3]	5 days/week	[1]
	% removal	Calculated		
Dissolved Oxygen	mg/L	Grab	1/day	[1]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/day	[1]
pH	Standard Units	Grab	1/day	[1]
Temperature[4]	°F	Grab	1/day	[1]
Total Coliform Organisms	MPN/100 mL	Grab	5 days/week	[1]
Total Suspended Solids	mg/L	24-hr Composite[3]	5 days/week	[1]
	% removal	Calculated		
Ammonia Nitrogen, Total (as N) [5]	mg/L	Grab	1/week	[1]
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/week	[1]
Aluminum, Total Recoverable	µg/L	24-hr Composite[3]	1/month	[1]
Chloride	mg/L	24-hr Composite[3]	1/month	[1]
Iron, Total Recoverable	µg/L	Grab	1/month	[1]
Mercury, Total Recoverable[6,7]	µg/L	24-hr Composite[3]	1/month	[11]
	lbs/day	Calculated		
Mercury, Methyl	µg/L	24-hr Composite[3]	1/month	[11]
Selenium, Total Recoverable[6,7]	µg/L	24-hr Composite[3]	1/month	[1]
Settleable Solids	mL/L	Grab	1/month	[1]
Sulfate	mg/L	24-hr Composite[3]	1/month	[1]
Oil and Grease	mg/L	Grab	1/month	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Dissolved Solids	mg/L	24-hr Composite[3]	1/month	[1]
Persistent Chlorinated Hydrocarbon Pesticides[6,8]	µg/L	24-hr Composite[3]	1/quarter	[1]
Standard Minerals[9]	mg/L	24-hr Composite[3]	1/year	[1]
Priority Pollutants[6]	µg/L	Grab	[10]	[1]

[1] As specified in 40 CFR Part 136.

[2] Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.011 mg/L.

[3] 24-hour flow proportioned composite.

[4] Effluent temperature monitoring shall be at the Outfall location.

[5] Concurrent with whole effluent toxicity monitoring.

[6] For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.

[7] Report as total recoverable.

[8] Persistent Chlorinated Hydrocarbon Pesticides include: alpha BHC, aldrin, alpha endosulfan, beta endosulfan, beta BHC, delta BHC, gamma BHC (lindane), 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, chlordane, dieldrin, endrin, endrin aldehyde, endosulfan sulfate, heptachlor, heptachlor epoxide, and toxaphene.

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

[10] 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.

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

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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

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

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

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

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

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

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

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

2. *Sample Types* – Effluent samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at 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 chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic).

   If the receiving water is toxic, laboratory control water may be used as the diluent, in which case, the receiving water should still be sampled and tested to provide evidence of its toxicity.

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. C.2.a.iii.

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

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

D. **WET Testing Reporting Requirements**. All toxicity test reports shall include the contracting laboratory's complete report provided to the Discharger and shall be in

accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:

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

   a. The results expressed in TU_c, 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 TU_c, 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

A. Monitoring Locations LND-001

1. The Discharger shall monitor influent into Disposal Ponds 006, 007, and 008 at Monitoring Location LND-001, as follows:

Table E-5. Land Discharge Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow[4]	mgd	Meter	Continuous	[1]
Biochemical Oxygen Demand (5-day @20 °C)	mg/L	24-hr Composite	1/month	[1]
Settleable Solids	mL/L	Grab	1/month	[1]
Electrical Conductivity @25°C	µmhos/cm	24-hr Composite	1/month	[1]
pH	Standard Units	Grab	1/month	[1]
Total Dissolved Solids	mg/L	24-hr Composite	1/month	[1]
Title 22 Metals[2]	mg/L	24-hr Composite	1/year	[1]
Standard Minerals[3]	mg/L	24-hr Composite	1/year	[1]

[1] As specified in 40 CFR Part 136.
[2] Title 22 metals shall include the analyses of arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc.
[3] Standard Minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness.
[4] Flow to each pond (i.e. Disposal Ponds 006, 007, and 008) shall be measured and reported separately.

B. Monitoring Locations PND-006, PND-007, and PND-008

1. The Discharger shall monitor Disposal Pond Nos. 006, 007, and 008 at PND-006, 007, and 008, respectively, as follows:

Table E-6. Land Discharge Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/month	
pH	Standard Units	Grab	1/month	
Freeboard	Feet	--	1/month	

VII. RECLAMATION MONITORING REQUIREMENTS (Set forth In Order R5-2004-0132)

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Locations RSW-001 and RSW-003

1. The Discharger shall monitor Marsh Creek at RSW-001 and RSW-003 as follows:

Table E-7. Receiving Water Monitoring – RSW-001 and RSW-003

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

pH	Standard Units	Grab	1/week	[1]
Temperature	°F	Grab	1/week	[1]
Turbidity	NTU	Grab	1/week	[1]
Hardness (as $CaCO_3$)[2]	mg/L	Grab	1/quarter	[1]
Priority Pollutants[2,3]	µg/L	Grab	[5]	[1]

[1] As specified in 40 CFR Part 136.
[2] Monitoring required only at RSW-001.
[3] For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of *the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.
[5] Priority pollutants shall be sampled quarterly during the third year following the date of permit adoption and shall be conducted concurrently with monitoring for hardness (as $CaCO_3$) and pH.

B. Monitoring Location RSW-002

1. The Discharger shall monitor the flow of Marsh Creek at RSW-002 in 30 minute intervals in ft^3/second.

C. Groundwater Monitoring Program

Prior to the construction and/or sampling of any new groundwater monitoring wells, the Discharger shall submit plans and specifications to the Regional Water Board for review and approval. Once installed, all new wells shall be added to the MRP and shall be sampled and analyzed according to the schedule below in Table E-8.

The Discharger shall monitor the groundwater at monitoring locations RGW-001, RGW-002 as follows. Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Water table elevations shall be calculated and used to determine groundwater gradient and direction of flow. Samples shall be collected using standard USEPA methods. Groundwater monitoring shall include, at minimum, the following:

Table E-8. Groundwater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Groundwater Elevation[2]	Feet	Measurement	1/quarter	Observation
Depth to Groundwater[2]	0.1 Feet	Measurement	1/quarter	Observation
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/quarter	[1]
Nitrate (as N)	mg/L	Grab	1/quarter	[1]
Gradient	Feet/feet	Calculated	1/quarter	Observation
Gradient Direction	degrees	Calculated	1/quarter	Observation
Total Kjeldahl nitrogen	mg/L	Grab	1/quarter	[1]

Total Dissolved Solids	mg/L	Grab	1/quarter	[1]
Total Coliform Organisms	MPN/100 mL	Grab	1/quarter	[1]
Standard Minerals[3]	mg/L	Grab	1/year	[1]
Title 22 Metals[4]	mg/L	Grab	1/year	[1]

[1] As specified in 40 CFR Part 136.

[2] Groundwater elevation shall be used to calculate the direction and gradient of groundwater flow. Elevations shall be measured to the nearest one-hundredth of a foot from mean sea level, from a surveyed measuring point elevation on the well. The groundwater elevation shall be measured prior to purging the wells.

[3] Standard Minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness.

[4] Title 22 metals shall include the analyses of arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

1. 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 priority pollutants listed in 40 CFR Part 122, Appendix D, Tables II and III (excluding total phenols).

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

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

4. Upon removal of sludge, the Discharger shall submit characterization of sludge quality, including sludge percent solids and quantitative results of chemical analysis for the priority pollutants listed in 40 CFR Part 122, Appendix D, Tables II and III (excluding total phenols). 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 in USEPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989.

B. Municipal Water Supply

1. Monitoring Location SPL-001

The Discharger shall monitor the Municipal Water Supply at SPL-001 as follows. A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Municipal water supply samples shall be collected at approximately the same time as effluent samples.

Table E-9. Municipal Water Supply Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Dissolved Solids[2]	mg/L	Grab	1/year	[1]
Electrical Conductivity @ 25°C[2]	µmhos/cm	Grab	1/year	[1]
Standard Minerals[3]	mg/L	Grab	1/year	[1]

[1] As specified in 40 CFR Part 136.
[2] If the water supply is from more than one source, the EC/TDS shall be reported as a weighted average and include copies of supporting calculations.
[3] Standard minerals shall include all major cations and anions and include verification that the analysis is complete (i.e., cation/anion balance).

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

2. Upon written request of the 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 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.

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
   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-10. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	First day of discharge to Marsh Creek	All through the discharge period	First day of second calendar month following month of sampling
1/day	First day of discharge to Marsh Creek	(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
1/week	First day of discharge to Marsh Creek	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	1st 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
1/year	Closest of 1 January or 1 July 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 will not be accepted unless they follow the exact same format of EPA Form 3320-1.

D. Other Reports

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

Table E-11. Reporting Requirements for Special Provisions Progress Reports

Special Provision	Reporting Requirements
Mercury Source Reduction Program Progress Report (Section VI.C.3.a)	**1 December**, annually, after approval of work plan
Salinity Source Control Program (SSCP) Annual Progress Report (Section VI.C.3.b)	**1 March**, annually
Compliance Schedule Compliance Progress Report for selenium; chloride; 4,4'-DDT; alpha-endosulfan; and gamma-BHC. (Section VI.C.7.a.i)	**1 June**, annually, until final compliance
Pollution Prevention Plan Progress Report for selenium; chloride; 4,4-DDT; alpha-endosulfan; and gamma BHC. (Section VI.C.7.a.ii)	**1 June**, annually, after approval of work plan until final compliance
Treatment Feasibility Study Progress Report for selenium; chloride; 4,4'-DDT; alpha-endosulfan; and gamma-BHC. (Section VI.C.7.a.iii)	**1 June**, annually, until final compliance

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 **30 January** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

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

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

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

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

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

   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 nonpriority pollutants which may be causing or contributing to Interference, Pass-Through or adversely impacting sludge quality. Sampling and analysis shall be performed in

accordance with the techniques prescribed in 40 CFR 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 quarter **within 21 days of the end of the quarter**. 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
P.O. Box 944213
Sacramento, CA 94244-2130
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-3
I. Permit Information F-3
II. Facility Description F-4
A. Description of Wastewater and Biosolids Treatment or Controls F-4
B. Discharge Points and Receiving Waters F-5
C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data F-5
D. Compliance Summary F-7
E. Planned Changes – Not Applicable F-7
III. Applicable Plans, Policies, and Regulations F-7
A. Legal Authority F-7
B. California Environmental Quality Act (CEQA) F-7
C. State and Federal Regulations, Policies, and Plans F-7
D. Impaired Water Bodies on CWA 303(d) List F-11
E. Other Plans, Polices and Regulations F-11
IV. Rationale For Effluent Limitations and Discharge Specifications F-12
A. Discharge Prohibitions F-13
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-16
3. Determining the Need for WQBELs F-18
4. WQBEL Calculations F-31
5. Whole Effluent Toxicity (WET) F-35
D. Final Effluent Limitations F-36
1. Mass-based Effluent Limitations F-36
2. Averaging Periods for Effluent Limitations F-37
3. Satisfaction of Anti-Backsliding Requirements F-37
4. Satisfaction of Antidegradation Policy F-38
5. Stringency of Requirements for Individual Pollutants F-40
E. Interim Effluent Limitations F-42
F. Land Discharge Specifications F-44
G. Reclamation Specifications F-44
V. Rationale for Receiving Water Limitations F-44
A. Surface Water F-44
B. Groundwater F-48
VI. Rationale for Monitoring and Reporting Requirements F-49
C. Whole Effluent Toxicity Testing Requirements F-50
D. Receiving Water Monitoring F-50
1. Surface Water F-50
2. Groundwater F-51
VII. Rationale for Provisions F-53

B. Special Provisions F-53
1. Reopener Provisions F-53
2. Special Studies and Additional Monitoring Requirements F-54
3. Best Management Practices and Pollution Prevention F-57
4. Construction, Operation, and Maintenance Specifications F-58
5. Special Provisions for Municipal Facilities (POTWs Only) F-59
6. Other Special Provisions F-60
7. Compliance Schedules F-60
VIII. Public Participation F-61
A. Notification of Interested Parties F-61
B. Written Comments F-61
C. Public Hearing F-62
D. Waste Discharge Requirements Petitions F-62
E. Information and Copying F-62
F. Register of Interested Persons F-62
G. Additional Information F-63

List of Tables

Table F-1. Facility Information F-3
Table F-2. Land Disposal Rates F-4
Table F-3. Historic Effluent Limitations and Monitoring Data F-5
Table F-4. Historic Disposal Pond Limitations and Monitoring Data F-7
Table F-5. Summary of Technology-based Effluent Limitations F-15
Table F-6. WQBEL Calculations for Aluminum F-33
Table F-7. WQBEL Calculations for Ammonia F-33
Table F-8. WQBEL Calculations for Selenium F-34
Table F-9. WQBEL Calculations for Chloride F-34
Table F-10. Summary of Water Quality-based Effluent Limitations F-34
Table F-11. Summary of Final Effluent Limitations F-41
Table F-12. Interim Effluent Limitation Calculation Summary F-43
Table F-13. Interim WQBEL Calculations for 4,4’-DDT F-43

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	
Discharger	City of Brentwood
Name of Facility	Wastewater Treatment Plant
Facility Address	2251 Elkins Way
	Brentwood, CA 94513
	Contra Costa County
Facility Contact, Title and Phone	Kris Vickers, Wastewater Operations Manager, (925) 516-6060
Authorized Person to Sign and Submit Reports	Kris Vickers, Operations Manager, (925) 516-6060
Mailing Address	708 Third Street, Brentwood, CA 94513
Billing Address	Same as mailing address
Type of Facility	Publicly Owned Treatment Works
Major or Minor Facility	Major
Threat to Water Quality	2
Complexity	B
Pretreatment Program	Yes
Reclamation Requirements	Producer of Title 22 water
Facility Permitted Flow	5.0 million gallons per day (mgd)
Facility Design Flow	5.0 mgd ADWF
Watershed	Sacramento-San Joaquin Delta
Receiving Water	Marsh Creek
Receiving Water Type	Sacramento-San Joaquin Delta

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

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

B. The Facility discharges wastewater to Marsh Creek, a tributary to the San Joaquin River/Delta and a water of the United States. The Facility is currently regulated by Order No. 5-00-171 which was adopted on 16 June 2000 and expired on 1 June 2005. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its WDRs and NPDES permit on 30 November 2004. A site visit was conducted on 24 August 2006 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the City of Brentwood and serves a population of approximately 37,000. The Facility design daily average flow capacity is 5.0 mgd.

A. Description of Wastewater and Biosolids Treatment or Controls

In August 2002, the City of Brentwood began operation of a new wastewater treatment plant. The new treatment system consists of a headworks (screening and grit removal), two extended aeration activated sludge basins, two denitrification basins, two secondary clarifiers, two banks of two single media filters (a total of four filters), a chlorine contact chamber, dechlorination, and a cascade aeration system.

Periodically, the Discharger will use on-site percolation ponds for land disposal of secondary treated effluent. Discharge of effluent to Disposal Pond Nos. 006, 007, and 008 are limited under the existing Order as follows:

Table F-2. Land Disposal Rates

Disposal Pond No.	Disposal Capacity Non-Winter[1] (mgd)	Disposal Capacity Winter[2] (mgd)
006	0.27	Restricted[3]
007	0.22	0.22
008	0.18	0.18
Total	**0.67**	**0.40**

[1] Non-Winter is defined as 15 April through 15 October.
[2] Winter is defined as 16 October through 14 April.
[3] During winter months Disposal Pond No. 006 is reserved, and is only to be used in the event that Marsh Creek is at flood stage as defined by the Contra Costa Flood Control District.

Biosolids are mixed with a polymer and directed to one of two belt filter presses and hauled off-site to the Altamont Landfill.

Storm water runoff from the facility site is collected on-site and directed to a series of percolation ponds located on-site, including storm water retention ponds previously named Emergency Disposal Pond No. 011 and Emergency Disposal Pond No. 012. At no point does storm water directly discharges into surface water.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 6, T1N, R3E, MDB&M, as shown in Attachment B (Figure B-1), a part of this Order.

2. The discharge from the previous treatment system consisted of up to 2.2 mgd of secondary effluent and groundwater to Marsh Creek via a groundwater extraction system. The discharge from the previous treatment system was authorized through Discharge Point Nos. 001 and 002. Typically, the discharge was directed through Discharge Point No. 002; Discharge Point No. 001 was used only under emergency conditions. The previous Discharge Point Nos. 001 and 002 have been sealed and are no longer used.

3. Treated wastewater from the new treatment system was authorized to be discharged through Discharge Point No. 003. The discharge point previously referred to as Discharge Point No. 003 (for the existing outfall) in the previous Order has been renamed to Discharge Point No. 001 in this Order.

4. Treated municipal wastewater is discharged at Discharge Point No. 001 (see table on cover page) to Marsh Creek, a water of the United States and a tributary to the San Joaquin River/Delta at Latitude 37° 57’ 46.10” N and Longitude 121° 41’ 02.59” W.

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

Effluent limitations for discharge to Marsh Creek contained in the existing Order for discharges from Discharge Point No. 001 (formally Discharge Point No. 003) and representative monitoring data from the term of the previous Order are as follows:

Table F-3. Historic Effluent Limitations and Monitoring Data

Parameter	Unit	Effluent Limitations				Reported Data (from September 2002 to June 2006)		
		Average Monthly	Average Weekly	Maximum Daily	1-Hour Average	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	mgd	--	--	4.5	--	3.53	--	5.5
Biochemical Oxygen Demand	mg/L	7	12	15	--	4.8	--	9.0
	lbs/day	263	450	563	--	114	--	222

Parameter	Unit	Effluent Limitations				Reported Data (from September 2002 to June 2006)		
		Average Monthly	Average Weekly	Maximum Daily	1-Hour Average	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Total Suspended Solids	mg/L	10	15	30	--	8.0	--	14
	lbs/day	375	563	1,126	--	201	--	308.5
Dissolved Oxygen	mg/L	--	--	5.5[1]	--	--	--	5.75[1]
pH	SU	--	--	6.5 – 8.5[2]	--	Reported values range from 7.2 to 8.3		
Total Coliform Organisms	MPN/100 mL	2.2[3]	--	23[4]	--	<2	--	2
Nitrates (as N)	mg/L	10	--	--	--	7.75	--	11
	lbs/day	375	--	--	--	183.97	--	261.9
Nitrates (as NO_3)	mg/L	45	--	--	--	[9]	--	--
	lbs/day	1,689	--	--	--	[9]	--	--
Aluminum	µg/L	87	--	--	--	45.5	--	45.5
	lbs/day	3.27	--	--	--	1.08	--	1.1
Ammonia	mg N/L	[5]	--	[5]	--	0.5	--	0.9
Chlorine Residual	mg/L	--	0.011	--	0.019	--	--	9.6
	lbs/day	--	0.41		0.71	--	--	240.7[6]
Lead	µg/L	5.3	--	--	--	0.60	--	0.6
	lbs/day	0.20	--	--	--	0.01	--	0.014
Mercury	lbs/12-months	0.083[7]	--	--	--	0.0013[8]	--	--
Oil and Grease	mg/L	10	--	--	15	[9]	--	[9]
	lbs/day	375	--	--	563	[9]	--	[9]
Settleable Solids	mL/L	0.1	--	0.2	--	0.05	--	0.05
Thallium	µg/L	1.7	--	--	--	0.5	--	--
	lbs/day	0.064	--	--	--	0.01	--	--
Turbidity[10]	NTU	--	--	5	2[11]	0.91	--	2.76
Acute Toxicity	% survival	--	--	[12]	--	[13]	[13]	[13]

[1] The dissolved oxygen concentration of the discharge shall not fall below 5.5 mg/L at all times. The reported value represents the lowest dissolved oxygen concentration.
[2] The discharge shall not have a pH less than 6.5 nor greater than 8.5.
[3] 7-day median based on previous seven daily sample results.
[4] Exceed no more than one-time in average 30-day period.
[5] Floating limits based on Attachments F and G of Order No. 5-00-171 (based on pH and temperature).
[6] Calculated by multiplying the daily average chlorine concentration by the average daily flow [lbs/day = flow (as mgd) x 8.34 (conversion factor) x pollutant concentration (as mg/L)].
[7] An interim mass limit for mercury was established until a TMDL for mercury is developed for Marsh Creek. A TMDL for mercury was not developed during the permit term. The interim mass effluent limit for mercury shall not exceed 0.083 pounds per 12 months on a running average.
[8] Highest 12 month rolling average.
[9] The Discharger was not required to monitor for oil and grease. For nitrates, the Discharger had the option of monitoring for either nitrates (as N) or nitrates (as NO_3).

[10] Turbidity shall not exceed 5 NTUs 5% of the time or 10 NTUs at any given time.
[11] Daily Average
[12] Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
Minimum for any one bioassay---------- 70%
Median for any three or more consecutive bioassays-------- 90%
[13] Reported percent survival was between 80 and 100.

Effluent limitations for discharge to the disposal ponds contained in the existing Order and representative monitoring data from the term of the previous Order are as follows:

Table F-4. Historic Disposal Pond Limitations and Monitoring Data

Parameter	Unit	Effluent Limitations		Reported Data (from September 2002 to June 2006)	
		Average Monthly	Maximum Daily	Highest Average Monthly Discharge	Highest Daily Discharge
BOD_5	mg/L	40	80	3.0	3.0
Settleable Solids	mL/L	0.2	0.5	0.09	0.2
pH	SU		6.5 – 8.5[1]	Reported values range from 6.6 to 7.8	

[1] The discharge shall not have a pH less than 6.5 nor greater than 8.5.

D. Compliance Summary

1. The Discharger has generally been in compliance with the existing permit.

E. Planned Changes – Not Applicable

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 August 2006), 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 Basin Plan does not directly specify beneficial uses for Marsh Creek. However, Footnote 9 to Table II-1 of the Basin Plan states: "*Per State Board Resolution No. 90-28, Marsh Creek and Marsh Creek Reservoir in Contra Costa County are assigned the following beneficial uses: REC-1 and REC-2*". State Board Resolution 90-28, entitled, "Approval of Revision (Editing and Updating) of the Water Quality Control Plan for the Sacramento River Basin (Basin 5A), Sacramento-San Joaquin Delta Basin (Basin 5B), and San Joaquin River Basin (Basin 5C)", approved a revised Basin Plan edition adopted by the Regional Water Board under Resolution No. 89-056, with several exceptions. State Water Board Resolution No. 90-28 states: "*That the State Board… disapproves the deletion of Marsh Creek and Marsh Reservoir and their beneficial uses. These water bodies and their beneficial uses are incorporated into Chapter II, Present and Potential Beneficial Uses.*" Prior to the edition of the Basin Plan updated by the Regional Water Board under Resolution No. 89-056, the beneficial uses identified for Marsh Creek included water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); wildlife habitat (WILD); and rare, threatened, or endangered species (RARE). The beneficial uses of Marsh Creek downstream of the discharge are water contact recreation; non-contact water recreation; warm freshwater habitat; wildlife habitat; and rare, threatened, or endangered species.

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.*" A review of the State Water Board Division of Water Rights' Electronic Water Rights Information Management System (eWRIMS) indicated that there are no agricultural or municipal water diversions in Marsh Creek downstream of the discharge.

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, Section IV.B.2.

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

   The Bay-Delta Plan attempts to create a management plan that is acceptable to the stakeholders while at the same time is protective of beneficial uses of the San Joaquin River. The State Water Board adopted Decision 1641 (D-1641) on 29 December 1999. D-1641 implements flow objectives for the Bay-Delta Estuary, approves a petition to change points of diversion of the Central Valley Project and the State Water Project in the Southern Delta, and approves a petition to change places of use and purposes of use of the Central Valley Project. The water quality objectives of the Bay-Delta Plan are specifically implemented as part of this Order.

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. The discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Board Resolution No. 68-16. See Section IV.D.4.a of this Fact Sheet for a detailed explanation regarding antidegradation.

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) (EPCRKA) 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. **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 applicable industries under the stormwater program and are obligated to comply with the Federal Regulations. No storm water is directly discharged from the Facility. Storm water from the facility is collected and directed to a series of on-site percolation ponds that do not discharge to surface water.

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.

8. **Thermal Plan.** The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on 18 May 1972, and amended this plan on 18 September 1975. This plan contains temperature objectives for surface waters, including estuaries. The Thermal Plan specifically includes the Sacramento-San Joaquin Delta within the definition of an estuary. The Discharger discharges treated wastewater effluent to Marsh Creek, within the legal boundary of the Delta as defined by Section 12220 CWC, thus the Thermal Plan requirements for discharges to estuaries are applicable to this discharge. Requirements of this Order implement the Thermal Plan.

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.*" The 2006 303(d) list for Marsh Creek (Marsh Creek Reservoir to San Joaquin River) includes mercury. In addition, Marsh Creek is a tributary to the Sacramento – San Joaquin River Delta. The Delta Waterways (western portion) is 303(d) listed for chlorpyrifos, DDT, diazinon, electrical conductivity, exotic species, group A pesticides, mercury, and unknown toxicity.

2. **Total Maximum Daily Loads.** The USEPA requires the Regional Water Board to develop total maximum daily loads (TMDLs) for each 303(d) listed pollutant and water body combination. No applicable TMDLs have been completed for Marsh Creek. During the drafting of this permit, TMDLs for the Sacramento – San Joaquin River Delta for mercury were being developed and completed TMDLs for diazinon and chlorpyrifos were awaiting approval from the State Water Board and USEPA. The Order may be reopened upon the completion of the TMDLs for the establishment of applicable effluent limitations.

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.

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 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH.

2. Applicable Technology-Based Effluent Limitations

a. **BOD_5 and TSS.** Federal Regulations, 40 CFR Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD_5 and TSS. Tertiary treatment is also 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-6 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.

b. **pH.** Federal Regulations, 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 upgraded wastewater treatment plant for the City of Brentwood that went on-line in August 2003 was designed to provide a tertiary level of treatment for up to a design flow of 5.0 mgd. Due to low influent flow volume and limited industrial dischargers, Order No. 5-00-171 regulated flow to a maximum dry weather discharge of 4.5 mgd. Since the adoption of Order No. 5-00-171, the average daily influent flow has increased from 1.8 mgd to approximately 3.2 mgd. Due to the increased influent flow and anticipated continued growth of the service population, the Discharger has requested the daily maximum flow volume be revised to reflect the actual design capacity that was approved during the Environmental Impact Report review and CEQA process. This Order contains an average daily discharge flow effluent limit of 5.0 mgd in response to the Discharger's request.

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

Table F-5. Summary of Technology-based Effluent Limitations

Parameters	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd	5.0	--	--	--	--
Biochemical oxygen demand, 5-day @ 20°C (BOD_5)[1,3]	mg/L	10	15	20	--	--
	lbs/day[2]	417	625	834	--	--
Total suspended solids (TSS) [1]	mg/L	10	15	20	--	--
	lbs/day[2]	417	625	834	--	--
pH	SU	--	--	--	6.0	9.0

[1] The average monthly percent removal of BOD 5-day 20°C and total suspended solids shall not be less than 85 percent.
[2] Based on a design capacity of 5.0 mgd.
[3] More stringent water quality-based effluent limitations are required for BOD for compliance with the Basin Plan's dissolved oxygen water quality objectives, as discussed in Section IV.C.3.g, below.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

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

Section 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, 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 section 122.44(d)(1)(vi).

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

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

a. **Receiving Water.** The receiving stream is Marsh Creek, a tributary to the San Joaquin River/Delta. The beneficial uses of Marsh Creek are described above in Section III.C.1 of this Fact Sheet.

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 metals include cadmium, copper, chromium III, lead, nickel, silver, and zinc. The equation describing the total recoverable regulatory criterion is as follows:

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

Where:

m = criterion-specific constant

H = Effluent Hardness

b = 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).

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 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. Recent studies indicate that using the receiving water lowest hardness for establishing water quality criteria is not the most protective for the receiving water. The Regional Water Board has evaluated these studies and concurs that for some parameters the beneficial uses of the receiving water are best protected using the lowest hardness value of the effluent, while for some parameters, the use of both the lowest hardness value of the receiving water and the lowest hardness value of the effluent is the most protective.

Because of the non-linearity of the Total Recoverable Criterion equation, the relationship can be either concave downward or concave upward depending on the criterion-specific constants. For those contaminants whereby the regulatory criteria exhibit a concave downward relationship as a function of hardness (e.g.

acute and chronic copper, chromium III, nickel, and zinc, and chronic cadmium), 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. For purposes of establishing water quality-based effluent limitations, a reported hardness value of 210 mg/L as $CaCO_3$ for the effluent was used.

c. **Assimilative Capacity/Mixing Zone.** 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. In determining whether a discharge has the reasonable potential to contribute to an in-stream excursion, the dilution of the effluent in the receiving water may be considered where areas of dilution are defined. The available dilution may also be used to calculate protective effluent limitations by applying water quality criteria at the edge of the defined mixing zone. These calculations include receiving water pollutant concentration that are typically based on worst-case conditions for flow and concentration. For completely mixed discharges, the SIP allows the dilution for acute aquatic life criteria and objectives to be calculated using a ratio of the lowest 1-day average flow that occurs (on average) once every 10 years (1Q10) to the maximum daily effluent flow. In addition, the SIP allows dilution for chronic aquatic life criteria and objectives to be calculated using the ratio of the lowest 7-day average flow that occurs (on average) once every 10 years to the maximum effluent 4-day daily average flow.

Upstream data for Marsh Creek in Brentwood, California (USGS station 11337600) is available from 26 August 2000 through 8 October 2006 (with a low flow reported as 0.34 cubic feet per second). The limited time frame (less than 10 years) for which data is available does not allow for the calculation of a 1Q10 and 7Q10. Additional USGS monitoring data for Marsh Creek upstream of the discharge, at a monitoring location in Byron, California (USGS monitoring location 11337500) has data available from 1 April 1953 through 30 September 1983. Flow data from the Byron monitoring location indicates long periods of no flow through Marsh Creek, however no more recent data than 1983 is available. Thus, because a recent and representative 10 year span of data is not available, a dilution ratio could not be calculated based on the 1Q10 and the 7Q10 as specified in the SIP. In addition, data submitted by the Discharger over the term of Order No. 5-00-171 indicates a minimum receiving water flow of 0.22 mgd, less than 5 percent of the design capacity of the facility. Based on the limited data sets, reliable dilution for the effluent by the receiving water cannot be substantiated and dilution was not considered in determining reasonable potential. If limited or no dilution is available, the effluent limitations are calculated to ensure the applicable water quality criteria are met at the end-of-pipe so the discharge will not cause the receiving stream to exceed water quality objectives. Therefore, effluent limitations have been established in this permit as ‘end-of-pipe’ limits.

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 a 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 aluminum, ammonia, BOD_5/dissolved oxygen, chloride, chlorine residual, mercury, oil and grease, 4,4'-DDT, alpha-endosulfan, gamma-BHC, pathogens, pH, selenium, and toxicity. 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.[1] The SIP states in the introduction "*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency."* Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents.

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

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

e. **Aluminum***.* USEPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for aluminum are 87 µg/L and 750 µg/L, respectively, for waters with a pH of 6.5 to 9.0. USEPA recommends that the ambient criteria are protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria. The receiving stream has been measured to have a hardness of 240 mg/L as $CaCO_3$. This condition is supportive of the applicability of the ambient water quality criteria for aluminum, according to USEPA's development document.

The maximum effluent concentration (MEC) for aluminum was 45.5 µg/L, based on 47 samples collected between 23 September 2002 and 4 June 2006, while the maximum observed upstream receiving water aluminum concentration was 1,530 µg/L, based on 11 samples collected between April 2002 and February 2003. The SIP requires WQBELs to be established when the background concentration in the receiving water exceeds water quality criteria and the effluent contains detectable amounts of that pollutant. Therefore, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life resulting in a violation of the Basin Plan's narrative toxicity objective. Further, aluminum was regulated in the previous Order with a monthly average effluent limitation of 87 µg/L. Average monthly effluent limitations (AMEL) and maximum daily effluent limitations (MDEL) were calculated for aluminum following the procedures specified in Section 1.4 of the SIP. The calculated effluent limitations were then compared to the effluent limitations contained in the previous Order. To ensure compliance with anti-backsliding requirements, the most stringent effluent limitations were applied in the new Order.

This Order contains a final AMEL and MDEL for aluminum of 76.5 µg/L and 126 µg/L, respectively, based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life (see Attachment F, Table F-6 for WQBEL calculations).

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.

Based on the sample results in the effluent, it appears the Discharger can meet these new limitations.

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. 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. Although Marsh Creek has a beneficial use of warm freshwater habitat, salmonids and early fish life stages have been observed in Marsh Creek. Therefore, the recommended criteria for waters where salmonids and early life stages are present were used. USEPA's recommended criteria are shown below:

$$CCC_{30-day} = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \times MIN\left(2.85, 1.45 \cdot 10^{0.028(25-T)}\right), \text{ and}$$

$$CMC = \left(\frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}} \right),$$

where *T* is in degrees Celsius

Since Marsh Creek is an effluent dominated waterbody, acute and chronic ammonia toxicity criteria were calculated using data from January 2003 through June 2006 for effluent pH and temperature.

The maximum permitted effluent pH is 8.5 as the Basin Plan objective for pH in the receiving stream is in 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.

The 30-day average CCC is calculated using the temperature and pH of the effluent. Using effluent data from January 2003 through June 2006, the CCC

was calculated for each day when temperature and pH were measured. The lowest 99.9% 30-day average CCC was 1.17 mg/L during this period. 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 1.17 mg/L (as N), the 4-day average concentration that should not be exceeded is 2.93 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 chronic criteria. 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 chronic criteria was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day average, and 30-day chronic criteria is then selected for deriving the AMEL and the MDEL. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains a final AMEL and MDEL for ammonia of 0.8 mg/L and 2.1 mg/L, respectively, based on USEPA's *National Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life* (see Attachment F, Table F-7 for the WQBEL calculations for ammonia).

g. **BOD_5 and Dissolved Oxygen (DO).** BOD_5 effluent limitations in the previous Order were established based in-part on a DO Sag analysis (Streeter-Phelps) of the receiving water. The DO Sag analysis was conducted to determine the amount of BOD_5 and DO that would be required in the effluent discharged into Marsh Creek to maintain a DO above 5.0 mg/L. The analysis determined that the minimum DO in the effluent must be 5.5 mg/L, with a maximum BOD_5 of 15 mg/L. The monthly average BOD_5 limit of 7.0 mg/L was established using the statistical methodology recommended by USEPA's 1991 *Technical Support Document for Water Quality-based Toxics Control*. Both DO and BOD_5 limits are required for the discharge to insure the Facility does not lower DO concentrations in Marsh Creek or violate the Basin Plan objectives. The tertiary limitations for BOD_5 in the previous Order were revised based on the results of this analysis. A monthly average BOD_5 limitation of 7.0 mg/L; an average weekly effluent limitation of 12 mg/L; and a maximum daily effluent limitation of 15 mg/L have been established. In addition, the existing Order requirement that the DO concentration of the discharge shall not fall below 5.5 mg/L at all times was carried over to this Order.

h. **Chloride.** The USEPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for chloride. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for chloride are 230 mg/L and 860 mg/L, respectively. USEPA recommends that the ambient criteria are protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria. The MEC for chloride was 430 mg/L, based on 19

samples collected from 2 September 2002 through September 2007, while the maximum observed upstream receiving water chloride concentration was 330 mg/L, based on 10 samples collected from April 2002 through March 2003. Therefore, chloride in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life resulting in a violation of the Basin Plan's narrative toxicity objective. Since the receiving water exceeds the chronic toxicity criteria, no assimilative capacity for chloride is available and a dilution credit cannot be allowed. This Order contains final a AMEL and MDEL for chloride of 226 mg/L and 246 mg/L, respectively, based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life (See Attachment F, Table F-9 for WQBEL calculations).

Based on the sample results in the effluent, it appears that the Discharger may be in immediate non-compliance upon issuance of the permit. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. The Basin Plan for the Sacramento and San Joaquin River Basins includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives adopted after September 25, 1995 (See Basin Plan at page IV-16). The water quality-based effluent limitations for chloride are based on a new interpretation of the narrative standard for protection of receiving water beneficial uses. Therefore, a compliance schedule for compliance with the chloride effluent limitations is established in the Order.

An interim performance-based maximum daily effluent limitation of 455 mg/L has been established in this Order. The interim limitation was determined as described in Attachment F, Section IV.E.3., and is in effect through 30 November 2012. As part of the compliance schedule, this Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final chloride effluent limitations. In addition, the Discharger shall submit an engineering treatment feasibility study and prepare and implement a pollution prevention plan that is in compliance with CWC section 13263.3(d)(3).

i. **Chlorine Residual.** The Discharger uses chlorine (hypochlorite) for disinfection, which is extremely toxic to aquatic organisms. The Discharger dechlorinates the effluent using sodium bisulfate prior to discharge to the receiving water. Due to the existing chlorine use and the potential for chlorine to be discharged, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

Effluent limitations for residual chlorine were included in the existing Order for the final discharge to the receiving water. The existing permit contained a 1-hour average of 0.019 mg/L and a weekly average of 0.011 mg/L. USEPA developed National Recommended Ambient Water Quality Criteria for protection of

freshwater aquatic life for chlorine. The recommended water quality criteria for total residual chlorine are 11 µg/L (4-day average, CCC) and 19 µg/L (1-hour average, CMC).

The USEPA *Technical Support Document for Water Quality-Based Toxics Control* [EPA/505/2-90-001] contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average 1-hour limitation is considered more appropriate than an average daily limitation. Average 1-hour and 4-day limitations for chlorine, based on these criteria, are included in this Order. Based on the fact that the new treatment system dechlorinates the final effluent prior to discharge, the Discharger should be able to immediately comply with these new effluent limitations for chlorine residual.

The chlorine residual limitations required in this Order are protective of aquatic organisms in the undiluted discharge. If compliance is maintained, the Regional Water Board does not anticipate residual chlorine impacts to benthic organisms.

j. **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. Using the worst-case measured hardness from the effluent (210 mg/L as $CaCO_3$) and the USEPA recommended dissolved-to-total translator, the applicable chronic criterion (maximum four-day average concentration) is 20 µg/L and the applicable acute criterion (maximum one-hour average concentration) is 32 µg/L, as total recoverable. In addition, the Basin Plan (Table III-1) contains a water quality objective for dissolved copper of 10 µg/L as a site-specific objective for the Delta. Using the USEPA recommended dissolved-to-total translator, the site-specific water quality objective is 10.4 µg/L as total recoverable copper.

The MEC for total copper was 15.2 µg/L, based on 42 samples collected between January 2003 and June 2006, while the maximum observed upstream receiving water total copper concentration was 7.5 µg/L, based on 9 samples collected between May 2002 and March 2003. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan site-specific objective for copper. No dilution is allowed due to periods of no flow in the receiving water. A MDEL for total copper of 10.4 µg/L is included in this Order based on the Basin Plan site-specific objective for copper.

Based on the sample results in the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation

within 30 calendar days. Furthermore, the effluent limitations for copper are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a time schedule for compliance with the copper effluent limitations is established in CDO No. R5-2008-0007 in accordance with CWC section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

i. **Iron.** The Basin Plan (Table III-1) contains a water quality objective of 300 µg/L for dissolved iron as a site-specific objective for the Delta. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. Since there is no dissolved-to-total metal translator available for iron, it was assumed that the translator is equal to 1. The MEC for iron was 408 µg/L, based on 46 samples collected between 23 September 2002 and 4 June 2006, and the maximum reported background receiving water iron concentration was 2400 µg/L. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's site-specific objective for iron. A maximum daily effluent limitation of 300 µg/L for iron is included in this Order based on the Basin Plan's site specific objective for the Delta. Since 45 out of 46 effluent samples had an iron concentration below 160 µg/L, it appears as though the Discharger can meet this new limitation.

j. **Lead.** Order No. 5-00-171 contained a monthly average effluent limitation of 5.3 µg/L. The most stringent criteria for lead is the current USEPA Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for lead of 10 µg/L (1-hour average - CCC). The MEC for lead, based on 46 samples collected between September 2002 and June 2006 was 0.6 µg/L. The highest receiving water value, based on 10 samples collected between February 2002 and February 2003, was 0.8 µg/L. A reasonable potential analysis was conducted as specified it Section 1.3 of the SIP. Based on the effluent and receiving water data the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the applicable water quality criteria for lead. Thus, the effluent limitation for lead has not been carried over from Order No. 5-00-171.

k. **Mercury.** The current USEPA Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life for mercury is 0.77 µg/L (30-day average, CCC). The CTR contains a human health criterion (based on a one-in-a-million cancer risk) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 CFR Part 131, USEPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "…*more stringent mercury limits may be determined and implemented through use of the State's narrative criterion.*" In the CTR, USEPA reserved the mercury criteria for freshwater aquatic life protection and may adopt new criteria at a later date. The maximum observed effluent mercury concentration was 0.00597 µg/L. Marsh Creek has been 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 impacts on beneficial uses. Because Marsh Creek has been listed as an impaired water body for mercury, the discharge must not cause or contribute to increased mercury levels. The SIP, Section 1.3, requires the establishment of an effluent limitation for a constituent when the receiving stream background water quality exceeds an applicable criterion or objective.

Regional Water Board staff are currently developing a TMDL for mercury and other metals in the Marsh Creek watershed. When the TMDL is complete, the Regional Water Board will adopt appropriate water quality-based concentration and mass loading effluent limitations for the discharge. 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. An interim effluent mass limitation for mercury of 0.083 pounds/year was established in the previous Order based on a mercury effluent concentration of 0.015 µg/L and applying that to the previous average daily flow of 1.8 mgd. Although the average daily flow has increased from 1.8 mgd to 3.2 mgd, the intent of the mass loading limitation is to prevent increased loading of mercury to an already impaired water body. Thus the previous mass loading interim effluent limitation is carried over to this permit. Carrying over the interim effluent limitation assures compliance with federal anti-backsliding regulations and is consistent with Order No. 5-00-171.

In addition to the numeric interim mass-based limitation for mercury, this Order requires the Discharger to continue to implement its mercury source control program that was required by the previous Order.

l. **Oil and Grease.** The Basin Plan includes water quality objectives for oil and grease and floating material in surface waters, which state: "*Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses*" and that: "[w]*ater shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses*". The antidegradation provisions of the State Water Resources Control Board, Resolution No. 68-16 state that: " *Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained*."

Effluent limitations were contained in Order No. 5-00-171, however the

monitoring and reporting program did not contain a monitoring requirement for oil and grease. Effluent data is not available to reassess the reasonable potential of the effluent to exceed the water quality objectives contained in the Basin Plan, thus, the discharge maintains reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative objectives for oil and grease and floating material. Further, the effluent limitations for oil and grease in the existing Order must be carried over pursuant to State and federal anti-backsliding regulations. The previous permit, Order No. 5-00-171, included monthly average and 1-hour average effluent limitations for oil and grease of 10 mg/L and 15 mg/L, respectively. This Order maintains the effluent limitations for oil and grease in accordance with anti-backsliding requirements and to assure that the Discharger requires proper removal and disposal of oil and grease from commercial food service sources and properly operates and maintains the collection system to minimize plugging from oil and grease. However, because oil and grease is generally only monitored a maximum of once per day, a daily maximum effluent limitation is more appropriate than the 1-hour average effluent limitation. Further, a daily maximum effluent limitation is consistent with the application of oil and grease limitations contained in other permits for POTWs in the State. A daily maximum effluent limitation of 15 mg/L has been established to replace the 1-hour average effluent limitation for oil and grease.

m. **Persistent Chlorinated Hydrocarbon Pesticides.** 4,4'-DDT, alpha-endosulfan, and lindane (gamma-BHC) were detected in the effluent with MECs of 0.008 µg/L, 0.006 µg/L, and 0.014 µg/L, respectively, for three monitoring events between 3 September 2003 and 7 June 2004. Each of these constituents is a persistent chlorinated hydrocarbon pesticide. The Basin Plan requires that no individual pesticide shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; total chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. The CTR contains numeric criteria for 4,4'-DDT of 0.001 µg/L as a 4-day average (chronic) and 1.1 µg/L as a 1-hour average (acute) for the protection of freshwater aquatic life. The NTR contains numeric criteria for alpha-endosulfan of 0.056 µg/L as a 4-day average (chronic) and 0.22 µg/L as an instantaneous maximum for the protection of freshwater aquatic life. The CTR contains numeric criteria for lindane of 0.95 µg/L as a 1-hour average (acute) for the protection of freshwater aquatic life, and the 4-day USEPA National Ambient Water Quality Criteria (chronic) for lindane is 0.08 µg/L.

The detection of 4,4'-DDT, alpha-endosulfan, and lindane in the effluent presents a reasonable potential to exceed the Basin Plan limitations for persistent chlorinated hydrocarbon pesticides. Final effluent limitations for 4,4'-DDT, alpha-endosulfan, and lindane are included in this Order and are based on the Basin Plan objective of no detectable concentrations of chlorinated hydrocarbon pesticides. Since the Basin Plan objective is no detectable concentrations, there can be no assimilative capacity. The limitations for 4,4'-DDT, alpha-endosulfan,

and lindane are included in this Order based on reasonable potential to cause or contribute to an in-stream excursion of the water quality objective.

Based on the effluent sample results, it appears as if the Discharger may be in immediate non-compliance upon issuance of the permit. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. The Basin Plan includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives adopted after 25 September 1995. The WQBELs for 4,4'-DDT; alpha-endosulfan; and gamma-BHC are based on a new interpretation of water quality objective. Therefore, a compliance schedule for compliance with the 4,4'-DDT, alpha-endosulfan, and lindane effluent limitations is established in the Order. To ensure that timely efforts are made by the Discharger to comply with effluent limitations for 4,4'-DDT; alpha-endosulfan; and gamma-BHC, this Order establishes interim performance-based effluent limitations and requires preparation of a pollution prevention plan in compliance with CWC section 13263.3.

Furthermore, the MEC for 4,4'-DDT demonstrates reasonable potential to exceed CTR water quality objectives. Section 2.1 of the SIP allows up until 18 May 2010 for dischargers to comply CTR criteria. Therefore, the compliance schedule established in the Order for the final WQBELs cannot allow for a continued exceedance of the CTR-based effluent limitations beyond 18 May 2010. Thus, interim CTR-based effluent limitations shall become effective for 4,4'-DDT on **18 May 2010**, and shall continue to be effective until **31 December 2012**.

n. **Pathogens**. The beneficial uses of the receiving water include water contact recreation, and there is less than 20:1 dilution of the Facility effluent provided by Marsh Creek. To protect the water contact recreation 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 uses.

The California Department of Public Health (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. In addition, the previous Order established an effluent limitation of 23 MPN/100 mL, not to be exceeded once per 30-day period. This effluent limitation is carried over in accordance with State and federal anti-backsliding regulations.

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 contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens. 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, a turbidity effluent limitation 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 effluent limitations are impracticable for turbidity.

This Order contains effluent limitations and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. In accordance with CWC section 13241, the Regional Water Board has considered the following:

i. The past, present and probable future beneficial uses of the receiving stream include body contact water recreation; other non-body contact water recreation; warm freshwater aquatic habitat; wildlife habitat; and rare, threatened, or endangered species.

ii. The environmental characteristics of the hydrographic unit, including the quality of the available water, will be improved by the requirement to provide

tertiary treatment for this wastewater discharge. Tertiary treatment will allow for the reuse of the undiluted wastewater for contact recreation activities that would otherwise be unsafe according to recommendations from the DPH.

iii. Fishable and swimmable water quality conditions can be reasonably achieved through the coordinated control of all factors that affect water quality in the area.

iv. The requirement to provide tertiary treatment for this discharge will not adversely impact the need for housing in the area. The potential for developing housing in the area will be facilitated by improved water quality, which protects the contact recreation use of the receiving water. The Discharger has already installed tertiary treatment facilities so ongoing operation and maintenance costs will not significantly increase sewer fees. DPH recommends that, in order to protect the public health, relatively undiluted wastewater effluent must be treated to a tertiary level for contact recreational uses. Without tertiary treatment, the downstream waters could not be safely utilized for contact recreation. The Regional Water Board has no evidence of any economic considerations that outweigh the need to protect beneficial uses.

v. It is the Regional Water Board's policy, (Basin Plan, page IV-12.00, Policy 2) to encourage the reuse of wastewater. The Regional Water Board requires dischargers to evaluate how reuse or land disposal of wastewater can be optimized. The need to develop and use recycled water is facilitated by providing a tertiary level of wastewater treatment that will allow for a greater variety of uses in accordance with CCR, Title 22.

vi. The Regional Water Board has considered the factors specified in CWC section 13263, including considering the provisions in CWC section 13241, in adopting the disinfection and filtration requirements under Title 22 criteria. The Regional Water Board finds, on balance, that these requirements are necessary to protect the beneficial uses of the receiving water, including water contact recreation.

o. **pH.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the "…*pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.*" As was required in the previous Order, effluent limitations for pH are included in this Order based on the Basin Plan objectives for pH.

p. **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. The Basin Plan does not include Municipal and Domestic Supply (MUN) or Agricultural Supply (AGR) as designated beneficial uses for Marsh

Creek. Furthermore, a review of the State Water Board Division of Water Rights' Electronic Water Rights Information Management System (eWRIMS) indicated that there are no agricultural or municipal water diversions in Marsh Creek downstream of the discharge. Since the Basin Plan water quality objectives for salinity constituents are for the protection of MUN or AGR beneficial uses, except as discussed above for chloride, WQBELs for salinity are not necessary. However, since the receiving water is tributary to the Sacramento-San Joaquin Delta, of additional concern is the salt contribution to Delta waters. Therefore, this Order includes an interim performance-based effluent limitation of 2,495 µmhos/cm for EC to hold the discharge at current levels. This interim performance-based effluent limitation is calculated as the mean EC value plus 3.3 standard deviations. The mean value for EC from 1 September 2002 through 30 June 2006 was 2,071 µmhos/cm and the standard deviation was 128 µmhos/cm. The previous Order required the Discharger to develop and implement a Salinity Source Control Program to reduce the salinity in the wastewater treatment plant effluent. This Order requires continued implementation of the Salinity Source Control Program.

q. **Selenium.** The NTR 4-day average (chronic) water quality criteria for the protection of aquatic life is 5 µg/L. The MEC for selenium is 8.1 µg/L based on 46 samples collected by the Discharger between 23 September 2002 and 4 June 2006. Selenium concentrations in the receiving water range from 2.0 µg/L to 4.5 µg/L, with an average of 3.03 µg/L (based on 10 samples collected between April 2002 through February 2003). The MEC exceeds the NTR water quality objective for the protection of aquatic life. An AMEL of 4.4 µg/L and a MDEL of 7.3 µg/L have been established in the Order, pursuant to the procedures specified in the SIP (see Attachment F, Table F-8 for WQBEL calculations).

Based on effluent data results, it appears the Discharger is unable to immediately comply with these limitations. Section 2.1 of the SIP allows for compliance schedules within the permit for existing discharges where it is demonstrated that it is infeasible for a Discharger to achieve immediate compliance with a CTR/NTR criterion. Using the statistical methods for calculating interim effluent limitations described in Attachment F, Section IV.E, an interim performance-based maximum daily limitation of 10.1 µg/L was calculated.

Section 2.1 of the SIP provides that: "*Based on an existing discharger's request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit.*" Section 2.1, further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: …"*(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed*

schedule is as short as practicable." The Discharger provided this information in an infeasibility analysis titled, "Infeasibility Analysis For The City of Brentwood Wastewater Treatment Plant" dated October 2007. The new WQBELs for selenium become effective on **18 May 2010**. The justification in the Infeasibility Analysis provides for a time schedule for the Discharger to comply with the new limitation for selenium in five years from the effective date of this Order. Allowance of an additional compliance schedule beyond the dates specified above may be granted in a subsequent enforcement order, as the Regional Water Board deems necessary.

This Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final selenium effluent limitations. The interim effluent limitations are in effect through **17 May 2010**. As part of the compliance schedule for selenium, the Discharger shall develop a pollution prevention program in compliance with CWC section 13263.3(d)(3) and submit an engineering treatment feasibility study.

r. **Thallium.** Order No. 5-00-171 contained a monthly average effluent limitation of 1.7 µg/L. The most stringent criteria for thallium is the current CTR Inland Surface Waters Criteria for the Protection of Human Health for the Consumption of Aquatic Organisms, 30-day Average, of 1.7 µg/L. The MEC for thallium, based on 46 samples collected between 23 September 2002 and 30 June 2006 was 0.5 µg/L. The highest receiving water value, based on 10 samples collected between 1 February 2002 and 3 February 2003, was 0.06 µg/L. A reasonable potential analysis was conducted as specified it Section 1.3 of the SIP. Based on the effluent and receiving water data the Discharger does not demonstrate reasonable potential to exceed water quality criteria. Thus, the effluent limitation for thallium has not been carried over from Order No. 5-00-171 and new WQBELs have not been established.

The monitoring data submitted by the Discharger is considered new information by the Regional Water Board. The removal of effluent limitations for thallium is consistent with the antidegradation provisions of 40 CFR §131.12 and State Water Board Resolution No. 68-16. Any impact on existing water quality will be insignificant.

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

4. WQBEL Calculations

a. Effluent limitations for dissolved oxygen, chlorine residual, 4,4'-DDT, alpha-endosulfan, gamma-BHC, pathogens, and pH were based on Basin Plan objectives and applied directly as effluent limitations. A performance-based interim mass loading effluent limitation for mercury was established in accordance with the SIP until the applicable TMDL is finalized.

b. WQBELs for aluminum, ammonia, chloride, and selenium were calculated in accordance with section 1.4 of the SIP. The following subsection describes the

methodology used for calculating effluent limitations in accordance with the SIP. Tables F-8 through F-13 present a summary of the effluent calculations for each constituent. A summary of the WQBELs is provided in Table F-14.

c. **Effluent Limitation Calculations.** In calculating maximum effluent limitations, the ECA is calculated as follows:

$$ECA_{chronic} = CCC + D(CCC - B)$$

$$ECA_{acute} = CMC + D(CMC - B)$$

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

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

where:

ECA_{acute} = effluent concentration allowance for acute (1-hour average) toxicity criterion

$ECA_{chronic}$ = effluent concentration allowance for chronic (4-day average) toxicity criterion

ECA_{HH} = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective

CMC = criteria maximum concentration (1-hour average)

CCC = criteria continuous concentration (4-day average, unless otherwise noted)

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 MDEL and the AMEL.

Human health ECAs are set equal to the AMEL 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

Table F-6. WQBEL Calculations for Aluminum

	Acute	Chronic
Criteria (µg/L) [1]	750	87
Dilution Credit	No Dilution	No Dilution
ECA	750	87
ECA Multiplier	0.46	0.66
LTA	341.5	57.4
AMEL Multiplier (95th%)	[2]	1.34
AMEL (µg/L)	[2]	**76.5**
MDEL Multiplier (99th%)	[2]	2.20
MDEL (µg/L)	[2]	**126**

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

Table F-7. WQBEL Calculations for Ammonia

	Acute	Chronic (30-day)	Chronic (4-day)
Criteria (mg/L) [1]	2.14	1.17	2.93
Dilution Credit	No Dilution	No Dilution	No Dilution
ECA	2.14	1.17	2.93
ECA Multiplier	0.172	0.615	0.318
LTA	0.367	0.720	0.929
AMEL Multiplier (95th%)	2.15	[2]	[2]
AMEL (mg/L)	**0.8**	[2]	[2]
MDEL Multiplier (99th%)	5.82	[2]	[2]
MDEL (mg/L)	**2.1**	[2]	[2]

[1] USEPA Ambient Water Quality Criteria
[2] Limitations based on acute LTA [Acute LTA < Chronic (30-day) LTA < Chronic (4-day)]

Table F-8. WQBEL Calculations for Selenium

	Acute	Chronic
Criteria (µg/L) [1]	20	5
Dilution Credit	No Dilution	No Dilution
ECA	20	5
ECA Multiplier	0.321	0.643
LTA	6.42	3.2
AMEL Multiplier (95th%)	[2]	1.36
AMEL (µg/L)	[2]	**4.4**
MDEL Multiplier (99th%)	[2]	2.27
MDEL (µg/L)	[2]	**7.3**

[1] California Department of Fish and Game Water Quality Criteria
[2] Limitations based on acute LTA (Acute LTA > Chronic LTA)

Table F-9. WQBEL Calculations for Chloride

	Acute	Chronic
Criteria (mg/L) [1]	860	230
Dilution Credit	No Dilution	No Dilution
ECA	860	230
ECA Multiplier	0.88	0.94
LTA	754.1	215.3
AMEL Multiplier (95th%)	[2]	1.0
AMEL (mg/L)	[2]	**226**
MDEL Multiplier (99th%)	[2]	1.1
MDEL (mg/L)	[2]	**246**

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

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

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

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (BOD_5) (5-day @ 20 Deg. C)	mg/L	7	12	15	--	--
	lbs/day[8]	292	500	625		
Dissolved Oxygen	mg/L	--	--	--	5.5	--
Oil and Grease	mg/L	10	--	15	--	--
pH	SU	--	--	--	6.5	8.5
Mercury, Total Recoverable	lbs/year	--[1]	--	--	--	--
Selenium[7], Total Recoverable	µg/L	4.4	--	7.3	--	--
	lbs/day[8]	0.18	--	0.30	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
4,4'-DDT	µg/L	--	--	--	--	ND[2]
alpha-endosulfan	µg/L	--	--	--	--	ND[2]
lindane (gamma-BHC)	µg/L	--	--	--	--	ND[2]
Chloride	mg/L	226	--	246	--	--
Aluminum, Total Recoverable	µg/L	76.5	--	126	--	--
Ammonia Nitrogen, Total (as N)	mg/L	0.8	--	2.1	--	--
	lbs/day[8]	33.3	--	87.6		
Chlorine Residual	mg/L	--	0.011[3]	--	--	0.019[4]
Iron, Total Recoverable	µg/L	--	--	300	--	--
Copper, Total Recoverable	µg/L	--	--	10.4	--	--
Total Coliform Organisms	MPN/100 mL	23[5]	2.2[6]	--	--	--
Temperature	ºF	--	--	[9]	--	--

1 Compliance with a final WQBEL is not required; the interim performance-based effluent limitation is 0.083 lbs/year.
2 ND – Non Detect
3 Applied as a 4-day average effluent limitation.
4 Applied as a 1-hour average effluent limitation.
5 Not to be exceeded more than once in any 30-day period.
6 Expressed as a 7-day median.
7 Full compliance required by **18 May 2010**
8 Based on a maximum permitted flow of 5.0 mgd.
9 The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.

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-8.00). USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute*

toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc." Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

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

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

b. **Chronic Aquatic Toxicity.** Adequate WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective. Attachment E of this Order requires quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective.

In addition to WET monitoring, Special Provision VI.C.2.a. requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is 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, including BOD_5 and selenium (a bioaccumulative chemical of concern). In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations for conventional pollutants were calculated based upon the designed daily discharge flow allowed in Section IV.A.1.h 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 maximum daily effluent limitations in lieu of average weekly effluent limitations for aluminum, ammonia, bromoform, chlorodibromomethane, dichlorobromomethane, oil and grease, and selenium as recommended by the TSD for the achievement of water quality standards and for the protection of the beneficial uses of the receiving stream. Furthermore, for chlorine residual[2], dissolved oxygen, pH, and total coliform, 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

Some effluent limitations in this Order are less stringent than those in the previous Order. As discussed below this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

Order No. 5-00-171 established monthly average effluent limitations for lead and thallium based on water quality criteria. The monthly average effluent limitation for lead was 5.3 µg/L. Data submitted by the Discharger for monitoring events between 5 January 2003 through 4 June 2006 indicate a MEC of 0.6 µg/L. The monthly average effluent limitation for thallium was 1.7 µg/L. Data submitted by the Discharger for monitoring events between 5 January 2003 through 4 June 2006 indicates a MEC of 0.5 µg/L. Monitoring data from Marsh Creek upstream of the discharge also indicate concentrations well below applicable water quality criteria for both lead and thallium. Reasonable potential is not demonstrated by the discharge to exceed water quality criteria. The monitoring data submitted by the Discharger is considered new information by the Regional Water Board. Order No. 5-00-171 establishes a monthly average effluent limitation for nitrate based on the beneficial use of domestic or municipal supply. The beneficial use of MUN is not currently assigned to Marsh Creek in the Basin Plan, therefore the effluent limitation for nitrate in the previous Order has not been included in the current Order. The removal of effluent limitations for nitrate, lead and thallium is consistent with the antidegradation

[2] This Order applies the USEPA National Ambient Water Quality Criteria for chlorine directly as effluent limitations (1-hour average, acute, and 4-day average, chronic). See Section IV.C.3., above, for rationale regarding the chlorine residual effluent limitations.

provisions of 40 CFR §131.12 and State Water Board Resolution No. 68-16. Any impact on existing water quality will be insignificant.

4. Satisfaction of Antidegradation Policy

a. **Surface Water.** The permitted surface water discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16 (Resolution 68-16). Resolution 68-16 and 40 CFR Section 131.12, require the Regional Water Board, in regulating the discharge of waste, to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies. Resolution 68-16 requires the discharge be regulated to meet best practicable treatment or control to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State be maintained.

Although this Order may allow some degradation of the quality of waters of the state, it is consistent with Resolution 68-16 because (1) such degradation is consistent with the maximum benefit to the people of the State, (2) the discharge is the result of wastewater utility service that is necessary to accommodate housing and economic expansion, and (3) it results in a high level of treatment of sewage waste. This Order requires tertiary treatment or equivalent to the DPH reclamation criteria, which is a high level of treatment that is considered best practicable treatment or control (BPTC) for most constituents in the wastewater and will result in attaining water quality standards applicable to the discharge. This Order allows for an increase in the volume and mass of some pollutants to be discharged to Marsh Creek. The increase will not cause significant impacts to aquatic life, which is the beneficial use most likely affected by the pollutants discharged (e.g. from temperature and metals). The discharge from the facility may currently cause or contribute to exceedances of applicable water quality objectives for certain constituents as described in this Order. However, this Order requires the Discharger, in accordance with specified compliance schedules, to meet requirements that will result in the use of BPTC of the discharge for those constituents with technology-based standards and more stringent water quality-based standards.

The upgraded wastewater treatment plant for the City of Brentwood that went on-line in August 2003 was designed to provide a tertiary level of treatment for up to a design flow of 5.0 mgd. Due to low influent flow volume and limited industrial dischargers, Order No. 5-00-171 regulated flow to a maximum dry weather discharge of 4.5 mgd. Since the adoption of Order No. 5-00-171, the average daily influent flow has increased from 1.8 mgd to approximately 3.2 mgd. Due to the increased influent flow and anticipated continued growth of the service population, the Discharger has requested the daily maximum flow volume be revised to reflect the actual design capacity that was approved during the Environmental Impact Report review and CEQA process. This Order authorizes

the Discharger to increase the total discharge to surface water from 4.5 mgd to 5 mgd, an allowable flow increase of approximately 11 percent. The actual daily average discharge is not expected to immediately increase, but will allow for increased effluent volume as the service population grows and expands over the term of the Order. This allowable increase in discharge volume allows for an increase in the total loading of pollutants discharged into Marsh Creek by the Discharger. However, with the exception of mercury, the WQBELs contained in this Order are concentration-based and continue to be protective of water quality and meet applicable water quality criteria/objectives. Because the allowable mass increase is not significant and the effluent limitations continue to be protective of water quality, the increase is not expected to contribute to the degradation of water quality in Marsh Creek and any impact on existing water quality will be insignificant. The effluent limitation contained in this Order for mercury is mass-based, and an increase in discharge flow volume does not allow for an increase in the amount of mercury loading to Marsh Creek by the Discharger.

b. **Groundwater.** The Discharger utilizes percolation ponds for receiving a small portion of the treated effluent. Domestic wastewater contains constituents such as TDS, specific conductivity, pathogens, nitrates, organics, metals and oxygen demanding substances (BOD_5). Percolation from the ponds may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with Resolution No. 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger is consistent with Resolution No. 68-16 provided that:

   i. the degradation is limited in extent;

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

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

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

   Effluent limitations for discharge to the disposal ponds for BOD_5 and settleable solids, and groundwater limitations for TDS, EC, and total coliform have been carried over from the previous Order to protect the beneficial uses of groundwater.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on TSS, turbidity, and settleable solids. Restrictions on TSS, turbidity, and settleable solids are discussed in Section IV.B.2 of this Fact Sheet. 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 not more stringent than required by the CWA.

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 section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR-SIP, which was approved by USEPA on 18 May 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to section 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

Final effluent limitations were determined by comparing the technology-based effluent limitations and the WQBELs and applying the most stringent limitations for each individual parameter. Effluent limitations for aluminum, ammonia, BOD_5/dissolved oxygen, chloride, chlorine residual, oil and grease, 4,4'-DDT, alpha-endosulfan, gamma-BHC, pH, selenium, and total coliform are based on water quality criteria. No final effluent limitations were included for mercury until a final TMDL is developed and adopted. Effluent limitations for TSS, turbidity, and settleable solids are technology-based. The effluent limitation established for flow is based on the design flow capacity of the Facility.

The final effluent limitations for the discharge of tertiary treated effluent through Discharge Point No. 001 are summarized below:

Summary of Final Effluent Limitations
Discharge Point No. 001

Table F-11. Summary of Final Effluent Limitations

Parameters	Units	Effluent Limitations					Basis
		Average Monthly	Average Weekly	Maximum Daily	Inst. Min.	Inst. Max.	
Biochemical Oxygen Demand (BOD_5) (5-day @ 20 Deg. C)	mg/L	7	12	15	--	--	DOS, PO
	lbs/day[2]	292	500	625	--	--	
Dissolved Oxygen	mg/L	--	--	--	5.5	--	DOS, PO
Oil and Grease	mg/L	10	--	15	--	--	BP, PO
pH	SU	--	--	--	6.5	8.5	BP, PO
Total Suspended Solids	mg/L	10	15	20	--	--	TB
	lbs/day[2]	417	625	834	--	--	
Selenium[3], Total Recoverable	µg/L	4.4	--	7.3	--	--	NTR
	lbs/day[2]	0.183	--	0.30	--	--	
4,4'-DDT	µg/L	--	--	--	--	ND[2]	BP
alpha-endosulfan	µg/L	--	--	--	--	ND[2]	BP
lindane (gamma-BHC)	µg/L	--	--	--	--	ND[2]	BP
Aluminum, Total Recoverable	µg/L	76.5	--	126	--	--	NAWQC
Ammonia Nitrogen, Total (as N)	mg/L	0.8	--	2.1	--	--	NAWQC
	lbs/day[2]	33.3	--	87.6			
Chlorine Residual	mg/L	--	0.011[4]	--	--	0.019[5]	NAWQC
Iron, Total Recoverable	µg/L	--	--	300	--	--	BP
Copper, Total Recoverable	µg/L	--	--	10.4	--	--	BP
Total Coliform	MPN/100 mL	23[7]	2.2[8]	--	--	240	PO, TITLE 22
Temperature	ºF	--	--	[9]	--	--	TP

[1] DOS - DO Sag analysis (Streeter-Phelps) of the receiving water for allowable BOD_5 concentration.
PO – Previous Order No. 5-00-171
BP – Basin Plan
CFR – Secondary Treatment Standards contained in 40 CFR Part 133
NTR – National Toxics Rule
CTR – California Toxics Rule
NAWQC – USEPA National Recommended Ambient Water Quality Criteria.
SEC MCL – Secondary Maximum Contaminant Level
MCL – Primary Maximum Contaminant Level
TITLE 22 – Based on CA Dept. of Health Services Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).
TB – Technology-based
TP – Thermal Plan
[2] Based on a maximum permitted flow of 5.0 mgd.
[3] Full compliance required by 18 May 2010
[4] Applied as a 4-day average.
[5] Applied as a 1-hour average.
[7] Not to be exceeded more than one time in any 30-day period.
[8] Expressed as a 7-day median.
[9] The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.

E. Interim Effluent Limitations

1. **Constituents.** The SIP, section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Water Board shall establish interim requirements and dates for their achievement in the NPDES permit. The interim limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent. The State Water Board has held that the SIP may be used as guidance for non-CTR constituents. Therefore, the SIP requirement for interim effluent limitations has been applied to both CTR and non-CTR constituents in this Order. The SIP allows for compliance schedules for CTR criteria based-effluent limitations to extend up to 5 years (however does not require 5 years be granted) from the date of permit issuance, reissuance, or modification. The SIP further states that in no case shall a compliance schedule exceed 10 years from the effective date of the SIP for CTR criterion-based effluent limitations (17 May 2010). Thus, compliance with CTR criterion-based effluent limitations must be achieved by 17 May 2010.

   The WQBELs for chloride; selenium; 4,4'-DDT; alpha-endosulfan; and gamma-BHC are based on a new interpretation of water quality objective. Therefore, a schedule for compliance with the selenium, chloride, 4,4'-DDT; alpha-endosulfan; and gamma-BHC is established in the Order. Due to the difficulty of removing chloride, selenium, 4,4'-DDT, alpha-endosulfan, and gamma-BHC or establishing and implementing appropriate source control measures, a compliance schedule of up to 5 years have been established in the Order. The Discharger must achieve compliance with the final effluent limitations for chloride; 4,4'-DDT; alpha-endosulfan; and gamma-BHC by **1 January 2013** and for selenium by **17 May 2010**..

   The interim limitations for chloride; selenium; 4,4'-DDT; alpha-endosulfan; gamma-BHC in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are 10 sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitations in this Order are established as the mean plus 3.3 standard deviations of the available data.

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

3.11 times the maximum observed effluent concentration to obtain the daily maximum interim limitation (TSD, Table 5-2).

The Regional Water Board finds that the Discharger can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with effluent limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the effluent limitation can be achieved.

Table F-12 summarizes the calculations of the interim effluent limitations for chloride; selenium; 4,4'-DDT; alpha-endosulfan; and gamma-BHC:

Table F-12. Interim Effluent Limitation Calculation Summary

Parameter (µg/L)	MEC	Mean	Std. Dev.	# of Samples	Interim Limitation
Selenium, Total Recoverable	8.1	4.4	1.7	46	10.1
Chloride	430	368	26.3	19	455
4,4'-DDT	0.008	0.004	0.003	3	0.025
alpha-Endosulfan	0.006	0.004	0.002	3	0.019
gamma-BHC	0.014	0.006	0.007	3	0.044

2. **4,4'-DDT.** See Section IV.C.3.t. for the rationale for the CTR criteria-based interim effluent limitations for 4,4'-DDT.

Table F-13. Interim WQBEL Calculations for 4,4'-DDT

	Acute	Chronic
Criteria (mg/L) [1]	1.1	0.001
Dilution Credit	No Dilution	No Dilution
ECA	1.1	0.001
ECA Multiplier	0.32	0.53
LTA	0.4	0.0005
AMEL Multiplier (95th%)	[2]	1.6
AMEL (mg/L)	[2]	**0.0008**
MDEL Multiplier (99th%)	[2]	3.1
MDEL (mg/L)	[2]	**0.0016**

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

[3] CTR for sources of drinking water

3. **Mercury.** The interim effluent limitation for mercury has been carried over from previous Order.

F. Land Discharge Specifications

1. The Land Discharge Specifications are necessary to protect the beneficial uses of the groundwater.

2. The discharge specifications and groundwater limitations contained in the existing permit for the Discharger were applied to ensure proper operation of the pond and treatment of domestic wastewater, and to protect groundwater quality. Pond disposal limitations have been included to assure the ponds do not cause a nuisance (odors, mosquitoes production) and that the wastewater is contained within the appropriate disposal area (minimum freeboard, flood protection).

3. The flow limitations for discharge into the ponds has been carried over from the previous Order.

G. Reclamation Specifications

Set forth in WDR Order No. R5-2004-0132

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

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 Board will apply to regional waters in order to protect the beneficial uses*." The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains Receiving Surface Water Limitations based on the Basin Plan

numerical and narrative water quality objectives for bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, sediment, settleable material, suspended material, taste and odors, temperature, toxicity, and turbidity.

Numeric Basin Plan objectives for bacteria, dissolved oxygen, pH, temperature, and turbidity are applicable to this discharge and have been incorporated as Receiving Surface Water Limitations. Rationale for receiving surface water limitations are as follows:

a. **Bacteria.** The Basin Plan includes a water quality objective that "*[I]n water designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml*." Numeric Receiving Water Limitations for bacteria are included in this Order and are based on the Basin Plan objective.

b. **Biostimulatory Substances**. The Basin Plan includes a water quality objective that "*[W]ater shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for biostimulatory substances are included in this Order and are based on the Basin Plan objective.

c. **Chemical Constituents**. The Basin Plan includes a water quality objective that *"[W]aters shall not contain chemical constituents in concentrations that adversely affect beneficial uses."* Receiving Water Limitations for chemical constituents are included in this Order and are based on the Basin Plan objective.

d. **Color**. The Basin Plan includes a water quality objective that "*[W]ater shall be free of discoloration that causes nuisance or adversely affects beneficial uses."* Receiving Water Limitations for color are included in this Order and are based on the Basin Plan objective.

e. **Dissolved Oxygen.** The Basin Plan includes a water quality objective that "*[W]ithin the legal boundaries of the Delta, the dissolved oxygen concentrations shall not be reduced below: 7.0 mg/L in the Sacramento River (below the I Street Bridge) and in all Delta waters west of the Antioch Bridge; 6.0 mg/L in the San Joaquin River (between Turner Cut and Stockton, 1 September through 30 November); and 5.0 mg/L in all other Delta waters except those bodies of water which are constructed for special purposes and from which fish have been excluded or where the fishery is not important as a beneficial use*." Receiving Water Limitations for dissolved oxygen are included in this Order and are based on the Basin Plan objective.

f. **Floating Material**. The Basin Plan includes a water quality objective that *"[W]ater shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for floating material are included in this Order and are based on the Basin Plan objective.

g. **Oil and Grease**. The Basin Plan includes a water quality objective that *"[W]aters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses."* Receiving Water Limitations for oil and grease are included in this Order and are based on the Basin Plan objective.

h. **pH.** The Basin Plan includes water quality objective that *"[T]he pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses*" This Order includes receiving water limitations for both pH range and pH change.

   The Basin Plan allows an appropriate averaging period for pH change in the receiving stream. Since there is no technical information available that indicates that aquatic organisms are adversely affected by shifts in pH within the 6.5 to 8.5 range, an averaging period is considered appropriate and a monthly averaging period for determining compliance with the 0.5 receiving water pH limitation is included in this Order.

i. **Pesticides**. The Basin Plan includes a water quality objective for pesticides beginning on page III-6.00. Receiving Water Limitations for pesticides are included in this Order and are based on the Basin Plan objective.

j. **Radioactivity**. The Basin Plan includes a water quality objective that *"[R]adionuclides shall not 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."* The Basin Plan states further that *"[A]t a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations…"* Receiving Water Limitations for radioactivity are included in this Order and are based on the Basin Plan objective.

k. **Sediment.** The Basin Plan includes a water quality objective that *"[T]he suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses"* Receiving Water Limitations for suspended sediments are included in this Order and are based on the Basin Plan objective.

l. **Settleable Material.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses."* Receiving Water Limitations for settleable material are included in this Order and are based on the Basin Plan objective.

m. **Suspended Material.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for suspended material are included in this Order and are based on the Basin Plan objective.

n. **Taste and Odors**. The Basin Plan includes a water quality objective that *"[W]ater 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."* Receiving Water Limitations for taste- or odor-producing substances are included in this Order and are based on the Basin Plan objective.

o. **Temperature.** The Thermal Plan is applicable to this discharge. The Thermal Plan requires that the discharge shall not cause the following:

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

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

   Receiving Water Limitations for temperature are included in this Order and are based on the Thermal Plan requirements. Based on data submitted during the previous permit term, it appears as if the Discharger is unable to comply with Receiving Water Limitations V.A.15, therefore, CDO No. R5-2008-0007 includes a time schedule for compliance. The Discharger must either comply with the Thermal Plan or obtain an exception to the Thermal Plan. This Order may be reopened to modify limitations for Thermal Plan compliance. It should be noted that the Discharger has conducted a thermal and aquatic life study on Marsh Creek to examine whether alternative receiving water temperature limitations were justified. Although the results of the study indicate that alternative temperature limitations would adequately protect designated uses of Marsh Creek, the study was based on compliance with Basin Plan temperature limitations, and not compliance with the Thermal Plan. Furthermore, while the Basin Plan allows averaging periods for compliance with the temperature objective, the Thermal Plan does not.

p. **Toxicity**. The Basin Plan includes a water quality objective that *"[A]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life."* Receiving Water Limitations for toxicity are included in this Order and are based on the Basin Plan objective.

q. **Turbidity.** The Basin Plan includes a water quality objective that "*[I]ncreases in turbidity attributable to controllable water quality factors shall not exceed the*

following limits:

- *Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.*
- *Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.*
- *Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.*
- *Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent*."

A numeric Receiving Surface Water Limitation for turbidity is included in this Order and is based on the Basin Plan objective for turbidity.

B. Groundwater

1. The beneficial uses of the underlying groundwater 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 for total coliform 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 authorize 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 percent reduction requirements). Continuous flow monitoring and weekly monitoring for specific conductivity have been carried over from Monitoring and Reporting Program No. 5-00-171. Monitoring for BOD_5 and TSS has been increased from monthly to 5 times/week in this Order to more closely monitor process operations at the Facility.

2. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR §122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater. Effluent monitoring requirements for flow, dissolved oxygen, pH, temperature, mercury, selenium, aluminum, ammonia (as N), electrical conductivity, iron, nitrate (as N), total residual chlorine, settleable solids, and turbidity have been carried over from Monitoring and Reporting Program No. 5-00-171 to determine compliance with effluent limitations for these parameters.

   Monitoring data collected over the previous permit term for arsenic, copper, and zinc did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been carried over, however these parameters must be monitored as part of the quarterly priority pollutant monitoring required during the third year of the permit term.

   BOD_5 and TSS are indicators of treatment plant performance and operation. In order to determine reliable compliance with the effluent limitations for BOD_5 and TSS, and to ensure proper treatment plant performance and operation, the monitoring frequencies for BOD_5 and TSS have been increased to 5 times/week.

   Monitoring data submitted by the Discharger during the previous permit term indicates that the discharge has reasonable potential to exceed water quality criteria for 4,4'-DDT, lindane, and alpha-endosulfan. Quarterly monitoring has been established for these constituents to determine compliance with the applicable effluent limitations.

The monitoring data submitted by the Discharger did not indicate reasonable potential for standard minerals other than chloride. Effluent monitoring requirements for TDS are carried over from the previous Order and monitoring for chlorideisestablished. The monitoring frequency for standard minerals has been decreased from quarterly to annually. More frequent monitoring for iron has been established based on reasonable potential, thus iron is not required to be monitored as part of the standard minerals.

Priority pollutant data for the effluent has been provided by the Discharger over the term of the previous Order, and was used to conduct a meaningful reasonable potential analysis. However, 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. Thus, the monitoring frequency for priority pollutants has been reduced from semi-annually to quarterly only during the third year of the permit term.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Monthly 96-hour bioassay testing was required in the previous Order. Monitoring data submitted by the Discharger during the term of the previous Order indicates the Discharger has complied with the acute toxicity effluent limitation during the previous permit term. Reported percent survival was between 80 and 100 percent. Due to continuous compliance with the acute toxicity effluent limitation during the previous permit term, the monthly monitoring for acute toxicity has been reduced to quarterly 96-hour bioassay testing to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Quarterly chronic whole effluent toxicity testing was required in the previous permit in order to demonstrate compliance with the Basin Plan's narrative toxicity objective. This monitoring requirement will be carried over to the new Order to provide the Regional Water Board with toxicity data necessary to determine if future effluent limitations would be necessary.

D. Receiving Water Monitoring

1. Surface Water

a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream. The monitoring frequency for total coliform has been increased from monthly to weekly. The receiving water monitoring requirements from Monitoring and Reporting Program No. 5-00-171 for the remaining constituents have been carried over to this Order.

b. Quarterly monitoring for priority pollutants up stream of the discharge point is required during the third year of the permit term to collect the necessary data to determine reasonable potential as required in section 1.2 of the SIP. The pH and

hardness (as $CaCO_3$) of the up stream receiving water shall also be monitoring concurrently with the priority pollutants 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.

2. Groundwater

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

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

c. Effluent from POTWs may contain constituents that degrade groundwater and surface water, provided the discharge is in compliance with Resolution 68-16. This Order requires the Discharger to continue groundwater monitoring up gradient and down gradient of the operational disposal ponds. Weekly

d. The groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Regional Water Board plans and policies, including Resolution No. 68-16.

E. 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. Disposal Pond Influent Monitoring

Disposal pond influent monitoring is required to evaluate compliance with land discharge specifications. Monitoring requirements for flow, BOD_5, settleable solids, specific conductivity, pH, and metals (including aluminum, arsenic, boron, copper, lead, mercury, selenium, thallium, and zinc) have been carried over from Monitoring and Reporting Program No. 5-00-171.

3. **Disposal Pond Monitoring**

Disposal pond monitoring is required to evaluate compliance with Land Discharge Specifications contained in Section IV.B of Order No. R5-2008-0006. Monthly monitoring for dissolved oxygen, electrical conductivity, pH, and pond freeboard has been carried over from Monitoring and Reporting Program No. 5-00-171 for Disposal Ponds 006, 007, and 008.

4. **Water Supply Monitoring**

Water supply monitoring is required to evaluate the source of EC and TDS in the wastewater.

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 (Special Provisions VI.C.1.c).** 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. **Pollution Prevention (Special Provision VI.C.1.d).** This Order requires the Discharger prepare and implement pollution prevention plans following CWC section 13263.3(d)(3) for chloride, selenium, 4,4’-DDT, alpha-endosulfan, and

gamma-BHC. This reopener provision allows the Regional Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for these constituents based on a review of the pollution prevention plans.

c. **Whole Effluent Toxicity (Special Provision VI.C.1.e).** 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.

d. **Water Effects Ratio (WER) and Metal Translators (Special Provision VI.C.1.f).** 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 contained within this Order. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

2. Special Studies and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” (Basin Plan at III-8.00.) Adequate WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan’s narrative toxicity objective. Attachment E of this Order requires quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective.

In addition to WET monitoring, this provision requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is demonstrated.

i. **Monitoring Trigger.** A numeric toxicity monitoring trigger of > 1 TU_c (where TU_c = 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.

ii. **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.

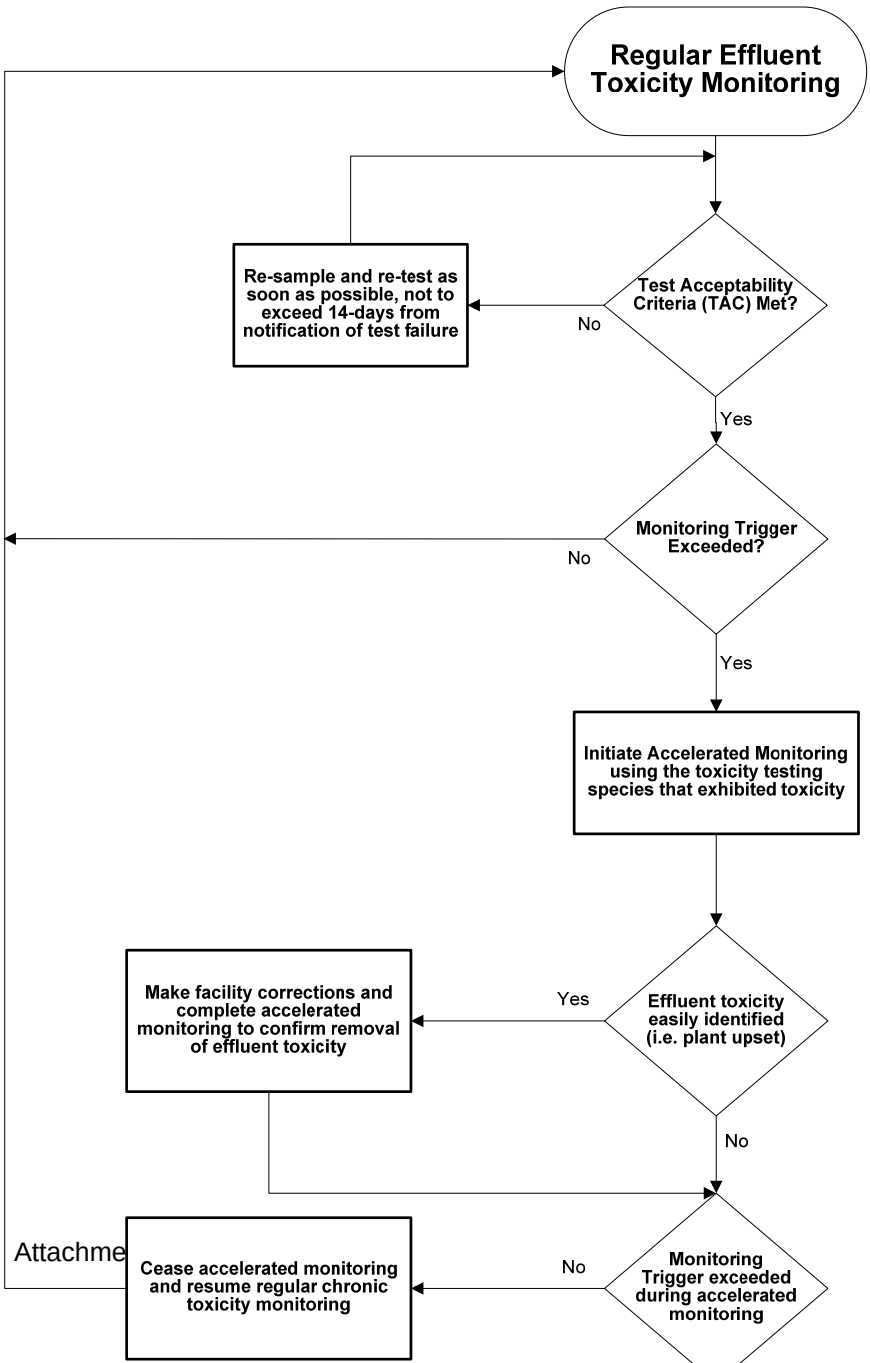
See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

iii. **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. **Groundwater Monitoring Evaluation**. The Discharger has requested the removal of existing monitoring wells that are no longer applicable to the new treatment operation (i.e., wells representing Disposal Ponds 001 through 005 and 009 through 013). The Discharger shall conduct a groundwater evaluation to determine the adequacy of the existing monitoring network, identify unnecessary monitoring wells, and the need for supplemental wells if necessary. This report shall include a proposal for point of compliance groundwater monitoring wells, which shall be located on property owned or controlled by the Discharger. The purpose of the report is to establish points of compliance to ensure that the land disposal of wastewater effluent from the Facility is not negatively impacting groundwater elevation beyond the Facility's property boundary, or the beneficial uses of the groundwater.

3. Best Management Practices and Pollution Prevention

a. **Mercury Source Reduction Program.** The interim effluent limitation for mercury restricts the mass loading to current levels. The Discharger has requested an increase in the permitted discharge flow; therefore, it may be necessary to provide source controls to limit the mass loading of mercury entering the facility to comply with the interim effluent limitations for mercury. The previous Order required the Discharger to develop a mercury source reduction workplan to investigate the causes of, and identify corrective actions to control mercury loadings. The workplan was submitted in August 2003, and included the development of local discharge limits, a public outreach program, and reductions in the discharge to Marsh Creek through the use of a permitted reclamation permit. Local discharge limits were adopted by the Discharger in December 2005, implementation of public outreach efforts were initiated in September 2003, and in January 2004, the Discharger began discharging reclaimed wastewater. This Order will require the continued implementation of the mercury source reduction program.

b. **Salinity Source Control Program.** Over the term of the previous Order, the Discharger developed and implemented a Salinity Source Control Program (SSCP). The Discharger identified the source water (groundwater) and the use of water softeners as the major contributions to the high salinity levels. In September 2003 the Discharger signed an agreement with the Contra Costa Water District to purchase a capacity right of up to 6 mgd of surface water treatment capacity, which is a lower salinity water source. The agreement includes provisions for the construction of a new water treatment plant, which will allow for the treatment of the City's East Contra Costa Irrigation District water. The Discharger anticipates that continued increased use of surface water will result in reduced effluent salinity levels. The Discharger is also considering expanded public education efforts regarding the source water and wastewater salinity issues. The report further states that the City of Brentwood may consider the adoption of a water softener ordinance that would serve to limit the

contribution of salts in the wastewater inflows. This Order requires continued implementation of the SSCP.

c. **CWC section 13263.3(d)(3) Pollution Prevention Plans.** The pollution prevention plans required for chloride; selenium; 4,4'-DDT; alpha-endosulfan; gamma-BHC shall, at minimum, meet the requirements outlined in CWC section 13263.3(d)(3). The minimum requirements for the pollution prevention plans include the following:

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

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

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

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

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

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

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

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

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

4. Construction, Operation, and Maintenance Specifications

a. The operation and maintenance of the treatment ponds are required to be conducted in a manner that prevents flooding and reduces nuisances. Treatment pond operating requirements are carried over from the previous Order.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Pretreatment Requirements.

i. 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.

ii. The Discharger was required in the previous Order to develop a pretreatment program by 1 January 2002, and implement the approved program 120 days after approval. Although the Discharger has no categorical or significant industrial users that discharge to the Facility, the requirement to develop and implement a pretreatment program was to ensure that an adopted program was in place to regulate potential future industrial users. Based on review of the 2003, 2004, and 2005 Annual Reports submitted to the Regional Water Board by the Discharger, it appears that although certain components of the pretreatment program have been developed and submitted by the Discharger, a complete program has not yet been submitted to the Regional Water Board for approval. The 2003 Annual Report indicated that the Discharger's goal was to have a written program submitted by November 2004; the 2004 Annual Report indicated that an executive review of the written program would be complete by March 2005, and local limits and the revised ordinance would be approved by April 2005; and the 2005 Annual Report indicates that the revised ordinance was adopted in August 2005, local limits were adopted in 2005, and the program budget for program implementation would be identified by May 2006 and requested for the 2006/2007 fiscal year. Due to the fact that the Discharge has not yet submitted a complete program submission for review and approval by the Regional Water Board, this Order requires, within 6 months from adoption of the Order, the submission of a written pretreatment program submission. 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:

a) Chapter 1 – Organization and Multi-Jurisdiction Implementation
b) Chapter 2 – Legal Authority
c) Chapter 3 – Local Limits
d) Chapter 4 – Identification of Non-Domestic Users
e) Chapter 5 – Permits and Fact Sheets
f) Chapter 6 – Compliance Monitoring
g) Chapter 7 – Enforcement
h) Chapter 8 – Resources
i) Chapter 9 – Public Participation and Confidentiality.

b. **Biosolids.** The use and disposal of biosolids is regulated under federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503. The Discharger is required to comply with the standards and time schedules contained in 40 CFR Part 503.

Title 27, CCR, Division 2, Subdivision 1, section 20005 establishes approved methods for the disposal of collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes. This Order includes requirements to ensure the Discharger disposes of solids in compliance with State and federal regulations.

c. **Collection System.** On 2 May 2006, the State Water Board adopted State Water Board Order No. 2006-0003, a Statewide General WDR for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order No. 2006-0003 and any future revisions thereto. Order No. 2006-0003 requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the General WDR. On 16 August 2006**,** the Discharger applied for coverage under State Water Board Order No. 2006-0003 for operation of its wastewater collection system.

Regardless of the coverage obtained under Order No. 2006-0003, the Discharger's collection system is part of the treatment system that is subject to this Order. As such, pursuant to federal regulations, the Discharger must properly operate and maintain its collection system [40 CFR 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. Pursuant to DPH reclamation criteria, Title 22 CCR, Division 4, Chapter 3, (Title 22), wastewater discharged to Marsh Creek must be oxidized, coagulated, filtered, and adequately disinfected; or equivalent. Special Provision VI.C.6.a requires that effluent discharges to Marsh Creek meet the requirements of Title 22, or equivalent, for the protection of the REC-1 and REC-2 beneficial uses.

b. Sections 122.41(l)(3) and 122.61 of the Code of Federal Regulations establish requirements for the transfer of an NPDES permit. Special Provision VI.C.6.b of this Order requires the Discharger to comply with federal regulations for the transfer of NPDES permits in the event of a change of ownership.

7. Compliance Schedules

The use and location of compliances schedules in the permit depends on the Discharger's ability to comply and the source of the applied water quality criteria.

a. In accordance with the SIP, the Discharger submitted a request and justification (dated October 2007), for a compliance schedule for selenium, 4,4'-DDT, alpha-endosulfan, gamma-BHC, and chloride. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of Section 2.1 of the SIP. This Order establishes a compliance schedule for the final WQBELs for these constituents. Full compliance with the selenium WQBELs is required by 18 May 2010, while full compliance with the WQBELs for chloride, 4,4'-DDT, alpha-endosulfan, and gamma-BHC is required by 1 January 2013. The justification in the Infeasibility Analysis provides for a time schedule for the Discharger to comply with the new limitation for selenium in five years from the effective date of this Order. Allowance of an additional compliance schedule beyond the dates specified above may be granted in a subsequent enforcement order, as the Regional Water Board deems necessary.

VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of WDRs that will serve as a NPDES permit for The City of Brentwood, 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 direct mailing to agencies and known interested parties, posting of NOPH at the Discharger's offices and the local post office and publication in the local newspaper.

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 the date indicated in the transmittal letter for the proposed Orders.

C. Public Hearing

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

Date: 24/25January 2007
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 916-464-4772

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 Mr. Jim Marshall at (916) 464-4772.

ATTACHMENT G - SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org.	Org. Only	Basin Plan	MCL	Reasonable Potential
Alkalinity	µg/L	270	NA	--	--	--	--	--	--	--	No
Alpha-Endosulfan	µg/L	0.006	ND	ND	0.22(1)	0.056(2)	--	240(4)	ND	--	Yes
Aluminum	µg/L	45.5	1,530	87	750(5)	87(2)	--	--	--	--	Yes
Ammonia Nitrogen, Total (as N)	mg/L	0.94	0.62	0.39	2.14(5)	1.17(6)	--	--	--	--	Yes
Arsenic	µg/L	2	4.3	150	340(5)	150(2)	--	--	--	--	No
Calcium	mg/L	84	NA	--	--	--	--	--	--	--	No
Chloride	mg/L	400	330	230	860(5)	230(2)	--	--	--	--	Yes
Chlorine Residual	mg/L	9.6	--	0.011	0.011(5)	0.019(2)	--	--	--	--	Yes
2-Chloroethyl Vinyl Ether	µg/L	0.3	ND	--	--	--	--	--	--	--	No
Copper	µg/L	15.2	7.5	10	32(9)	20(10)		--	10	--	Yes
4,4'-DDT	µg/L	0.008	ND	ND	0.22(9)	0.001(10)	0.00059(12)	--	ND	--	Yes
Electrical Conductivity @ 20 °C	umhos/cm	3,160	3,900	--	--	--	--	--	--	--	No
Iron	µg/L	408	2,400	300	--	1,000(1)	--	--	300	--	Yes
Lead	µg/L	0.6	0.8	10	249(9)	10(10)	--	--	--	--	No
Lindane	µg/L	0.014	ND	ND	0.95(5)	0.08(2)	0.019(7)	0.063(13)	ND	--	Yes
Mercury	µg/L	0.00363	0.0203	0.05	1.4(5)	0.77(2)	0.05(3)	--	--	--	No
Nickel	µg/L	2.1	12	100	984(9)	109(10)	610(3)	4,600(4)	--	--	No
Potassium	µg/L	59	NA	--	--	--	--	--	--	--	No
Selenium	µg/L	8.1	4.5	5	20(9)	5(10)	--	--	--	--	Yes
Total Dissolved Solids	mg/L	1,400	1,300	--	--	--	--	--	--	--	No
Tributyltin (TBT)	µg/L	0.00289	ND	0.063	0.46(5)	0.063(2)	--	--	--	--	No
Zinc, Total Recoverable	µg/L	73	41	252	252(9)	252(10)	--	--	--	--	No

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

ND = Non-detect

Footnotes:
(1) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, instantaneous maximum.
(2) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day average.
(3) USEPA National Recommended Ambient Water Quality Criteria, Protection of Human Health and Welfare, Non-cancer Health Effects, for Drinking Water.
(4) USEPA National Recommended Ambient Water Quality Criteria, Protection of Human Health and Welfare, Non-cancer Health Effects, for the Consumption of Aquatic Organisms.
(5) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour Average.
(6) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day Average.
(7) USEPA National Recommended Ambient Water Quality Criteria, Protection of Human Health and Welfare, One-in-a-million Cancer Risk, for Drinking Water.
(8) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, Chronic Toxicity Information.
(9) California Toxics Rule, Inland Surface Waters, Protection of Freshwater Aquatic Life, 1-hour average.
(10) California Toxics Rule, Inland Surface Waters, Protection of Freshwater Aquatic Life, 4-day average.
(11) California Toxics Rule, Inland Surface Waters, Protection of Freshwater Aquatic Life, 30-day average.
(12) California Toxics Rule, Inland Surface Waters, Protection of Human Health, 30-day Average.
(13) USEPA National Recommended Ambient Water Quality Criteria, Protection of Human Health and Welfare, One-in-a-million Cancer Risk, for the Consumption of Aquatic Organisms.
(14) California DPH Notification Level for Drinking Water

ATTACHMENT H – PRETREATMENT PROGRAM SPECIFICATIONS

1. **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.

2. **Chapter 2 - Legal Authority.** This chapter should contain the revised and adopted sewer use ordinance and all necessary multi-jurisdictional agreements.

3. **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.

4. **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:

   a. Whether it qualifies as a significant industrial user;

   b. The average and peak flow rates;

   c. The SIC code;

   d. The pretreatment-in-place; and

   e. The local permit status.

5. **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:

   a. The industry name, address, owner or plant manager;

   b. The permit expiration date (not to exceed 5 years in duration);

   c. A description of the facility including the products made or services provided, building names, the process in each building, and when current operations began;

   d. The identification of each sewer connection;

   e. A description of the contributing waste streams that comprise each identified non-domestic discharge into the sewers;

   f. The pretreatment-in-place for each identified non-domestic discharge to the sewers;

g. The classification by federal point source category and the reasons justifying this classification;

h. 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;

i. The pollutants of concern and the compliance sampling point(s) where the local limits apply;

j. A site map indicating the locations of all compliance sampling point(s), sewer connections, and sewer laterals;

k. 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

l. 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.

6. **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.

7. **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:

a. Isolated and chronic violations of permit effluent limits;

b. 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;

c. Failure to self-monitor or report;

d. The bypassing of pretreatment necessary to comply with permit effluent limits;

e. Dilution as a substitute for treatment necessary to comply with Federal categorical pretreatment standards;

f. The bypassing of compliance sampling or the tampering with sampling equipment; and

g. Willful or negligent violations.

8. **Chapter 8 – Resources.** This chapter would cover the budget, staffing and equipment needs of the pretreatment program.

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

REQUIREMENTS FOR MONITORING WELL INSTALLATION WORKPLANS AND MONITORING WELL INSTALLATION REPORTS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1, below. Wells may be installed after staff approve the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report which includes the information contained in Section 2, below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

SECTION 1 - Monitoring Well Installation Workplan and Groundwater Sampling and Analysis Plan

The monitoring well installation workplan shall contain the following minimum information:

A. General Information:
Purpose of the well installation project
Brief description of local geologic and hydrogeologic conditions
Proposed monitoring well locations and rationale for well locations
Topographic map showing facility location, roads, and surface water bodies
Large scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features

B. Drilling Details:
On-site supervision of drilling and well installation activities
Description of drilling equipment and techniques
Equipment decontamination procedures
Soil sampling intervals (if appropriate) and logging methods

C. Monitoring Well Design (in narrative and/or graphic form):
Diagram of proposed well construction details
- Borehole diameter
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)
- Anticipated depth of well, length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Anticipated screen slot size and filter pack

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):
Method of development to be used (i.e., surge, bail, pump, etc.)
Parameters to be monitored during development and record keeping technique

Method of determining when development is complete
Disposal of development water

E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):
Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
Datum for survey measurements
List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)

F. Schedule for Completion of Work

G. **Appendix: Groundwater Sampling and Analysis Plan (SAP)**
The Groundwater SAP shall be included as an appendix to the workplan, and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.

Provide a detailed written description of standard operating procedures for the following:

- Equipment to be used during sampling
- Equipment decontamination procedures
- Water level measurement procedures
- Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
- Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
- Purge water disposal
- Analytical methods and required reporting limits
- Sample containers and preservatives
- Sampling
  - General sampling techniques
  - Record keeping during sampling (include copies of record keeping logs to be used)
  - QA/QC samples
- Chain of Custody
- Sample handling and transport

SECTION 2 - Monitoring Well Installation Report

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

A. General Information:
Purpose of the well installation project
Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells
Number of monitoring wells installed and copies of County Well Construction Permits
Topographic map showing facility location, roads, surface water bodies
Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details (in narrative and/or graphic form):

On-site supervision of drilling and well installation activities
Drilling contractor and driller's name
Description of drilling equipment and techniques
Equipment decontamination procedures
Soil sampling intervals and logging methods

Well boring log

- Well boring number and date drilled
- Borehole diameter and total depth
- Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- Depth to first encountered groundwater and stabilized groundwater depth
- Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (in narrative and/or graphic form):

Well construction diagram, including:

- Monitoring well number and date constructed
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development:

Date(s) and method of development
How well development completion was determined
Volume of water purged from well and method of development water disposal
Field notes from well development should be included in report

F. Well Survey (survey the top rim of the well casing with the cap removed):

Identify the coordinate system and datum for survey measurements
Describe the measuring points (i.e. ground surface, top of casing, etc.)
Present the well survey report data in a table
Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix