ATTACHMENT 1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER NO. R5-2008-0179-01
NPDES NO. CA0078590
(as amended by Order No. R5-2010-XXXX)

WASTE DISCHARGE REQUIREMENTS
FOR THE
TOWN OF DISCOVERY BAY CSD
DISCOVERY BAY 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	Town of Discovery Bay CSD
Name of Facility	Discovery Bay Wastewater Treatment Plant
Facility Address	1800 Willow Lake Road
	Discovery Bay, CA 94505
	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 Town of Discovery Bay CSD from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Treated Municipal Wastewater	37º 53' 08" N	121º 34 ' 30 " W	Old River

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**4 December 2008**
This Order shall become effective on:	**23 January 2009**
This Order shall expire on:	**30 November 2013**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	**180 days prior to the Order expiration date**

IT IS HEREBY ORDERED, that Order No. R5-2003-0067 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 4 December 2008 and amended by Order No. R5-2010-XXXX on X December 2010.

PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	Town of Discovery Bay CSD
Name of Facility	Discovery Bay Wastewater Treatment Plant
Facility Address	1800 Willow Lake Road
	Discovery Bay CA 94505
	Contra Costa County
Facility Contact, Title, and Phone	Virgil Koehne, General Manager Town of Discovery Bay CSD, 925-634-1131
Mailing Address	SAME
Type of Facility	Publicly Owned Treatment Works
Facility Design Flow	2.1 million gallons per day (mgd) (dry weather)

II. FINDINGS

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

A. Background. The Town of Discovery Bay CSD [hereinafter Discharger] is currently discharging pursuant to Order No. R5-2003-0067 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078590. The Discharger submitted a Report of Waste Discharge and applied for a NPDES permit renewal to discharge up to 2.1 mgd of treated wastewater from the Discovery Bay Wastewater Treatment Plant, hereinafter Facility.

The Regional Water Board adopted Order No. R5-2008-0179 on 4 December 2008. Subsequent to adoption by the Regional Water Board, Order No. R5-2008-0179 was petitioned to the State Water Resources Control Board (State Water Board) by the California Sportfishing Protection Alliance and the San Luis & Delta-Mendota Water Authority and Westlands Water District for, in part, the water quality-based effluent limitations for electrical conductivity (EC).

On 19 May 2009, the State Water Board adopted a precedential water quality order for the City of Tracy Wastewater Treatment Plant (WQO No. 2009-0003, Tracy Order). In the Tracy Order, the State Water Board addressed the need for water quality-based effluent limitations for EC that is applicable to the Facility. By memorandum dated 11 March 2010 from Dorothy Rice, Executive Director of the State Water Board, to Pamela Creedon, Executive Officer of the Regional Water Board, the State Water Board requested the Regional Water Board revise the final water quality-based effluent limitations for EC in accordance with the Tracy Order. This amended Order contains requirements for EC in accordance with the Tracy Order.

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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 Town of Discovery Bay CSD ~~(hereinafter Discharger)~~ owns the Discovery Bay Wastewater Treatment Plant, ~~hereinafter Facility,~~ a publicly owned treatments works (POTW) which serves a population of approximately 16,000 people. Veolia West Operating Services, Inc. ~~Southwest Water Company~~ is under contract to operate the Facility which serves a population of approximately 16,000 people. The treatment system includes two plants (Plant 1 and Plant 2) which each consist of a Hycor headworks screen, an oxidation ditch, two secondary clarifiers, and a shared UV disinfection system. Plant 1 also includes a flow equalization and storage basin (labeled "Emergency Overflow Basin" on Attachment C). The influent flow is split between the two plants, and treated effluents rejoin at the shared UV disinfection system at Plant 2. Wastewater is discharged from Discharge Point 001 (see table on cover page) to the Old River, a water of the United States, within the San Joaquin Delta Hydrologic Unit. Sludge handling is located at Plant 2 and consists of an aerated, clay lined lagoon (referred to as an aerobic digester), two clay lined sludge lagoons, a belt filter press, and two greenhouse solar drying beds. After processing, samples are taken of the dried biosolids to ensure they conform to Class A standards based on the regulations found at 40 CFR Part 503. Sludge is stored on site in the solar drying bed building or adjacent to the building. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

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

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

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

F. Technology-based Effluent Limitations. Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of

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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/or 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. 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) EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed State criterion or policy interpreting the State's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 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. Beneficial uses applicable to Old River are as follows:

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

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Old River	Existing: • Municipal and Domestic Water Supply (MUN); • Agricultural Supply (AGR); • Industry Process Supply (PRO); • Industry Service Supply (IND); • Contact Recreation (REC-1); • Non-contact Recreation (REC-2); • Warm Freshwater Habitat (WARM); • Cold Freshwater Habitat (COLD); • Migration of Aquatic Organisms (MIGR); • Spawning, Reproduction, and/or Early Development (SPWN); • Wildlife Habitat (WILD); • Navigation (NAV)

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

The State Water Resources Control Board adopted the *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (revised) 13 December 2006, which, in part, establishes salinity-related water quality objectives in the Bay-Delta.

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 December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 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 February 13, 2001. These rules contain water quality criteria for priority pollutants.

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J. State Implementation Policy. On March 2, 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 April 28, 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 May 18, 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 February 24, 2005 that became effective on July 13, 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 May 18, 2010) to establish and comply with

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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. A detailed discussion of the basis for the compliance schedule(s) and interim effluent limitation(s) is included in the Fact Sheet.

L. Alaska Rule. On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. [65 Fed. Reg. 24641 (April 27, 2000); codified at 40 C.F.R. § 131.21)] Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 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 May 30, 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. 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.

~~This Order contains pollutant restrictions that are more stringent than applicable federal requirements and standards. Specifically, this Order includes effluent limitations for BOD_5 and TSS that are more stringent than applicable federal standards, but that are nonetheless necessary to meet numeric objectives or to protect beneficial uses. The rationale for including these limitations is explained in Section IV.B.2.a of the Fact Sheet. In addition, the Regional Water Board has considered the factors in Water Code section 13241 in Section IV.B.2.a of the Fact Sheet.~~

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

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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 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Some effluent limitations in this Order are less stringent that those in the previous Order. As discussed in detail in the Fact Sheet this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

P. 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.

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.

R. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections IV.B, IV.C, V.B, and VI.C.2.b of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

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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 001

1. Final Effluent Limitations – Discharge Point 001

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

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

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Table 6. Final Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD 5-day @ 20°C	mg/L	20	40	50	---	---
	lbs/day[1]	350	700	875	---	---
Total Suspended Solids	mg/L	30	40	50	---	---
	lbs/day[1]	525	700	875	---	---
pH	standard units	---	---	---	6.5	8.5
Copper	µg/L	50	---	70	---	---
Nitrate (as N)	mg/L	73	---	126	---	---
Ammonia	mg/L	10	---	30	---	---
	lbs/day[1]	177	---	525	---	---

[1] Calculated with the following formula: 8.345 x concentration x flow, using a design flow of 2.1 mgd.

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%, minimum for any one bioassay; and
   ii. 90%, median for any three consecutive bioassays.

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

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

   i. 23 most probable number (MPN) per 100 mL, as a 7-day median; and

   ii. 240 MPN/100 mL, more than once in any 30-day period.

f. **Average Daily Discharge Flow.** The Average Daily Discharge Flow shall not exceed 2.1 mgd.

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~~g.~~**Electrical Conductivity.**

g. ~~i.~~ The effluent electrical conductivity ~~in the discharge~~ shall not exceed ~~an annual average of~~ 2,100 µmhos/cm, as an annual average.~~;~~

~~ii. If the Discharger fails to comply with the requirements in 1) or 2), below, the effluent electrical conductivity shall not exceed 1000 µmhos/cm, as a monthly average:~~

~~1) The Discharger shall develop and submit a Salinity Plan as specified in Provision VI.C.3.a; and~~

~~2) The Discharger shall timely implement the Salinity Plan upon the Regional Water Board's approval. The proposed Salinity Plan will be circulated for no less than 30 days for public comment prior to the Regional Water Board's consideration of the Salinity Plan. The Regional Water Board may revise the Salinity Plan prior to final approval.~~

~~Upon determination by the Regional Water Board that the Discharger has materially failed to comply with the approved Salinity Plan due to circumstances within its control, the monthly average effluent limitations for electrical conductivity specified in h.ii., above, shall become effective immediately.~~

h. **Total Recoverable Iron.** Effluent total recoverable iron shall not exceed 300 µg/L, as an annual average.

i. **Aluminum.** Effluent total recoverable aluminum concentrations shall not exceed 200 µg/L, as an annual average.

2. Interim Effluent Limitations

Not Applicable

B. Land Discharge Specifications

Not Applicable.

C. Reclamation Specifications

Not Applicable.

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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 Old River:

1. **Bacteria**. The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 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**. The dissolved oxygen concentration to be reduced below 5.0 mg/L at any time.

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

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

8. **pH**. The pH to be depressed below 6.5 nor~~,~~ raised above 8.5.~~, nor changed by more than 0.5. A one-month averaging period may be applied when calculating the pH change of 0.5.~~

9. **Pesticides**:

   a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
   b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
   c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer;
   d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR §131.12.);

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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;
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 Old River:

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.

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17. **Turbidity**. The turbidity to ~~increase as follows~~exceed the following limitations:

a. Where natural turbidity is less than 1 Nephelometric Turbidity Unit (NTU), controllable factors shall not cause downstream turbidity to exceed 2 NTUs;~~.~~

~~a.~~b. ~~More than 1 Nephelometric Turbidity Unit (NTU) w~~Where natural turbidity is between ~~0~~1 and 5 NTUs, increase shall not exceed 1 NTU;~~.~~

~~b.~~c. Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed ~~M~~more than 20 percent; ~~where natural turbidity is between 5 and 50 NTUs.~~

~~c.~~d. Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTU;~~More than 10 NTU where natural turbidity is between 50 and 100 NTUs.~~

~~d.~~e. Where natural turbidity is greater than 100 NTUs, increases shall not exceed ~~M~~more than 10 percent ~~where natural turbidity is greater than 100 NTUs~~.

B. Groundwater Limitations

1. Release of waste constituents from any storage, treatment, or disposal component associated with the WWTP shall not, in combination with other sources of the waste constituents, cause groundwater within influence of the WWTP to contain waste constituents in concentrations in excess of natural background quality or cause the following in groundwater:

   a. Beneficial uses to be adversely impacted or water quality objectives to be exceeded; and
   b. Total coliform organisms median of 2.2 MPN/100 mL over any seven-day period.

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;

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(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.

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

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

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

g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under Section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.

h. 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 five 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 ninety 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,

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loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.

k. The Discharger, upon written request of the Regional Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under Regional Water Board Standard Provision VI.A.2.m.

The technical report shall:

i) Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.

ii) Evaluate the effectiveness of present facilities and procedures and state when they became operational.

iii) Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Regional Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

l. A publicly owned treatment works (POTW) whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last three 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 four 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

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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

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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:

   a. 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.

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

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

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

e. **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

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translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for inorganic constituents. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

f. **Ammonia Studies.** The ammonia effluent limitations in this Order are based on USEPA's recommended National Ambient Water Quality Criteria for protection of freshwater aquatic life. However, studies are ongoing to evaluate the effect of ammonia on the inhibition of growth of freshwater diatoms in the Delta, as well as, studies to evaluate the sensitivity of delta smelt to ammonia toxicity. Based on the result of these or other studies, this Order may be reopened to modify the ammonia effluent limitations, as appropriate.

g. **Regional Monitoring Program.** The State and Regional Water Boards are committed to creation of a coordinated Regional Monitoring Program to address receiving water monitoring in the Delta for all Water Board regulatory and research programs. When a Regional Monitoring Program becomes functional, this permit may be reopened to make appropriate adjustments in permit-specific monitoring to coordinate with the Regional Monitoring Program.

h. **Central Valley Drinking Water Policy**. If water quality objectives are adopted for organic carbon, nutrients, salinity, bromide, or pathogens to protect drinking water supplies in the Central Valley Region, this Order may be reopened for addition and/or modification of effluent limitations and requirements, as appropriate, to require compliance with the applicable water quality objectives.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the toxicity numeric monitoring trigger established in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent reoccurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This provision includes requirements for the Discharger to develop and submit a TRE Work Plan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

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i. **Toxicity Reduction Evaluation (TRE) Work Plan. Within 90 days of the effective date of this Order,** the Discharger shall submit to the Regional Water Board a TRE Work Plan for approval by the Executive Officer. The TRE Work Plan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Work Plan must be developed in accordance with EPA guidance[2] and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision.

ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. WET testing results exceeding the monitoring trigger during accelerated monitoring demonstrate ~~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 **10 TUc** (where TUc = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.

iv. **Accelerated Monitoring Specifications.** If the monitoring trigger is exceeded during regular chronic toxicity testing, within 14-days of notification by the laboratory of the test results, the Discharger shall initiate accelerated monitoring. Accelerated monitoring shall consist of four (4) chronic toxicity tests in a 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.

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

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.

3. Best Management Practices and Pollution Prevention

a. **Salinity Plan.** The Discharger shall develop and implement a Salinity Plan to reduce its salinity impacts to the Delta in accordance with conditions i-iv below.

i. The Discharger shall implement all reasonable steps to obtain alternative, lower salinity water supply sources; and

ii. The Discharger shall develop and implement a salinity source control program that will identify and implement measures to reduce salinity in discharges from residential, commercial, industrial, and infiltration sources in an effort to meet the salinity reduction goal specified in Provision VI.C.3.c of this Order. As a part of its source control program, the Discharger shall develop and implement a pollution prevention plan for salinity in accordance with CWC section 13263.3(d)(3) (See section VII.B.3.a of the Fact Sheet for minimum requirements); and

~~iii. The Discharger shall participate financially in the development of the Central Valley Salinity Management Plan at a level commensurate with its contributions of salinity to the Delta; and~~

~~iv.~~iii. The Discharger shall comply with the following schedule:

Task	Compliance Date
1 - Submit to the Regional Water Board for approval by the Executive Officer a draft Salinity Work Plan to reduce salinity impacts to the Delta.	**Within 6 months** following the effective date of this Order.
2 - Submit Final Salinity Work Plan.	No longer than **60 days** following approval of Task 1.

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

c. **Salinity Reduction Goal.** The Discharger shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to the Old River. The Regional Water Board finds that an annual average salinity goal of the maximum weighted average electrical conductivity of the Discharger's water supply, plus an increment of 500 µmhos/cm for typical consumptive use, is a reasonable intermediate goal that can be achieved through the proper implementation of a pollution prevention plan. The Discharger shall submit annual progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.)

4. Construction, Operation and Maintenance Specifications

a. **Treatment Pond Operating Requirements.**

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

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

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

   a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
   b. Weeds shall be minimized.
   c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

4. Freeboard in the ponds shall not be less than two feet (measured vertically to the lowest point of overflow), except if lesser freeboard does not threaten the integrity of the pond, no overflow of the pond occurs, and lesser freeboard is due to direct precipitation or storm water runoff occurring as a result of annual precipitation with greater than a 100-year recurrence interval, or a storm event with an intensity greater than a 25-year, 24-hour storm event.

5. Ponds shall have sufficient capacity to accommodate allowable sludge flow and design seasonal precipitation. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

6. Prior to the onset of the rainy season of each year, available pond storage capacity shall at least equal the volume necessary to comply with 5, above.

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7. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the disposal areas or property owned by this Discharger.

b. **Ultraviolet Disinfection (UV) System Operating Specifications**

- **UV Dosage**. The Discharger shall operate the UV disinfection system to provide ~~the~~ a minimum UV dose of 130 mW/sec/cm^2, as a 1-hour average.~~specified in disinfection system design, unless otherwise approved by the California Department of Public Health, and shall maintain an adequate dose for disinfection while discharging to Old River, unless otherwise approved by the California Department of Public Health.~~

- **UV Transmittance**. The Discharger shall maintain a UV transmittance of 65%, as a 1-hour average.

- The Discharger shall provide continuous, reliable monitoring of flow, UV transmittance, and UV power.

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

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

- Lamps must be replaced per the manufacturer's operations manual, or sooner (maximum of 12,000 hours)~~, if there are indications the lamps are failing to provide adequate disinfection~~. Lamp age and lamp replacement records must be maintained. .

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

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Pretreatment Requirements.

Not Applicable

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

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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 503. If the State Water Board and the Regional Water Board are given the authority to implement regulations contained in 40 CFR 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 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 U.S. EPA 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.

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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 May 2, 2006, the State Water Board adopted State Water Board Order 2006-0003, a Statewide General WDR for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order 2006-0003 and any future revisions thereto. Order 2006-0003 requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the General WDR.

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

6. Other Special Provisions

a. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Water Board and a statement. The statement shall comply with the signatory and certification requirements in the Federal Standard Provisions (Attachment D, Section V.B.) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

7. Compliance Schedules

Not applicable.

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VII. COMPLIANCE DETERMINATION

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

A. **BOD and TSS Effluent Limitations**. Compliance with the final effluent limitations for BOD and TSS required in section IV.A.1.a shall be ascertained by 24-hour composite samples. Compliance with effluent limitations IV.A.1.a(1) for percent removal shall be calculated using the arithmetic mean of 20°C BOD (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. **Average Dry Weather Flow Effluent Limitations**. The average dry weather flow is intended to represent the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitations will be determined annually based on the average daily flow over 3 consecutive dry weather months (i.e., July, August, and September).

C. **Total Coliform Organisms Effluent Limitations**. For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the previous 6 days (e.g. Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) specified in this Order, the Discharger will be considered out of compliance.~~**Total Coliform Organisms Effluent Limitations [Section IV.A.1.a.(4)]**. 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 23 per 100 milliliters, the Discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period.~~

~~D.**Chronic Whole Effluent Toxicity Effluent Limitation.** Compliance with the accelerated monitoring and TRE/TIE provisions of Provision VI.C.2.a shall constitute compliance with effluent limitation IV.A.1.k for chronic whole effluent toxicity.~~

D. **Temperature Receiving Water Limitations.** Compliance with the receiving surface water limitations for temperature required in section V.A.15.b shall be determined based on the difference in temperature measured at RSW-001 and RSW-002.

E. **Turbidity Receiving Water Limitations.** Compliance with the receiving surface water limitations for turbidity required in section V.A.17 shall be determined based on the difference in turbidity measured at RSW-001 and RSW-002.

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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

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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 U.S. EPA 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.

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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 July 3, 1999.

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

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

Not Detected (ND) are those sample results less than the laboratory's MDL.

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

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

Pollutant Minimization Program (PMP) 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

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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:

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

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,

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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.)

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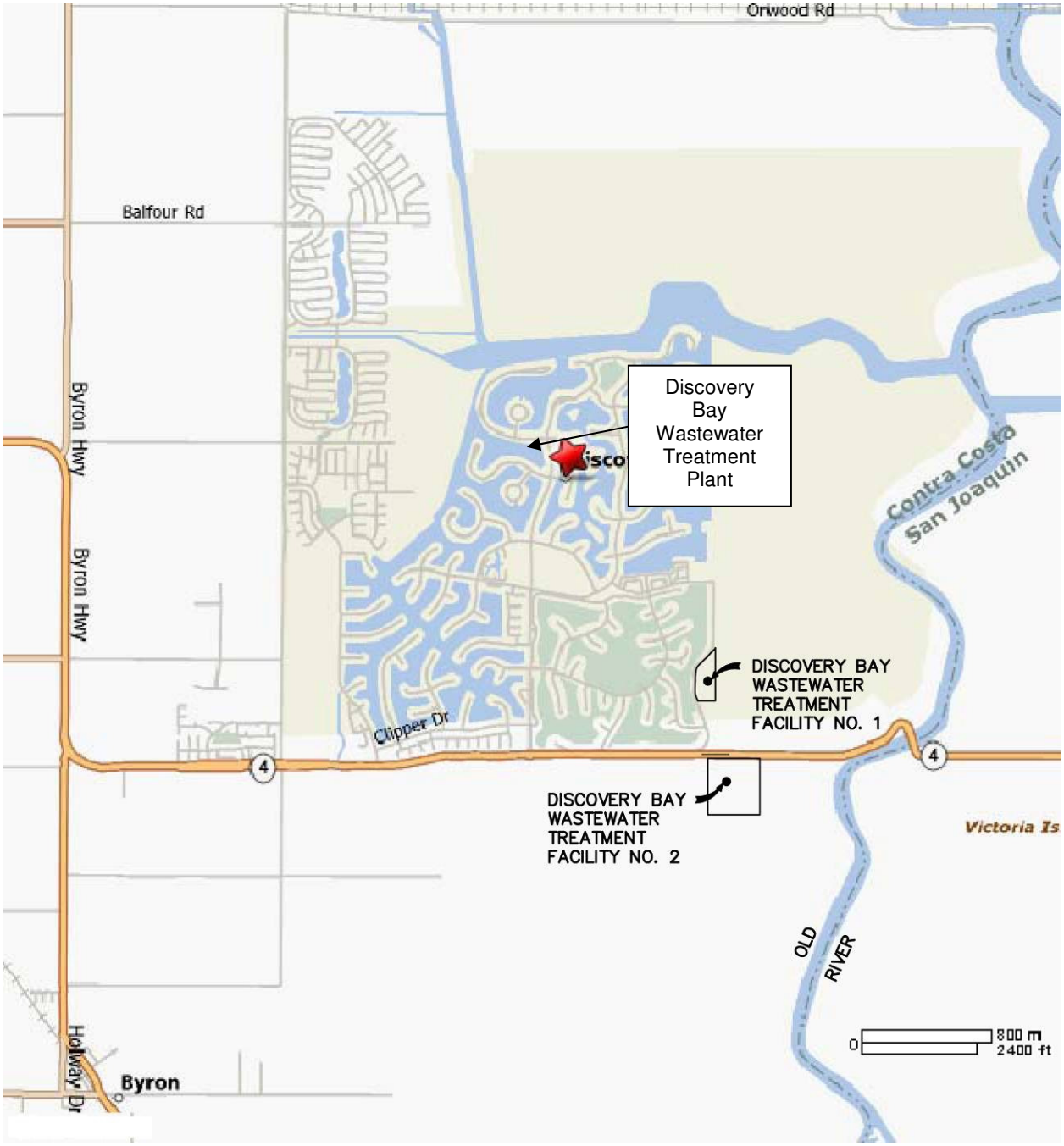
ATTACHMENT B – MAP



Discovery Bay CSD Wastewater Treatment Plant

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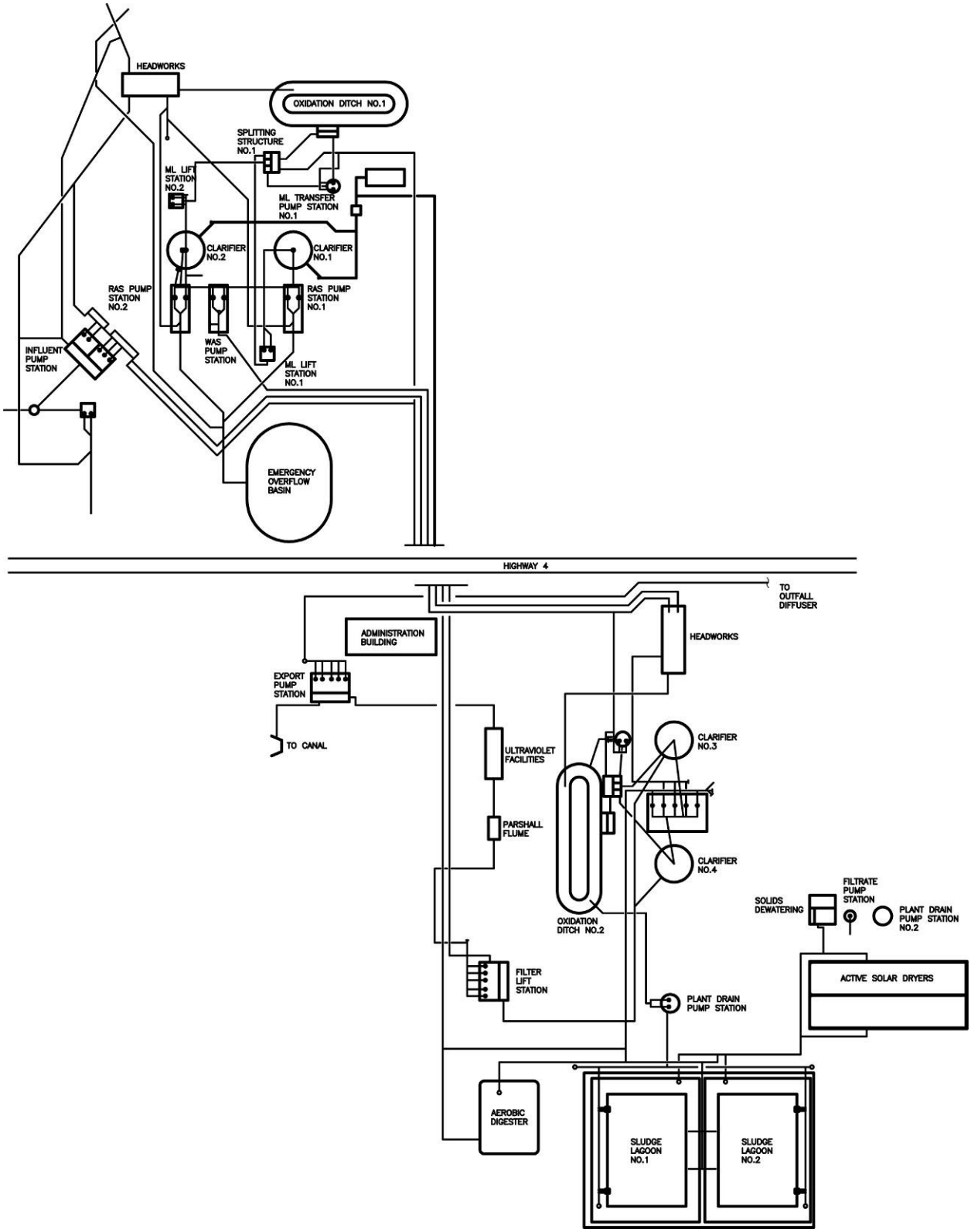
ATTACHMENT C – FLOW SCHEMATIC



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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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(e).)

E. Property Rights

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

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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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(m)(2).)

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

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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

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caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 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 C.F.R. § 122.41(n)(3)):

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

   b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 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 C.F.R. § 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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

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other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

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

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

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2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.22(b)(2)); and

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

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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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(l)(5).)

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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 C.F.R. § 122.41(l)(6)(i).)

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

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

   b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R.§ 122.41(l)(1)(iii).)

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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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.42(b)(3).)

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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

1. 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.

2. 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.

3. 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.

4. 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.

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

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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 in the treatment facility headworks at which all waste tributary to the treatment system is present, and preceding any phase of treatment.
001	**EFF-001**	A location where a representative sample of the effluent from the facility can be collected following all treatment processes but prior to commingling with the receiving water.
---	**RSW-001**	500 ft north of the point of discharge to Old River.
---	**RSW-002**	200 ft south of the point of discharge to Old River.
---	**RGW-001 - 003**	Groundwater monitoring well network.
---	**UVS-001**	A location where a representative sample of the effluent from the ultraviolet disinfection system can be obtained.
---	**BIO-001**	Representative sample location for biosolids.
---	**SPL-001**	A location where a representative sample of the municipal water supply can be obtained.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

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

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	continuous	40 CFR 136
BOD 5-day 20°C	mg/L, lbs/day	24-hr Composite[1]	1/week	40 CFR 136
Suspended Solids	mg/L, lbs/day	24-hr Composite[1]	1/week	40 CFR 136
pH	pH units	Grab	1/week	40 CFR 136
Temperature	ºF	Grab	1/week	40 CFR 136
Total Dissolved Solids	mg/L	Grab	1/month	40 CFR 136
Electrical Conductivity at 25ºC	µmhos/cm	Grab	1/month	40 CFR 136
Priority Pollutants	µg/L	Grab	1/year	40 CFR 136

[1] 24-hour flow proportional composite

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IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

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

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	Mgd	Meter	Continuous	[2]
pH[1]	pH units	Grab	1/week	[2]
Temperature[1]	°F	Grab	1/week	[2]
BOD 5-day 20°C	mg/L, lbs/day	24-hr Composite[5]	2/week	[2]
Total Suspended Solids	mg/L, lbs/day	24-hr Composite[5]	2/week	[2]
Total Coliform Organisms	MPN/100 mL	Grab	2/week	[2]
Settleable Solids	mL/L	Grab	1/day	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	2/month	[2]
Total Dissolved Solids	mg/L	Grab	2/month	[2]
Chloride	mg/L	Grab	2/month	[2]
Standard Minerals[3]	mg/L	Grab	1/year	[2]
Nitrate (as N)	mg/L	Grab	2/month	[2]
Ammonia, Total[1]	mg/L, lbs/day	24-hr Composite[5]	1/week	[2]
Aluminum, Total Recoverable	µg/L	Grab	1/month	[2]
Iron, Total Recoverable	µg/L	Grab	1/month	[2]
Manganese, Total Recoverable	µg/L	Grab	1/month	[2]
Copper[4]	µg/L	Grab	2/month	[2]
Mercury[4]	µg/L	Grab	1/quarter	[6]
Methylmercury	µg/L	Grab	1/quarter	[6]
Dioxin-TEQ[4]	µg/L	Grab	2/year	[2]
Priority Pollutants[4]	µg/L	Grab	twice in 4th year of permit[7]	[2]

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[1] Concurrent with acute toxicity monitoring

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

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

[4] Concurrent with receiving surface water sampling. For priority pollutants constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 if 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. Where no methods are specified for a given pollutant, pollutants must be analyzed by methods approved by this Regional Water Board or the State Water Board.

[5] 24-hour flow proportioned composite.

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

[7] Priority pollutant monitoring shall be conducted twice during the fourth year of the permit – once during the summer and once during the winter.

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 grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001.

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

4. *Methods*. The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, ammonia, 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.

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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.

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*

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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-hrs after the receipt of test results exceeding the monitoring trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.

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

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

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

   b. The statistical methods used to calculate endpoints;

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

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

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

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

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

3. **TRE Reporting.** Reports for Toxicity Reduction Evaluations shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Work Plan.

4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:
   a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
   b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
   c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

Not Applicable.

VII. RECLAMATION MONITORING REQUIREMENTS

Not Applicable.

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Location RSW-001 and RSW-002

1. The Discharger shall monitor Old River at RSW-001 and RSW-002 as follows:

Table E-5. Receiving Water Monitoring Requirements[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Hardness[2]	mg/L $CaCO_3$	Grab	1/month	[3]
Dissolved Oxygen	mg/L	Grab	1/month	[3]
pH	pH units	Grab	1/month	[3]
Turbidity	NTUs	Grab	1/month	[3]
Temperature	°F (°C)	Grab	1/month	[3]
Fecal Coliform	MPN/100 mL	Grab	1/quarter	[3]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	2/month	[3]
Total Dissolved Solids	mg/L	Grab	2/month	[3]
Chloride	mg/L	Grab	2/month	[3]
Direction of Old River flow	North / South	Observation	Whenever sampling	
Standard Observations	---	---	1/month	[4]

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[1] Sampling at RSW-001 and RSW-002 shall occur concurrently.

[2] Samples must be collected concurrently with metals sampling for EFF-001.

[3] Pollutants shall be analyzed using the analytical methods described in 40 CFR 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Attachment 4 of the SIP. Where no methods are specified for a given pollutant, the pollutant analysis must be conducted using methods approved by this Regional Water Board or State Water Board.

[4] Standard observations of the reach of Old River bounded by RSW-001 and RSW-002 noting the presence or absence of floating or suspended matter; discoloration; bottom deposits; aquatic life; visible films, sheens, or coatings; fungi, slimes, or objectionable growths; and potential nuisance conditions shall be recorded in a log, and conditions shall be summarized in the monitoring report.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

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

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

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

d. Upon removal of sludge, the Discharger shall submit characterization of sludge quality, including sludge percent solids and quantitative results of chemical analysis for the priority pollutants listed in 40 CFR 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.

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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. Municipal water supply samples collected and analyzed by other agencies may be submitted, provided the required information is provided

.Table E-6. Municipal Water Supply Monitoring Requirements

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

[1] If the water supply is from more than one source, the EC shall be reported as a weighted average and include copies of supporting calculations.

[2] Standard minerals shall include all major cations and anions and include verification that the analysis is complete (i.e., cation/anion balance).

[3] As specified in 40 CFR Part 136.

C. Groundwater Monitoring Plan – RGW-001 – RGW-003

1. Prior to the construction and/or sampling of any new groundwater monitoring well, 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.

   Prior to sampling, the wells shall be pumped until the temperature, specific conductivity and pH have stabilized to ensure representative samples.

Table E-7. Groundwater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Groundwater Elevation	feet	---	1/quarter	Observation
Depth to Groundwater	feet	---	1/quarter	Observation
Nitrate	mg/L	Grab	1/quarter	[1]
Total Coliform Bacteria	MPN/100 mL	Grab	1/quarter	[1]
Electrical Conductivity	µmhos/cm	Grab	1/quarter	[1]
pH	pH units	Grab	1/quarter	[1]

[1] As specified in 40 CFR Part 136.

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2. Groundwater monitoring results shall be submitted monthly; the monthly report shall include a site map showing the location and surveyed elevation (to the nearest one-hundredth of foot above mean sea level) of the wells and the current direction of groundwater flow.

3. A groundwater report shall be submitted annually. The report shall contain a brief written description of any groundwater investigation and sampling work completed for the year, a site map showing the location of all monitoring wells, and tables showing all groundwater monitoring data collected during the previous calendar year, including groundwater depth and elevation data, pH, EC, and all other monitored parameters.

D. Ultraviolet Disinfection System

1. Monitoring Location UVS-001

1. The Discharger shall monitor USV-001 as follows:

Table E-8. Ultraviolet Disinfection System Monitoring Requirements

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

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

[2] Report daily minimum UV dose, daily average UV dose, and weekly average UV dose. For the daily minimum UV dose, also report associated number of banks, gallons per minute per lamp, power settings, and UV transmittance used in the calculation. If effluent discharge has received less than the minimum UV dose and is not diverted from discharging to Old River, report the duration and dose calculation variables associated with each incident.

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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:

   i. 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).

   ii. 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.

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

iv. 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 (e.g., effluent limitations and discharge specifications, receiving water limitations, special provisions, etc.). The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD and Total Suspended

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Solids, shall be determined and recorded as needed to demonstrate compliance. In addition, the following shall be calculated and reported in the SMRs:

a. **Annual Average Limitations.** For constituents with effluent limitations specified as "calendar annual average", the Discharger shall report the calendar annual average in the December SMR. The calendar annual average shall be calculated as the average of the monthly averages for the calendar year.

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

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

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

c. **Removal Efficiency (BOD_5 and TSS).** The Discharger shall calculate and report the percent removal of BOD_5 and TSS in the SMRs. The percent removal shall be calculated as specified in Section VII.A. of the Limitations and Discharge Specifications.

d. **Average Dry Weather Flow.** The Discharger shall calculate and report the average dry weather flow for the Facility discharge in the December SMR. The average dry weather flow shall be calculated annually as specified in Section VII.B. of the Limitations and Discharge Specifications.

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

f. **Dissolved Oxygen, Temperature, and Turbidity Receiving Water Limitations.** The Discharger shall state whether results complied with limitations.

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

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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-9. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	Submit with monthly SMR
Monthly	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	Submit with monthly SMR
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	Submit with monthly SMR the first day of the second month following each calendar quarter
Semiannually	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31	Submit with monthly SMR the first day of the second month following each calendar half year
Annually	January 1 following (or on) permit effective date	January 1 through December 31	Submit with monthly SMR the first day of the second month following each calendar year

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C. Discharge Monitoring Reports (DMRs)

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

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

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

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

D. Other Reports

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

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

Special Provision	Reporting Requirements
Mercury Source Reduction Program	**1 December,** annually
Salinity Reduction Goal	**1 June**, annually

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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:

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

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

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

   iv. 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.

   v. 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.

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ATTACHMENT F – FACT SHEET

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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	5B070105003
Discharger	Town of Discovery Bay CSD
Name of Facility	Discovery Bay Wastewater Treatment Plant
Facility Address	1800 Willow Lake Road
	Discovery Bay, CA 94505
	Contra Costa
Facility Contact, Title and Phone	Virgil Koehne, General Manager Town of Discovery Bay CSD , 925-634-1131
Authorized Person to Sign and Submit Reports	Facility Manager, 925-634-8818
Mailing Address	SAME
Billing Address	SAME
Type of Facility	POTW
Major or Minor Facility	Major
Threat to Water Quality	2
Complexity	C
Pretreatment Program	N
Reclamation Requirements	N/A
Facility Permitted Flow	2.1 million gallons per day (mgd)
Facility Design Flow	2.1 mgd (maximum daily dry weather flow)
Watershed	San Joaquin Delta Hydrologic Unit
Receiving Water	Old River
Receiving Water Type	Sacramento-San Joaquin Delta

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A. Veolia West Operating Services, Inc. ~~Southwest Water Company~~ is the operator of Discovery Bay Wastewater Treatment Plant, a POTW. The Town of Discovery Bay CSD owns the property at 1800 Willow Lake Road on which the Facility is located. The Town of Discovery Bay CSD is hereinafter referred to as Discharger.

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 Old River, a water of the United States, and is currently regulated by Order R5-2003-0067, which was adopted on April 25, 2003 and expired on April 1, 2008. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements and 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 Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES).

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the community of Discovery Bay and serves a population of approximately 16,000. The WWTF design dry weather daily average flow capacity is 2.1 mgd.

A. Description of Wastewater and Biosolids Treatment or Controls

The treatment system at the Facility includes two plants (Plant 1 and Plant 2), which each consist of a Hycor headworks screen, an oxidation ditch, two secondary clarifiers, and a shared UV disinfection system. Plant 1 also includes a flow equalization and storage basin (labeled "Emergency Overflow Basin" on Attachment C). The influent is split between the two plants, and treated effluent reconvenes at the shared UV disinfection system at Plant 2.

Sludge handling takes place at Plant 2 and consists of an aerated, clay lined lagoon (referred to as an aerobic digester), two clay lined sludge lagoons, a belt filter press, and two greenhouse solar drying beds. After processing, samples are taken of the dried biosolids to ensure they conform to Class A standards based on the regulations found at 40 CFR Part 503. Sludge is stored on site in the solar drying bed building or adjacent to the building.

B. Discharge Points and Receiving Waters

Plant 1 is located in Section 31, T1N, R3E, MDB&M, and Plant 2 is located in Section 31, T1N, R4E, MDB&M, as shown in Attachment B (Figure B-1), a part of this Order.

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Treated municipal wastewater is discharged at Discharge Point 001 to Old River, a water of the United States at a point Latitude 37° 53' 08" N and longitude 121° 34' 30" W.

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

Effluent limitations contained in the existing Order for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of the previous Order are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (1/1/04 – 7/31/07)
		Average Monthly	Average Weekly	Maximum Daily	Highest Daily Discharge
BOD	mg/L	20	40	50	25
	lbs/day	350	700	875	357
TSS	mg/L	30	40	50	60
	lbs/day	525	700	875	756
Total Ammonia	mg/L as N	[1]	---	[1]	4.9
	lbs/day	[1]	---	[1]	51
Chloride	mg/L	650	---	860	400
	lbs/day	11390	---	15071	5711
Copper	mg/L	[2]	---	[2]	110
	lbs/day	[2]	---	[2]	1.28
Electrical Conductivity	µmhos/ cm	2925	---	---	2197
Nitrate (as N)	mg/L	87	---	---	91
	lbs/day	1525	---	---	1147
Nitrate (as NO_3)	mg/L	392	---	---	403
	lbs/day	6870	---	---	5078
Settleable Solids	mL/L	0.1	---	0.2	0.7
Total Coliform Bacteria	MPN/ 100 mL	---	23[3]	240	1600
TDS	mg/L	1990	---	---	1330
	lbs/day	34874	---	---	20703

[1] Effluent limitations for ammonia in Order No. R5-2003-0067 expressed the USEPA recommended criteria as sliding limits, dependent on pH and temperature. The effluent limitations under the worst case scenario with a pH of 8.1 and a temperature of 26ºC were the acute criterion 4.64 mg/L with salmonids present and a 30-day average chronic criterion of 1.00 mg/L.

[2] Effluent limitations for copper in Order R5-2003-0067 were expressed as sliding limits, dependent on hardness up to a hardness of 135 mg/L, at which point the effluent limit was fixed at 165 µg/L. The effluent limitation for copper under the worst case condition of a minimum hardness of 61 mg/L were 55 µg/L as an maximum daily and 30 µg/L as a monthly average.

[3] The total coliform limit is expressed as seven day median.

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D. Compliance Summary

The Discharger has been subject to two Administrative Civil Liability Complaints during the term of the previous permit. The first, issued as Order R5-2004-0523, cited 24 serious violations of effluent limitations on copper, and two non-serious violations of effluent limitations for copper and total coliform between April 1, 2002 and March 31, 2004. The second, Order R5-2008-0511, listed 20 non-serious violations of total coliform, copper, and TSS effluent limitations between April 1 2004 and December 31, 2007.

Two sanitary sewer overflows (SSOs) were reported during the term of the previous permit. The first SSO occurred on January 6, 2005 due to a blocked main, which resulted in the release of approximately 5000 gallons to Harbor Bay. The second occurred on June 21, 2005, which was the result of a plugged main. Approximately 700 gallons were released, 5-10 of which entered Indian Bay. Approximately 600 gallons of the overflow were pumped and removed, and the area was sprayed with chlorine solution.

E. Planned Changes

Planning is underway to expand the treatment facility to a design flow of 3.0 mgd.

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 beneficial uses of Old River

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downstream of the discharge are municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial process water supply, industrial service supply, water contact recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat, wildlife habitat, and navigation.

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

The federal CWA section 101(a)(2), states: "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983." Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State are 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 November 28, 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.

2. **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 May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for surface waters, including estuaries. The Thermal Plan applies to all discharges to the Sacramento-San Joaquin Delta. Requirements of this Order implement the Thermal Plan.

3. **Bay-Delta Plan.** The State Water Board *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) was most recently revised in December 2006. The Bay-Delta Plan identifies the beneficial uses of the estuary and includes objectives for flow, salinity, and endangered species protection. The water quality objectives of the Bay-Delta Plan are implemented as part of this Order.

4. **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

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Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.) the discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Board Resolution 68-16.

5. **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 anti-backsliding requirements is discussed in Section IV.D.3.

6. **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 Regional Water Board has adopted numeric receiving water objectives for arsenic, barium, copper, cyanide, iron, silver, and zinc applicable to the Sacramento-San Joaquin Delta in the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (Basin Plan). As detailed elsewhere in this Permit, available effluent quality data indicate that effluent concentrations of copper and iron do have reasonable potential to cause or contribute to an excursion above numeric water quality objectives included within the Basin Plan. 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 Emergency Planning and Community Right to Know Act (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

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cause or contribute to exceedances of water quality standards and require inclusion of effluent limitations based on federal and state laws and regulations.

7. **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.

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

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

1. Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On July 25, 2003 USEPA gave final approval to California's 2002 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." Old River between the San Joaquin River and the Delta Mendota Canal is 303(d) listed for low dissolved oxygen – this segment of Old River is south of the discharge location. The southern portion of the Delta Waterways, which includes Old River, is also 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. The TMDL for mercury for the Sacramento-San Joaquin Delta is currently being developed, and TMDL development for Group A pesticides and DDT is scheduled for completion on 2011. The remaining constituents are scheduled for a proposed TMDL completion in 2019.

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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:

   - The waste consists primarily of domestic sewage and treated effluent;
   - The waste discharge requirements are consistent with water quality objectives; and
   - The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

   The State Water Board adopted the *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*. The requirements within this Order are consistent with the Policy.

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 Section 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

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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-16.00, 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) EPA'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 relevant and appropriate objectives 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.

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B. Technology-Based Effluent Limitations

1. Scope and Authority

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

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

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

2. Applicable Technology-Based Effluent Limitations

a. BOD_5 and TSS. Federal Regulations, 40 CFR, Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD_5 and TSS. A daily maximum effluent limitation for BOD_5 and TSS is also included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. This Order contains a limitation requiring an average of 85 percent removal of BOD_5 and TSS over each calendar month. The previous Order required BOD_5 and TSS effluent limitations more stringent than required by 40 CFR Part 133, because the receiving water is listed for low dissolved oxygen. The more stringent effluent limit on BOD_5 effectively prevents the discharge from further contributing to low dissolved oxygen levels in Old River. To satisfy anti-backsliding requirements, this Order retains these effluent limitations. The Discharger's level of treatment has maintained compliance with these effluent limitations during the term of the previous permit.

b. pH. Secondary treatment requirements at 40 CFR Part 133 limit pH between 6.0 and 9.0. The previous Order contained a more stringent limit for pH of 6.5 and 8.5 to protect beneficial uses of the receiving water, and has been retained in the current Order.

c. Flow. The Discovery Bay Wastewater Treatment Plant was designed to provide a secondary level of treatment for up to a design flow of 2.1 mgd. Therefore, this Order contains an Average Daily Discharge Flow effluent limit of 2.1 mgd.

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

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD_5 @ 20ºC	mg/L	20	40	50	---	---
	lbs/day[1]	350	700	875	---	---
TSS	mg/L	30	40	50	---	---
	lbs/day[1]	525	700	875	---	---
pH	pH units	---	---	---	6.5	8.5

[1] Based on a flow of 2.1 mgd.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in section 122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an in-stream excursion above any state water quality standard. The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

a. **Receiving Water.** The receiving water for this discharge is Old River, within the San Joaquin Delta Hydrologic Unit. The beneficial uses for the receiving water are described 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, i.e., as the hardness value decreases, the corresponding water quality criteria also decrease. The hardness-dependent metal criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc. Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, “floating” effluent limitations that are reflective of actual hardness conditions at the time of discharge, effluent limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. The SIP does not address how to determine hardness for application to the equations for the protection of aquatic life when using

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hardness-dependent metals criteria. It simply states, in Section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water. The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.[1] The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. The point in the receiving water affected by the discharge is downstream of the discharge. As the effluent mixes with the receiving water, the hardness of the receiving water can change. Therefore, it is appropriate to use the ambient hardness downstream of the discharge that is a mixture of the effluent and receiving water for the determination of the CTR hardness-dependent metals criteria. Recent studies indicate that using the lowest recorded receiving water hardness for establishing water quality criteria is not always protective of the receiving water under various mixing conditions (e.g. when the effluent hardness is less than the receiving water hardness). The studies evaluated the relationships between hardness and the CTR metals criterion that is calculatedusing the CTR metals equation.The equation describing the total recoverable regulatory criterion is as follows:

Total Recoverable Criterion = $e^{m[\ln(H)] + b}$, where
m= criterion specific constant,
H = effluent hardness, and
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. The State Water Board, in footnote 19 to Water Quality Order No. 2004-0013, stated: "We note that…the Regional Water Board…applied a variable hardness value whereby effluent limitations will vary depending on the actual, current hardness values in the receiving water. We recommend that the Regional Water Board establish either fixed or seasonal effluent limitations for metals, as provided in the SIP, rather than 'floating' effluent limitations."

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

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value of the receiving water and the lowest hardness value of the effluent is most protective.

Because of the non-linearity of the Total Recoverable Criterion equation, the relationship can either be concave upward or concave downward depending in 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), the 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 minimum effluent hardness value of 204 mg/L as $CaCO_3$ and a minimum receiving water hardness of 32.3 mg/L as $CaCO_3$ were used.

c. **Assimilative Capacity/Mixing Zone.** The SIP in section 1.4.2 states that dilution credits may be granted to dischargers in calculating effluent limitations. During the term of the previous Order, the Discharger initiated discharge into Old River through a diffuser. Old River in the vicinity of the discharge is influenced by natural tide cycles, and by Delta water exports. The previous Order required a study to verify that the new diffuser achieved the dilution levels the diffuser was designed to achieve, confirm that Old River has sufficient assimilative capacity for the constituents of concern, and examine flow reversals in the receiving water and evaluate conditions during the ten-year, worst-case, low-flow condition within the receiving water. The complete study can be found in the Discharger's Report of Waste Discharge. The mixing zone allowed is 105 feet wide, 13.5 feet deep, and 5 feet in longitudinal diameter. Flow Science conducted a dye study on 6 and 7 December 2005 and conducted diffuser modeling using the Visual Plumes dilution model to determine assimilative capacity of the receiving water for the discharge and initial dilution of the effluent.

The dye study was conducted on those dates due to the results of flow modeling done using the Fischer Delta Model. The dye study was scheduled for a time when the river would be bi-directional and when slack tides would be most likely to occur. Data collected during the study were used to verify model predictions of plume behavior. Prior to the study, a tide/velocity gauge was installed approximately 100 meters south of the diffuser. On the first day of the dye study, a mixture of fluorescent dye and a conservative tracer (lithium, as lithium chloride) were added to the effluent stream. The resulting plume was measured by a boat mounted fluorometer. Periodic grab samples were taken to measure the lithium chloride concentration. On the second day of testing, a second fluorescent dye was added to the effluent. The sampling boat stayed near the diffuser during this test to evaluate diffuser performance.

Field measurements demonstrated the effluent was diluted rapidly after discharge. Measurements of the lithium chloride concentrations were generally consistent with the fluorescent measurements.

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The results indicate that for the 10-year worst case concentration of effluent, Old River has an assimilative capacity to provide a dilution of 13.2:1 for the acute condition and a dilution of 23:1 for the chronic condition. Assumed conditions for the worst case scenario included an effluent flow rate of 3.0 mgd, zero river velocity, and low tide. The acute and chronic dilution factors above were utilized in determining effluent limitations for pollutants with reasonable potential. The results of the studies and modeling confirm the mixing zone established in the previous Order are protective and that performance is greater than estimated in the initial mixing zone study (see Order No. R5-2003-0067 for a description of the Zone of Initial Dilution and Assimilative Capacity Analysis). The size of the mixing zone is consistent with that found in Order No. R5-2003-0067.

3. Determining the Need for WQBELs

a. CWA section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Regional Water Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Water Board-adopted standards, and federal standards, including the CTR and NTR. The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, and tastes and odors. The narrative toxicity objective states "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at III-8.00.) With regards to the narrative chemical constituents objective, the Basin Plan states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)" in Title 22 of CCR. The narrative tastes and odors objective states "Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses."

b. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for copper, aluminum, ~~salinity,~~ iron, ammonia, and nitrate. Water quality-based effluent limitations (WQBELs) for most of 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.

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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, except when specified, this Order uses the RPA procedures from the SIP to evaluate reasonable potential for CTR constituents and uses the RPA procedures from the SIP when applicable and appropriate to evaluate reasonable potential for non-CTR constituents.

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

e. **Aluminum.** 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. The Secondary Maximum Contaminant Level - Consumer Acceptance Limit for aluminum is 200 µg/L.
During the effective timeframe of the current Order, the Discharger constructed a diffuser and commenced discharging to the Old River. There have been additional upgrades to the treatment system.

Footnote L to the National Recommended Ambient Water Quality Criteria summary table for aluminum indicates that the chronic aquatic life criterion is based on studies conducted under specific receiving water conditions with a low pH (6.5 to 6.8 pH units) and low hardness (<10 mg/L as $CaCO_3$). Monitoring data demonstrates that these conditions are not similar to those in Old River, which consistently has an upstream pH greater than 7.0 and hardness concentrations ranging from 32 to 156 mg/L. Thus, it is unlikely that application of the chronic criterion of 87 µg/L is necessary to protect aquatic life in Old River.

The MEC for aluminum was 490 µg/L. In the absence of an applicable chronic aquatic life criterion, the most stringent water quality criterion is the Secondary MCL - Consumer Acceptance Limit for aluminum of 200 µg/L. An annual average effluent limitation of 200 µg/L is being established. Based on the Discharger's effluent data, it is feasible for the Discharger to comply immediately with these 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. The Discharger currently uses nitrification and denitrification to remove ammonia from

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

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the waste stream. The oxidation ditches at both plants operate for nitrification and denitrification, and discharge low concentrations of ammonia. 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 section122.44(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) standards based on pH and chronic (30-day average, criteria continuous concentration) standards based on pH and temperature. It also recommends a maximum four-day average concentration of 2.5 times the criteria continuous concentration. 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. USEPA's recommended criteria are show 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

The maximum permitted effluent pH is 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 maximum observed rolling 30-day average temperature and the maximum observed pH of the effluent and receiving water during the period when the maximum observed rolling 30-day average temperature occurred were used to calculate the 30-day CCC. The maximum observed effluent 30-day rolling average temperature was 26.6°C. The maximum observed effluent pH value during the period when the maximum observed rolling 30-day average temperature was 7.8.

Using a pH value of 7.8 and the highest temperature value of 26.6°C on a rolling 30-day basis, the resulting 30-day CCC is 1.46 mg/L (as N). The 4-day average concentration is derived in accordance with the USEPA criterion as 2.5 times the 30-day CCC. Based on a 30-day CCC of 1.46 mg/L (as N), the 4-day average concentration that should not be exceeded is 3.65 mg/L (as N).

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The MEC for ammonia was 4.9 mg/L. Therefore, ammonia 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.

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, 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 10.1 mg/L and 30 mg/L, respectively, based on USEPA's National Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life and to assure the treatment process adequately nitrifies the waste stream to protect the aquatic habitat beneficial uses. Based on the Discharger's effluent data, it is feasible for the Discharger to comply immediately with these limitations.

Research has demonstrated that ammonia can inhibit growth of marine diatoms at ammonia concentrations in the receiving water much lower than ammonia concentrations that impact fish species. Studies are in progress examining possible impacts of ammonia on growth of fresh water diatoms that exist in the Delta in the vicinity of this discharge. The Delta has a relative low primary productivity for an estuarine environment. If ammonia inhibition of fresh water diatoms does occur, it is possible that lowered primary productivity from diatom inhibition could be a contributing factor to Delta aquatic problems. If ammonia inhibition of diatoms is confirmed, this permit will be reopened to reconsider the ammonia effluent limitation.

g. **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 and receiving water and the USEPA recommended dissolved-to-total translator, the applicable chronic criterion (maximum four-day average concentration) is 17.2 µg/L and the applicable acute criterion (maximum one-hour average concentration) is 27.4 µg/L, as total recoverable.

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The MEC for total copper was 110 µg/L, based on 101 samples collected between 1/15/03 and 10/10/07, while the maximum observed upstream receiving water total copper concentration was 2.9 µg/L, based on 13 samples collected between 1/28/04 and 12/22/04. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for copper. Calculated using an acute dilution credit of 13.2 and a chronic dilution credit of 23, an AMEL and MDEL for total copper of 172 µg/L and 323 µg/L, respectively, are the resulting effluent limitations based on CTR criteria for the protection of freshwater aquatic life (See Attachment F, Table F-8 for WQBEL calculations).

The copper effluent limitations based on CTR criteria are hardness dependent. The Basin Plan Table III-1 contains a site specific criterion of 10 µg/L for copper, which is independent of hardness. Using the USEPA recommended dissolved-to-total translator, the site-specific water quality objective is 10.4 µg/L as total recoverable copper. The MDEL calculated using this criterion of 10.4 µg/L, a dilution factor of 23, and using the procedure given by section 1.4 of the SIP, results in a limit more stringent than the MDEL calculated from the CTR criterion, as shown by the following equation.

Effluent Concentration Allowance = C + D (C-B),
where C is the criterion,
D is the dilution credit, and
B is the background concentration.

Here, ECA = 10.4 + 23(10.4 – 5) = 135 µg/L. Therefore, a final effluent for copper of 135 µg/L as a maximum daily effluent limitation could be established, but almost the entire assimilative capacity of the receiving water would be used.

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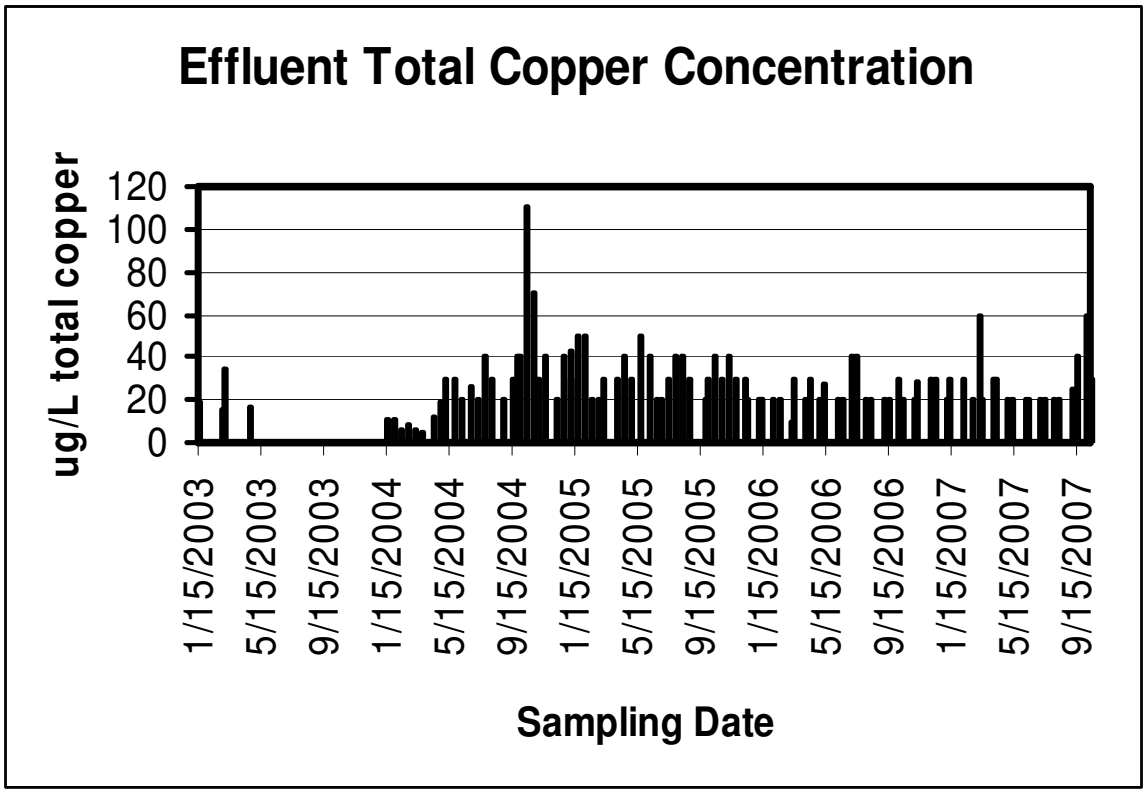
Table F-4. Effluent Total Copper Concentration



The above chart graphs effluent total copper concentrations for the time period being evaluated. It is apparent that the Discharger can comply with effluent copper limitations more stringent than calculated from either the CTR or Basin Plan water quality objectives. Given both the continuing problems with aquatic life in the Delta, and the federal and state Anti-Degradation Policies, effluent limitations for toxic constituents should be set as low as practical, even if higher concentrations would not result in toxic conditions in the receiving water. Based upon examination of the above chart, and using Best Professional Judgment, the Average Monthly Effluent Limitation is set at 50 ug/L, and the Maximum Daily Effluent Limitation is set at 70 ug/L.

h. Electrical Conductivity. (see Subsection ~~p~~n. Salinity)

i. Iron. The Secondary MCL - Consumer Acceptance Limit for iron is 300 µg/L. The Basin Plan at Table III-1 also requires a site specific criterion for iron of 300 µg/L. The MEC for iron was 350 µg/L, based on 11 samples collected between 1/1/04 and 7/31/07. The maximum effluent annual average concentration was 138 µg/L, based on monitoring results. The maximum observed upstream receiving water iron concentration was 1300 µg/L, based on 3 samples collected between 1/15/03 and 4/23/03. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for iron. Therefore, an annual average effluent limit of 300 µg/L for iron is included in this Order based on protection of the Basin Plan's narrative chemical

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constituents objective. Based on the sample results in the effluent, it appears the Discharger can meet this new limitation.

j. **Manganese.** Table III-1 of the Basin Plan establishes a water quality criterion of 50 µg/L, applicable to the Delta, for manganese. In addition, the Regional Water Board considers the receiving water to be compliant with the Basin Plan's narrative water quality objective for chemical constituents when manganese concentrations are below the secondary MCL for manganese.

The MEC for manganese was 123 µg/L, based on 5 samples collected between 1/15/03 and 1/11/06. The four other sample results were 16 mg/L, 31 mg/L, 15 mg/L, and 10 mg/L. Three effluent sample events occurred in 2003, which resulted in an annual average of 20.7 µg/L (16, 31, and 15 mg/L respectively), one sample event in 2005 resulted in an effluent concentration of 123 µg/L, and one sample event in 2006 resulted in an effluent concentration of 10 µg/L. The maximum observed upstream receiving water manganese concentration was 40 µg/L, based on 3 samples collected between 1/15/03 and 4/23/03.

With the exception of the single 123 µg/L result, effluent manganese concentrations have consistently been below the 50 µg/L water quality objective. The 123 µg/L sample is inconsistent with the other results, and it is unlikely that a domestic wastewater would have that significant a change in effluent manganese for a single sample. The 123 µg/L result is considered to be an outlier and is not included in the reasonable potential analysis. Effluent limitations are not being established at this time. Monitoring of the effluent is required in order to determine if the discharge has a reasonable potential to cause, or contribute to an excursion above any state water quality standard.

k. **Nitrate.** Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. Nitrate and nitrite are known to cause adverse health effects in humans. The California DHS has adopted Primary MCLs at Title 22 of the California Code of Regulations (CCR), Table 64431-A, for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. Title 22 CCR, Table 64431-A, also includes a primary MCL of 10,000 µg/L for the sum of nitrate and nitrite, measured as nitrogen.

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

Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream. The conversion of ammonia to nitrites and the conversion of nitrites to nitrates present a reasonable potential for the

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discharge to cause or contribute to an in-stream excursion above the Primary MCLs for nitrite and nitrate. Nitrate was detected in 103 samples from 1/14/04 – 10/10/07, with a maximum of 91 mg/L as N on 6/8/05. Therefore there is reasonable potential for nitrate to exceed the most stringent objective, and an AMEL of 73 mg/L and an MDEL of 126 mg/L nitrate as N are included in this Order based on the MCL and calculated with a dilution credit of 13.2. These effluent limitations are included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial use of municipal and domestic supply.

l. Pathogens. The beneficial uses of Old River include municipal and domestic supply, water contact recreation, and agricultural irrigation supply. Coliform limits are imposed to protect the beneficial uses of the receiving water, including public health through contact recreation and drinking water pathways. In a letter to the Regional Water Board dated 8 April 1999, the California Department of Health Services (now Department of Public Health) indicated that DHS would consider wastewater discharged to water bodies with identified beneficial uses of irrigation or contact recreation and where the wastewater receives dilution of more than 20:1 to be adequately disinfected if the effluent coliform concentration does not exceed 23 MPN/100 mL as a 7-day median and if the effluent coliform concentration does not exceed 240 MPN/100 mL more than once in any 30 day period. Furthermore, the DHS provided a letter dated 1 July 2003 that included clarification of the recommendations. The letter states, "*A filtered and disinfected effluent should be required in situations where critical beneficial uses (i.e. food crop irrigation or body contact recreation) are made of the receiving waters unless a 20:1 dilution ration (DR) is available. In these circumstances, a secondary, 23 MPN discharge is acceptable.*" This Order is consistent with these recommendations, considering site-specific factors. Therefore, the 23 MPN/100 mL limitation is found to be appropriate, and is retained from the previous permit. The coliform effluent limitations are adequately protective of the water contact recreation and agricultural irrigation supply beneficial uses of the receiving water in the vicinity of the discharge. In addition, for MUN-designated water bodies, DPH has not recommended treatment beyond secondary with 20:1 dilution, or tertiary without 20:1 dilution, where there were no known users of untreated water near a treatment plant outfall. Based on a review of the State Water Boards eWRIMS water rights database, there is no evidence of the untreated domestic use of the raw water in the vicinity of the discharge. Therefore, the coliform effluent limitations are also adequately protective of the MUN use.

m. 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.~~" Effluent Limitations for pH are included in this Order based on the Basin Plan objectives for pH.

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n. Salinity.

i. WQO. The State Water Resources Control Board has established salinity standards in the *Water Quality Control Plan for the San Francisco Bay, Sacramento-San Joaquin Delta Estuary*. The State Water Board prescribed numeric chloride and electrical conductivity standards to protect agricultural irrigation (AGR) and municipal and domestic supply (MUN) at several locations in the Delta, including in the West Canal at Mouth of Clifton Court Forebay (the entrance to the State Water Project canal). This location is south of the discharge location along Old River, which is the "downstream" direction of Old River during irrigation and low flow seasons in the Delta. The salinity objective for West Canal is 1000 umhos/cm year around for electrical conductivity and 250 mg/L for chloride. There is also a salinity objective for the South Delta for protection of the MUN and AGR uses of 700 µmhos/cm from 1 April to 31 August, and 1000 µmhos/cm from 1 September to 31 March. The 2006 update of the Bay Delta Plan clarified that the numeric objectives are not just applicable at the compliance monitoring locations, but "unless otherwise indicated, water quality objectives cited for a general area, such as for the southern Delta, are applicable for all locations in that general area and compliance locations will be used to determine compliance with the cited objectives." The West Canal and South Delta compliance locations ~~is~~ are in the general area of the Discovery Bay discharge, and the compliance locations ~~is~~ are "downstream" of the Discovery Bay discharge during critical Delta flow conditions. Therefore, the numeric electrical conductivity and chloride objectives for the West Canal compliance location and the electrical conductivity objectives for the South Delta are~~is~~ applicable to the receiving waters into which Discovery Bay discharges.

Table F-5. Salinity Water Quality Criteria/Objectives and Effluent and Receiving Water Concentrations

Parameter	Secondary MCL[1]	Basin Plan (Bay-Delta Plan)	Old River		Effluent	
			Max Non-Irrigation	Max Irrigation	MEC	Projected Critical C_d
EC (µmhos/cm)	900, 1600, 2200	700 (1 Apr – 31 Aug) 1000 (1 Sep – 31 Mar)	776	660	2280	2500
TDS (mg/L)	500, 1000, 1500	N/A	435	--	1440	1600
Sulfate (mg/L)	250, 500, 600	N/A	--	--	--	--
Chloride (mg/L)	250, 500, 600	250	164	--	400	420

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

(1) Chloride. The secondary MCL for chloride for protection of MUN use is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The Bay-Delta Plan's water quality

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objective for chloride for the West Canal is 250 mg/L for the protection of the MUN use. The USEPA National Ambient Water Quality Criteria for chloride recommends acute (1-hour) and chronic (4-day) criteria for the protection of freshwater aquatic life of 860 mg/L and 230 mg/L, respectively.

(2) Electrical Conductivity. The Bay-Delta Plan's water quality objective for EC ranges from 700 – 1000 µmhos/cm for the protection of MUN and AGR uses and the Secondary MCL for EC for the protection of the MUN use is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum.

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

(4) Total Dissolved Solids. The secondary MCL for TDS for the protection of the MUN use is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.

ii. RPA Results. For priority pollutants, the SIP dictates the procedures for conducting the RPA. EC is not a priority pollutant. Therefore, the Regional Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Regional Water Board has used best professional judgment in determining the appropriate method for conducting the RPA for EC. For conducting the RPA, the USEPA recommends using a mass-balance approach to determine the expected critical downstream receiving water concentration using a steady-state approach[2]. This downstream receiving water concentration is then compared to the applicable water quality objectives to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion. This approach allows assimilative capacity and dilution to be factored into the RPA. This USEPA recommended approach has been used for EC. The critical downstream receiving water concentration is calculated using equation 2 below:

$$C_r = \frac{Q_s C_s + Q_d C_d}{Q_s + Q_d} \qquad \text{(Equation 2)}$$

Where,

Q_s = Critical stream flow (1Q10) for acute criteria, (7Q10) for chronic criteria, and harmonic mean flow for human health criteria.

[2] USEPA NPDES Permit Writers' Course (EPA 833-B-97-001 rev. October 2009)

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Q_d = Critical effluent flow from discharge flow data (maximum permitted discharge)

C_s = Critical upstream pollutant concentration

C_d = Critical effluent pollutant concentration

C_r = Critical downstream receiving water pollutant concentration

The critical stream flow (Q_s) is 700 cubic feet per second (cfs) for the harmonic mean flow, which was calculated based on flow data for the Old River for the period of 1999 – 2010. For completely-mixed discharges the USEPA recommends using the 1Q10 and 7Q10 critical stream flows for acute and chronic aquatic life criteria, respectively. For long term human health criteria, the USEPA recommends using the harmonic mean flow.

The critical effluent flow, Q_d, is 3.3 cfs, which is the maximum permitted flow allowed in this Order.

The critical effluent pollutant concentration, C_d, was determined using statistics recommended in the TSD for statistically calculating the projected maximum effluent concentration (i.e., Table 3-1 of the TSD using the 99% probability basis and 99% confidence level).

~~i.~~**(1)** **Chloride**. ~~The Bay-Delta Plan objective for the West Canal at Mouth of Clifton Court Forebay (the entrance to the State Water Project canal) is included in this Order. The maximum mean daily value shall not exceed 250 mg/L to protect Municipal and Industrial uses of the receiving water.~~

Chloride concentrations in the effluent ranged from 277 mg/L to 400 mg/L, with an average of 330 mg/L, for 104 samples collected by the Discharger from 1/14/04 through 10/10/07. The maximum background concentration of chloride in Old River upstream of the discharge was 164 mg/L. Using the procedures described above, the critical downstream chloride concentration is calculated as follows:

Q_s = 700 cfs
Q_d = 3.3 cfs
C_d = 420 mg/L
C_s = 164 mg/L

$$C_r = \frac{(700 \text{ cfs} \times 164 \text{ mg/L} + 3.3 \text{ cfs} \times 420 \text{ mg/L})}{(700 \text{ cfs} + 3.3 \text{ cfs})}$$

$$= 165 \text{ mg/L}$$

The Critical downstream receiving water pollutant concentration, C_r, for chloride is 165 mg/L, which does not exceed the applicable water quality

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objective. Therefore, the discharge does not have reasonable potential for chloride and WQBELs are not needed.

~~ii.~~ **(2) Electrical Conductivity (EC)**. EC concentrations were collected from the Old River between 2005 and 2010 for both irrigation and non-irrigation seasons. The critical upstream pollutant concentration (C_s) was calculated with both the maximum non-irrigation season and maximum irrigation season concentrations of EC; 776 µmhos/cm and 660 µmhos/cm, respectively.

Using the procedures described above, the critical downstream EC concentration is calculated as follows for the irrigation and non-irrigation seasons:

Irrigation Season

Q_s = 700 cfs
Q_d = 3.3 cfs
C_d = 2500 µmhos/cm
C_s = 660 µmhos/cm

$$C_r = \frac{(700 \text{ cfs} \times 660 \ \mu\text{mhos/cm} + 3.3 \text{ cfs} \times 2500 \ \mu\text{mhos/cm})}{(700 \text{ cfs} + 3.3 \text{ cfs})}$$

$$= 669 \ \mu\text{mhos/cm}$$

Non-Irrigation Season

Q_s = 700 cfs
Q_d = 3.3 cfs
C_d = 2500 µmhos/cm
C_s = 776 µmhos/cm

$$C_r = \frac{(700 \text{ cfs} \times 776 \ \mu\text{mhos/cm} + 3.3 \text{ cfs} \times 2500 \ \mu\text{mhos/cm})}{(700 \text{ cfs} + 3.3 \text{ cfs})}$$

$$= 784 \ \mu\text{mhos/cm}$$

The Critical downstream receiving water pollutant concentration, C_r, for EC is 776 µmhos/cm and 660 µmhos/cm for the non-irrigation and irrigations seasons, respectively, which does not exceed the applicable water quality objectives. Therefore, the discharge does not have reasonable potential for EC and WQBELs are not needed.

~~The Basin Plan objective for the West Canal at Mouth of Clifton Court Forebay (the entrance to the State Water Project canal) is included in this Order. The maximum monthly average of daily mean values shall not exceed 1000 µmhos/cm to protect Agricultural uses of the receiving water.~~

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~~A review of the Discharger's monitoring reports from 1/14/04 through 10/10/07 shows an average effluent EC of 1921 µmhos/cm, with a range of 724 to 2280 µmhos/cm for 91 samples. The maximum background EC level in the receiving water upstream from the discharge was 735 µmhos/cm. The EC of the effluent, receiving water and source water all exceed the mos water quality objective at the entrance to the State Water Project (1000 µmhos/cm). However, the EC of the wastewater effluent is often at least 500 µmhos/cm above that of the source water. These data show that the receiving water frequently has no assimilative capacity for EC, and that the discharge likely contains controllable salt sources.~~

~~iii.~~(3) **Total Dissolved Solids (TDS)**. ~~The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.~~

The average TDS effluent concentration was 1114 mg/L and ~~a~~ ranged from 80 mg/L to 1440 mg/L for 91 samples collected by the Discharger from 1/14/04 through 10/10/07. The maximum background concentration of TDS in Old River upstream of the discharge was 435 mg/L. ~~The maximum effluent TDS concentration exceeds all but the least stringent TDS water quality objective to protect MUN use. The maximum background receiving water concentration of TDS upstream of the discharge was 435 mg/L, so there is assimilative capacity in the receiving water to protect the MUN use. The range of source water concentrations of TDS was 540 – 580 mg/L. The wastewater effluent concentrations were often at least 500 mg/L greater than the source water concentrations, indicating that the discharge contains controllable sources of salts. It is generally not necessary to prescribe effluent limits for every salinity species if one salinity constituent is being regulated. This Permit establishes limits for, electrical conductivity adequate to regulate salinity issues. Therefore an effluent limitation for TDS is not necessary to protect water quality and is therefore not prescribed.~~

Using the procedures described above, the critical downstream TDS concentration is calculated as follows:

Q_s = 700 cfs
Q_d = 3.3 cfs
C_d = 1600 mg/L
C_s = 435 mg/L

$$C_r = \frac{(700 \text{ cfs} \times 435 \text{ mg/L} + 3.3 \text{ cfs} \times 1600 \text{ mg/L})}{(700 \text{ cfs} + 3.3 \text{ cfs})}$$

$$= 440 \text{ mg/L}$$

The Critical downstream receiving water pollutant concentration, C_r, for TDS is 440 mg/L, which does not exceed the applicable water quality

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objective. Therefore, the discharge does not have reasonable potential for TDS and WQBELs are not needed.

iii~~v~~. Salinity Effluent Limitations. The discharge does not have reasonable potential to cause or contribute to an instream exceedance of the applicable water quality objectives for salinity, therefore, water quality-based effluent limitations are not required. However, due to concerns with salinity in the Delta, this Order includes a performance-based effluent limit for EC to ensure the discharge of salinity does not increase. This Order includes an annual average performance-based effluent limitation for EC of 2,100 µmhos/cm. This Order also requires the Discharger develop and implement a Salinity Plan to reduce the discharge of salinity and includes a Salinity Reduction Goal to reduce effluent EC to a maximum of the water supply EC plus an increment of 500 µmhos/cm. ~~Effluent limitations based on the MCL, the agricultural water quality goal, or the Basin Plan would likely require construction and operation of a reverse osmosis treatment plant. The State Water Board, in Water Quality Order 2005-005 (for the City of Manteca), states, "…*the State Board takes official notice [pursuant to Title 23 of California Code of Regulations, Section 648.2] of the fact that operation of a large-scale reverse osmosis treatment plant would result in production of highly saline brine for which an acceptable method of disposal would have to be developed. Consequently, any decision that would require use of reverse osmosis to treat the City's municipal wastewater effluent on a large scale should involve thorough consideration of the expected environmental effects.*" The State Water Board states in that Order, "*Although the ultimate solution to southern Delta salinity problems have not yet been determined, previous actions establish that the State Board intended for permit limitations to play a limited role with respect to achieving compliance with the EC water quality objectives in the southern Delta.*" The State Water Board goes on to say, "*Construction and operation of reverse osmosis facilities to treat discharges…prior to implementation of other measures to reduce the salt load in the southern Delta, would not be a reasonable approach.*" In addition, the State Water Board expressed concerns about costs of reverse osmosis; the same considerations apply to this Facility.~~

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

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~~As previously described, effluent data for EC, chloride, and TDS indicate that effluent concentrations continue to be at levels of concern that may affect beneficial uses of the Old River. Therefore, this Order includes an annual average performance-based effluent limitation of 2100 µmhos/cm for EC to protect the receiving water from further salinity degradation, based on the highest annual average effluent concentration. However, should the Discharger fail to implement the provisional requirements specified in Provision VI.C.3.c of this Order, then this Order requires the Discharger to comply with the monthly average EC effluent limits of 1000 µmhos/cm, which are based on the Bay-Delta Plan water quality objectives for this geographical location. The Bay-Delta objectives are under review, but when or if the salinity objectives will be changed is unknown. The Regional Water Board must implement water quality objectives as they exist at this time.~~

~~Compliance with these effluent limitations and the requirements of Provision VI.C.3.a will result in a salinity reduction in the effluent discharged to the receiving water; however, the discharge may cause or contribute to an exceedance of a water quality objective for salinity until adequate measures are implemented to meet those objectives.~~

~~EC is an indicator parameter for salinity, as is chloride and TDS. Establishing an effluent limitation for EC is expected to effectively control the constituents that contribute to salinity, including TDS and chloride. Therefore, the effluent limits for chloride and TDS were not carried forward from the previous Order. Removal of the effluent limitations is consistent with the antibacksliding regulations, because this Order includes controls for effluent salinity. The removal of the effluent limitations also meets state and federal antidegradation requirements, because even the performance-based effluent EC limitation (2,100 µmhos/cm) is more stringent than the previous Order, which will result in lower concentrations of chloride and TDS in the discharge. Monitoring of these constituents has been required to verify that they are effectively controlled using EC as an indicator parameter.~~

o. Settleable Solids. For inland surface waters, the Basin Plan states that "[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses." No detectable Settleable Solids were found in the 93 samples analyzed in the period. There is no reasonable potential for causing or contributing to violation of the Basin Plan objective, so no Settleable Solids effluent limitation is included in this permit.

p. Temperature. The Thermal Plan requires that, "The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F", and "No discharge shall cause a surface water temperature rise greater than 4ºF above the natural temperature of the receiving water." Therefore, to ensure compliance

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with the Thermal Plan, an effluent limitation for temperature is included in this Order.

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

4. WQBEL Calculations

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

b. **Effluent Limitation Calculations.** In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC \qquad ECA_{chronic} = CCC$$

For the human health, agriculture, or other long-term criterion/objective, a dilution credit can be applied. The ECA is calculated as follows:

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

where:

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

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

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

CMC = criteria maximum concentration (one-hour average)

CCC = criteria continuous concentration (four-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 maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL).

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

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

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

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

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

Water quality-based effluent limitations were calculated for ammonia and copper, as follows in Tables F-6 through F-10, below.

Table F-~~5~~6. WQBEL Calculations for Ammonia

	Acute	Chronic
pH (1)	8.5	7.8
Temperature °C (2)	N/A	26.6
Criteria (mg/L) (3)	2.14	1.46
Dilution Credit	13.2	23
ECA	30.4	28
ECA Multiplier	0.13	0.52
LTA (4)	3.95	14.58
AMEL Multiplier (95th%)	2.56	(5)
AMEL (mg/L)	**10.1**	(5)
MDEL Multiplier (99th%)	7.59	(5)
MDEL (mg/L)	**30**	(5)

(1) Acute design pH = 8.5 (max. allowed effluent pH), Chronic design pH = median receiving stream pH
(2) Temperature = Maximum 30-day average seasonal effluent temperature
(3) USEPA Ambient Water Quality Criteria
(4) LTA developed based on Acute and Chronic ECA Multipliers calculated at 99th percentile level per sections 5.4.1 and 5.5.4 of TSD.
(5) Limitations based on acute LTA ($LTA_{chronic} > LTA_{acutre}$)

Table F-~~6~~7. WQBEL Calculations for Copper

	Acute - CTR	Chronic - CTR	Basin Plan
Criteria, dissolved (µg/L) (1)	27.4	17.2	10.0
Dilution Credit	13.2	23	23
Translator (2)	0.96	0.96	0.96
ECA, total recoverable (3)	323	297	135
ECA Multiplier (4)	0.36	0.57	---
LTA	117	169	---
AMEL Multiplier (95th%) (5)(6)	1.47	(8)	---

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AMEL (µg/L)	**172**	(8)	**---**
MDEL Multiplier (99th%) (7)	2.77	(8)	**---**
MDEL (µg/L)	**323**(9)	(8)	**135**

(1) CTR aquatic life criteria, based on an effluent hardness of 204 mg/L as $CaCO_3$.
(2) EPA Translator used as default.
(3) ECA calculated per section 1.4.B, Step 2 of SIP. This allows for the consideration of dilution.
(4) Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
(5) Assumes sampling frequency n=>4.
(6) The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
(7) The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
(8) Limitations based on acute LTA (Acute LTA < Chronic LTA)
(9) MDEL exceeds Basin Plan site-specific objective for copper (10.4 µg/L), final effluent limitations implement the Basin Plan site-specific objective.

Table F-~~7~~8. Summary of Final Water Quality-based Effluent Limitations

Parameter	Units	Effluent Limitations		
		Average Monthly	Maximum Daily	Annual Average
Ammonia	mg/L	10	30	--
	lbs/day	177	525	--
Copper	µg/L	50	70	--
Iron	µg/L	---	---	300
Aluminum	µg/L	---	---	200
Nitrate (as N)	mg/L	73	126	---
Electrical Conductivity	µmhos/cm	~~1000~~---	~~---~~	~~---~~2100

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) The Basin Plan also states that, "…effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate…" USEPA Region 9 provided guidance for the development

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

b. **Chronic Aquatic Toxicity.** Based on quarterly whole effluent chronic toxicity testing performed by the Discharger from January 2004 through July 2007, the discharge does not have reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

During the term of the previous Order, the chronic toxicity "trigger" was 1 chronic toxicity unit (TUc). Exceedances of this trigger during the term of the previous Order are described by the following table.

Table F-~~8~~9. Chronic Toxicity Monitoring Results Exceeding 1 TUc (2004-2007)

Date	Test Species	Result (TUc)
April 2005	*Selenastrum* algae	4.00
April 2005	*Ceriodaphnia dubia*	2.00
June 2005	*Selenastrum* algae	1.33
October 2005	*Selenastrum* algae	4.00
January 2006	*Selenastrum* algae	4.00
October 2006	*Selenastrum* algae	2.00
January 2007	*Selenastrum* algae	8.00
May 2007	*Selenastrum* algae	1.33
July 2007	*Selenastrum* algae	2.00

The Discharger conducted a dilution study during this time period, and determined that the worst case chronic dilution ratio for discharge into Old River is 23:1. Based on prior sampling results, the Discharger should not cause chronic toxicity in Old River at a dilution of 23:1, so there is no reasonable potential for chronic toxicity. Therefore, no effluent limitation for chronic toxicity is included in the permit. The current Order also establishes the requirement for a

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Toxicity Reduction Evaluation, as further described below, should chronic toxicity monitoring results exceed a trigger value of 10 TUc. Based upon the above data, the Discharger can meet a 10 TUc trigger, and exceedance of 10 TUcs would indicate an increase in effluent toxicity that should be evaluated.

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). Furthermore, Special Provisions VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates ~~a pattern of~~ toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE work plan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if ~~a pattern of~~ effluent toxicity has been demonstrated.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations.

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

Mass-based effluent limitations were calculated based upon the permitted average daily discharge flow allowed in Section IV.A.1.a.(5) 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

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maximum daily effluent limitations in lieu of average weekly effluent limitations for settleable solids, ammonia, copper, nitrate, and Electrical Conductivity for the achievement of water quality standards and for the protection of the beneficial uses of the receiving stream. Furthermore, for BOD, TSS, and pH, weekly average effluent limitations have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in Attachment F, Section IV.C.3., above.

3. Satisfaction of Anti-Backsliding Requirements.

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

Some effluent limitations in this Order are less stringent that those in the previous Orders (Order No. R5-2003-0067 and Order No. R5-2008-0179). As discussed below this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations. This section addresses anti-backsliding for the relaxation of permit requirements from Order No. R5-2003-0067 when Order No. R5-2008-0179 was adopted and additional changes made when Order No. R5-2008-0179-01 was adopted.

Copper and Ammonia. In ~~the previous permit,~~ Order No. R5-2003-0067, ambient water quality criteria for ammonia and copper were expressed as "floating" limitations. In this current Order, the fixed effluent limitations for ammonia and copper are less stringent than the effluent limitations of the previous Order because they account for dilution. Anti-backsliding requirements are satisfied, however, pursuant to CWA section 402(o)(2)(B), where the documentation of an actual dilution factor for the receiving water determined during the term of the previous permit, qualifies as new information which was not available at the issuance of the previous permit.

The changes in effluent limits for ammonia and copper in the current permit are based on new information generated during the term of the previous permit, and are consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16, as described below.

Turbidity. ~~The previous permit~~Order No. R5-2003-0067 contained effluent limitations for turbidity. The prior limitations were solely an operational check to ensure the treatment system was functioning properly and could meet the limits for ~~solids and~~ total coliform organisms (i.e., ensure adequate pathogen removal). The prior turbidity effluent limitations were not intended to regulate turbidity in the receiving water. Rather, turbidity ~~is~~was an operational parameter to determine proper Ultraviolet Disinfection (UV) system functioning and not a water quality-based effluent limitation.

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~~The revised~~ Order R5-2008-0179 contained~~s~~ ~~performance based~~ operational ~~turbidity~~ specifications for the UV system to be met ~~prior to disinfection~~ in lieu of turbidity effluent limitations. The operational specifications were further revised in R5-2008-0179-01 to include requirements for UV dosage and UV transmittance. ~~The revised Order does not include effluent limitations for turbidity. However, t~~The ~~performance-based~~ UV system specifications in this Order result in same or better level of protection ~~low turbidity effluent,~~ and ~~is~~are ~~an~~ equivalent ~~limit~~ requirements that ~~is~~are not less stringent, and therefore do~~es~~ not constitute backsliding.

~~The proposed revised operational specifications for turbidity are the same as the effluent limitations in the previous permit, with the inclusion of a more stringent requirement for an instantaneous maximum limit at any time. (See Special Provisions C.5. Ultraviolet Disinfection (UV) System Operating Specifications for turbidity specifications.) The proposed revised permit moves the point of compliance from the final effluent after disinfection to an internal compliance point prior to disinfection. These revisions are consistent with state regulations implementing recycled water requirements.~~

The ~~revision in~~removal of the turbidity limitation is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16 because this Order imposes equivalent or more stringent requirements than the prior permit and therefore does not allow degradation.

Aluminum, Total Residual Chlorine, Chloroform, Cyanide, Dibromochloromethane, Dichlorobromomethane, Lead, Mercury, MTBE, MBAS, and Zinc. Order No. R5-2003-0067 ~~The previous permit~~ contained effluent limitations for aluminum, total residual chlorine, chloroform, cyanide, dibromochloromethane, dichlorobromomethane, lead, mercury, MTBE, MBAS, and zinc. Effluent limitations for these parameters are not contained in the current permit. The Discharger has modified their disinfection system to eliminate the use of chlorine and has changed the discharge location to the Old River.

The deletion of effluent limits for aluminum, total residual chlorine, chloroform, cyanide, dibromochloromethane, dichlorobromomethane, lead, mercury, MTBE, MBAS, and zinc in the current permit are based on new information generated during the term of the previous permit, and are consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16

Salinity. Order No. R5-2003-0067 ~~The previous permit~~ contained effluent limitations for electrical conductivity (EC), chloride, and total dissolved solids (TDS), which are measures of the salinity of the wastewater. The Regional Water Board found in Order No. R5-2003-0067 that there was assimilative capacity for EC, chloride, and TDS in the receiving water and the effluent limitations for these salinity constituents were established with the allowance of dilution. The effluent limitations for these salinity constituents were revised in Order R5-2008-0179. The effluent limitations for chloride and TDS were removed and a more stringent effluent limitation for EC was

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imposed. Since EC is an indicator parameter for salinity, ~~as is chloride and TDS. E~~establishing an effluent limitation for EC is expected to effectively control the constituents that contribute to salinity, including TDS and chloride. ~~Therefore, the effluent limits for chloride and TDS were not carried forward from the previous permit.~~ Removal of the effluent limitations for chloride and TDS from Order No. R5-2003-0067 is consistent with the antibacksliding regulations, because ~~this~~ Order R5-2008-0179 includes controls for effluent salinity that are more stringent than the previous requirements. Since the salinity requirements are more stringent, ~~T~~the removal of the effluent limitations also meets state and federal antidegradation requirements.

In Order R5-2008-0179 an error was made in the evaluation of assimilative capacity for EC in Old River. The Basin Plan EC objective for Clifton Court was applied (i.e., 1000 µmhos/cm) and the permit stated that the maximum ambient background concentration was 735 µmhos/cm, which is less than the objective. However, the permit states that ambient background concentration exceeded the EC objective, which is false. Order R5-2008-0179 included an annual average performance-based effluent limitation for EC of 2,100 µmhos/cm and a more stringent conditional average monthly effluent limitation of 1000 µmhos/cm if certain salinity reduction provisions were not satisfied by the Discharger.

Since adoption of Order R5-2008-0179, on 19 May 2009, the State Water Board adopted a precedential water quality order for the City of Tracy Wastewater Treatment Plant (WQO No. 2009-0003, Tracy Order). In the Tracy Order, the State Water Board addressed the need for water quality-based effluent limitations for EC that is applicable to the Facility. The need for water quality-based effluent limitations for EC, as well as, chloride and TDS, were re-evaluated based on the direction provided in the Tracy Order and the proper determination of assimilative capacity in the receiving water. This resulted in revised effluent limitations for EC in Order R5-2008-0179-01 that are potentially less stringent than the limits in Order R5-2008-0179. The annual average performance-based effluent limits for EC remain the same, but the provisional average monthly effluent limitation of 1000 µmhos/cm was removed, because, with the proper determination of assimilative capacity, it was determined that the discharge does not have reasonable potential to cause or contribute to an instream exceedance of the applicable water quality objectives for EC. This is also the case for chloride and TDS (see Section IV.C.3.n, above).

Removal of the effluent limitations for chloride and TDS from Order No. R5-2003-0067 is consistent with the antibacksliding regulations, because Order R5-2008-0179-01 maintains the controls for effluent salinity that are more stringent than the previous requirements. The removal of the provisional average monthly effluent limitation of 1000 µmhos/cm as EC is consistent with the exceptions for backsliding in the federal antibacksliding regulations. There is new information since issuance of Order No. R5-2008-0179 and technical mistakes were made in the development of Order No. R5-2008-0179. The new information is the issuance of the Tracy Order by the State Water Board, and the technical mistake is in regard to

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the evaluation of assimilative capacity for EC. The changes to the EC limitations is consistent with the state and federal antidegradation requirements, because the change does not allow an increase in the discharge of EC. The EC annual average performance-based effluent limitation remains unchanged and the permit maintains the salinity reduction provisions from Order No. R5-2008-0179, with which the Discharger must maintain compliance. In the previous permit the more stringent conditional average monthly effluent limitation did not go into effect, because the Discharger was in compliance with these salinity reduction provisions.~~, because the effluent EC limitations are more stringent than the previous permit, which will result in lower concentrations of chloride and TDS in the discharge. Monitoring of these constituents has been required to verify that they are effectively controlled using EC as an indicator parameter.~~

4. Satisfaction of Antidegradation Policy

a. Surface Water. In accordance with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16, the water quality of Old River shall be maintained, unless the Regional Water Board finds:

1. That allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located,

2. That applicable water quality criteria and objectives shall be achieved,

3. That existing beneficial uses of the receiving water will be fully protected, and

4. That the highest statutory and regulatory requirements for point source discharges to the receiving water are being achieved; and that all cost-effective and reasonable best management practices for non-point source discharges to the receiving water are being achieved.

This permit does not authorize increased concentrations or loadings of pollutants in the discharge, except for ammonia. Because the discharge complies with each exception above, the increase of ammonia concentrations in the discharge above that of the previous permit satisfies antidegradation requirements. The Regional Water Board finds that the necessity for a wastewater treatment plant for the community allows for lowering receiving water quality as a result of the increased ammonia concentration in the discharge. Secondly, the applicable receiving water criteria and objectives will be achieved, and beneficial uses will be protected. The dilution study conducted during the term of the previous permit demonstrated that granting a dilution credit is appropriate and that the existing beneficial uses of Old River will be fully protected upon the application of the dilution credit. Finally, the Regional Water Board applies the highest statutory and regulatory requirements upon point source dischargers to Old River, and reasonable BMPs are being applied to non-point discharges to the receiving water.

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b. Groundwater. The Discharger utilizes sludge disposal lagoons, lined with clay liners. Domestic wastewater contains constituents such as total dissolved solids (TDS), specific conductivity, pathogens, and nitrates. Percolation from the lagoons 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 68-16. The Discharger is required to continue its groundwater monitoring study to comply with the receiving groundwater limits which state that the discharge shall not impact beneficial uses, or cause total coliform bacteria to exceed 2.2 MPN/100 mL over any seven day period. 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 68-16 provided that:

- the degradation is limited in extent;
- 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;
- the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and
- the degradation does not result in water quality less than that prescribed in the Basin Plan.

Table F-~~9~~10. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD 5-day @ 20°C	mg/L	20	40	50	---	---
	lbs/day[1]	350	700	875	---	---
Total Suspended Solids	mg/L	30	40	50	---	---
	lbs/day[1]	525	700	875	---	---
pH	standard units	---	---	---	6.5	8.5
Copper	µg/L	50	---	70	---	---
Nitrate (as N)	mg/L	73	---	126	---	---
Settleable Solids	mL/L	0.1	---	0.2		
Ammonia	mg/L	10	---	30	---	---
	lbs/day[1]	177	---	525	---	---

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

[1] Calculated with the following formula: 8.345 x concentration x flow, using a design flow of 2.1 mgd.

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

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

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

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

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

   i. 23 most probable number (MPN) per 100 mL, as a 7-day median; and

   ii. 240 MPN/100 mL, more than once in any 30-day period.

e. **Average Daily Discharge Flow.** The Average Daily Discharge Flow shall not exceed 2.1 mgd.

f. **Electrical Conductivity.** ~~Effluent electrical conductivity shall not exceed 1000 µmhos/cm, as a monthly average of mean daily values, if: (1) the Discharger fails to submit a Salinity Plan to reduce its salinity impacts to the Delta, including a schedule, to comply with conditions (1) – (3) below to the Regional Water Board within six months of the effective date of this permit, or (2) the Discharger fails to timely implement the Salinity Plan upon the Regional Water Board's approval. The proposed Salinity Plan will be circulated for no less than 30 days of public comment prior to the Regional Water Board's consideration of the Salinity Plan, and the Regional Water Board may revise the Salinity Plan prior to approving it.~~

   ~~1) The Discharger implements all reasonable steps to obtain alternative, lower salinity water supply sources; and~~

   ~~2) The Discharger develops and implements a salinity source control program that will identify and implement measures to reduce salinity in discharges from residential, commercial, industrial and infiltration sources in an effort to meet the interim salinity goal of a maximum 500 umhos/cm electrical conductivity increase over the weighted average electrical conductivity of the Discovery Bay's water supply; and~~

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~~3) The Discharger participates financially in the development of the Central Valley Salinity Management Plan at a level commensurate with its contributions of salinity to the Delta.~~

~~Upon determination by the Regional Water Board that the Discharger has materially failed to comply with the approved Salinity Plan due to circumstances within its control, the final effluent limitations for electrical conductivity shall become effective immediately.~~

~~Until such time, t~~The effluent electrical conductivity concentration shall not exceed 2100 µmhos/cm as an annual average.

g. **Total Recoverable Iron.** Effluent total recoverable iron shall not exceed 300 µg/L, as an annual average.

h. **Aluminum.** Effluent total recoverable aluminum concentrations shall not exceed 200 µg/L, as an annual average.

E. Interim Effluent Limitations

Not applicable.

F. Land Discharge Specifications

Not Applicable.

G. Reclamation Specifications

Not Applicable.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

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

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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 biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes 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. Rational for these numeric receiving surface water limitations are as follows:

1. **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.

2. **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.

3. **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.

4. **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.

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5. **Dissolved Oxygen.** Old River has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. Since the beneficial use of COLD does apply to Old River, a receiving water limitation of 7.0 mg/L for dissolved oxygen was included in this Order.

6. **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.

7. **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.

8. **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.~~

9. **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.

10. **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.

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11. **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.

12. **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.

13. **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.

14. **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.

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

    - 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.

    - 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.

16. **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.

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

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following limits:

- Where natural turbidity is less than 1 Nephelometric Turbidity Unit (NTU), controllable factors shall not cause downstream turbidity to exceed 2 NTUs.
- Where natural turbidity is between ~~0~~1 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.
- For Delta waters, turbidity shall not exceed 50 NTUs in waters of the central Delta, and 150 NTUs in other Delta waters. "

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

The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply. 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. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

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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

Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (*e.g.*, BOD and TSS reduction requirements). All influent monitoring requirements have been retained from the previous Order.

B. Effluent Monitoring

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.

Most effluent monitoring requirements are retained from the previous Order. Changes in effluent monitoring requirements include an increase in monitoring frequency from quarterly to monthly for iron, and monthly monitoring requirements for managanese are established by this Order because reasonable potential was found for these constituents. A biannual monitoring requirement for dioxin-TEQ is estblished by this Order because dioxin congeners were detected in the effuent during the term of the previous permit, and further characterization of the effluent with regards to dioxins is justified.

C. Whole Effluent Toxicity Testing Requirements

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

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

D. Receiving Water Monitoring

1. **Surface Water.** Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

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E. Ultraviolet Disinfection System Monitoring

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

F. Other Monitoring Requirements

1. Biosolids Monitoring

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

2. Water Supply Monitoring

Water supply monitoring is required to evaluate the source of salinity constituents in the wastewater effluent. Water supply monitoring requirements are also retained from the previous permit.

3. 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 required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the facility subject to this Order.

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b. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment or control. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with Resolution 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. Monitoring requirements for elevation, depth to groundwater, electrical conductivity, nitrates (as N), and total coliform organisms are carried over from Order No. R5-2003-0067.

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 Board plans and policies, including Resolution 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

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

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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 (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. **Salinity Minimization Plan (VI.C.1.d.)** This Order requires the Discharger prepare a salinity minimization plan. This reopener provision allows the Regional Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for EC based on a review of the salinity minimization plan.

c. **Whole Effluent Toxicity (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 (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. 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.) Based on quarterly

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whole effluent chronic toxicity testing performed by the Discharger from January 2004 through July 2007, the discharge does not have reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan's narrative toxicity objective when effluent dilution into Old River is considered.

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

i. **Monitoring Trigger.** A numeric toxicity monitoring trigger of ≥10 TUc (where TUc = 100/NOEC) is applied in the provision. This Order grants a dilution credit of 23:1. Applying a study trigger of 10 TUc provides a large safety factor to assure that chronic toxicity does not occur in Old River.

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

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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

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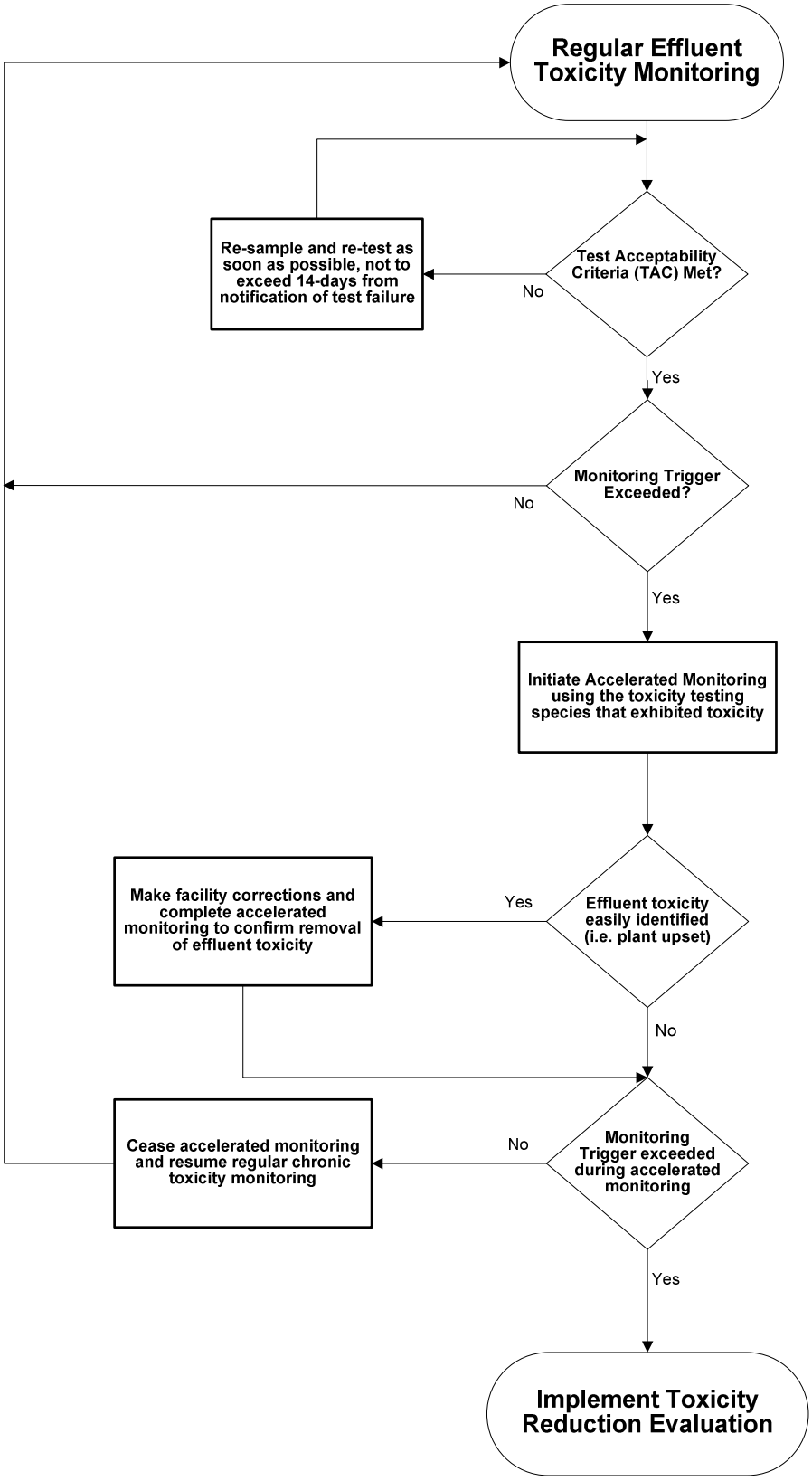
Figure F-1
WET Accelerated Monitoring Flow Chart



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b. **Groundwater Evaluation Study (Special Provisions VI.C.2.b.).** To determine compliance with Groundwater Limitations V.B., the Discharger is required to evaluate the adequacy of its groundwater monitoring network. This provision requires the Discharger to evaluate its groundwater monitoring network to ensure there are 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. If the monitoring shows that any constituent concentrations are increased above background water quality, **within 48 months of permit adoption,** the Discharger shall submit a technical report describing the groundwater evaluation report results and critiquing each evaluated facility component with respect to BPTC and minimizing the discharge's impact on groundwater quality.

3. Best Management Practices and Pollution Prevention

a. **CWC section 13263.3(d)(3) Pollution Prevention Plans.** The pollution prevention plans required for salinity 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.

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

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

b. Mercury Evaluation Program. A mercury evaluation program was required by the previous Order and is being retained by the current Order. The Sacramento-San Joaquin Delta is 303(d) listed for mercury, and a TMDL is under development. The discharge must not contribute to increased loadings of mercury in fish tissue to meet anti-degradations requirements of State Board Resolution 68-16 and at 40 CFR 131.12(a)(1). Monitoring requirements for mercury and methylmercury are required for this Discharger as part of the mercury evaluation program.

c. Salinity Plan. The Regional Water Board, with cooperation of the State Water Board, has begun the process to develop a new policy for the regulation of salinity in the Central Valley. As previously described in this Fact Sheet, effluent data for EC and TDS indicate that effluent concentrations continue to be at levels of concern that may affect beneficial uses of the Old River. Therefore, this Order requires the Discharger to develop a Salinity Plan to reduce its salinity impacts to the Old River, which at a minimum must include source control measures, contributing financially in the development of the Central Valley Salinity Management Plan, and as reasonably possible, changing to water supplies with lower salinity. In addition, the Discharger is required to develop and implement a pollution prevention plan for salinity in accordance with CWC section 13263.3(d)(3), and to implement pollution prevention measures to reduce the salinity in its discharge to the Old River.

d. Salinity Reduction Goal. In an effort to monitor progress in reducing salinity discharges to the Old River, the Discharger shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to the Old River. An annual average salinity goal of the maximum weighted average electrical conductivity of the Discharger's water supply plus an increment of 500 µmhos/cm for typical consumptive use, has been established as a reasonable goal during the term of this permit. The annual 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. Treatment Pond Requirements. 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.

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b. Ultraviolet Disinfection (UV) System Operating Specifications. UV System specifications and monitoring and reporting is required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens e.g. viruses in the wastewater. UV dosage is dependent on several factors such as UV transmittance, UV power setting, wastewater turbidity, and wastewater flow through the UV System. ~~Monitoring and reporting of these parameters is necessary to determine compliance with minimum dosage requirements established by the California Department of Public Health, (DPH) and the National Water Research Institute (NWRI) and American Water Works Association Research Foundation NWRI/AWWARF's *"Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse"* first published in December 2000 revised as a Second Edition dated May 2003. In addition, a Memorandum dated 1 November 2004 issued by DPH to Regional Board executive officers recommended that provisions be included in permits to water recycling treatment plants employing UV disinfection requiring Dischargers to establish fixed cleaning frequency of quartz sleeves as well as include provisions that specify minimum delivered UV dose that must be maintained (as recommended by the NWRI/AWWARF UV Disinfection Guidelines).~~

~~Turbidity is included as an operational specification as an indicator of the effectiveness of the treatment process and to assure compliance effluent coliform limitations. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity and could impact UV dosage. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action.~~

Minimum UV dosage and ~~turbidity~~ UV transmittance specifications are included as operating criteria in Special Provisions, Section V1.C.5 ~~and Monitoring and Reporting requirements, Attachment E, Section IX.B.,~~ to ensure that adequate disinfection of wastewater is achieved. For the Facility, the power setting is 100 % by design whenever the system is energized. If measured UV transmittance is detected below 65 %, then control logic will compensate by bringing additional banks into service to maintain that dose. The design called for 468 lamps at 130 mW/sec/cm^2 dose and 65 % UV transmittance to guarantee performance disinfection at 2.3 MGD to <23 MPN/100 ml as a 7-day median or <240 MPN/100 ml as a maximum daily coliform count. The 130 mW/sec/cm^2 dose and 65 % UV transmittance calculations are based on the Facility HydroQual Bioassay Design.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Pretreatment Requirements. Not Applicable.

b. Sludge/Biosolids Discharge, Disposal, and Storage Requirements. The use and disposal of biosolids is regulated under federal and State laws and

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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 established 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. 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. 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.a. of this Order requires the Discharger to comply with federal regulations for the transfer of NPDES permits in the event of a change in 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.

The Discharger submitted a request, and justification dated 18 September 2008, for a compliance schedule for electrical conductivity. 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 new, final, water quality-based effluent limitations for Electrical Conducitivity and requires full compliance within 5 years from permit adoption.

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the

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Discovery Bay 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 by posting in public areas (the nearest courthouse or city hall), the post office nearest the Facility, near the entrance of the Facility, and publishing 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: 4 December 2008
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

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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 Kenneth Landau at 916-464-4726.

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