

City of St. Helena
NPDES Permit No. CA0038016
Tentative Order

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

NPDES PERMIT NO. CA0038016
ORDER NO. R2-2005-XXXX

WASTE DISCHARGE REQUIREMENTS FOR:

CITY OF ST. HELENA
WASTEWATER TREATMENT AND RECLAMATION PLANT
ST. HELENA, NAPA COUNTY

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**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

**TENTATIVE ORDER
NPDES PERMIT NO. CA0038016**

**REISSUING WASTE DISCHARGE REQUIREMENTS FOR:
CITY OF ST. HELENA
WASTEWATER TREATMENT AND RECLAMATION PLANT
ST. HELENA, NAPA COUNTY**

FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter called the Regional Water Board, finds that:

Discharger and Permit Application

1. The City of St. Helena (hereinafter called the Discharger) has applied to the Regional Water Board for reissuance of waste discharge requirements and a permit to discharge treated wastewater to waters of the State and the United States under the National Pollutant Discharge Elimination System (NPDES).

Facility Description

2. The Discharger owns and operates the City of St. Helena Wastewater Treatment and Reclamation Plant (plant), located at 1 Thomann Lane, St. Helena, which provides secondary-level treatment of municipal wastewater from domestic and commercial sources within the City of St. Helena (City). The plant has an average dry weather flow design capacity of 0.5 million gallons per day (MGD). The City currently has a population of about 6,200 residents with a projected growth rate of less than one percent per year. A facility location map is included as **Attachment A**.
3. The U.S. Environmental Protection Agency (U.S. EPA) and the Regional Water Board have classified this Discharger as a minor discharger.

Purpose of Order

4. This NPDES permit regulates the discharge of effluent from the plant. This discharge is currently governed by the Waste Discharge Requirements specified in Order No. 92-006 (the previous Order or previous permit) adopted by the Regional Water Board on January 15, 1992.

Discharge Description

5. *Wastewater and Discharge Volume.* The plant treats an average flow of about 0.66 MGD (based on 2003 and 2004 influent flow). The amount of effluent discharged from the plant to the Napa River is dependent on the amount of effluent reclaimed. From 1997 to 2004, the volume of effluent discharged to the Napa River ranged from 46.2 to 181.0 million gallons (MG) per year. During that

period, discharges occurred in 1997, 1998, 1999, and 2003, over a period ranging from fifteen to sixty days. In other years no river discharge occurred at all (Section II, Table A of the Fact Sheet provides a detailed statistics of these historical river discharges).

6. *Discharge Location.* During the wet weather period of December 1 through April 30, secondary-level treated wastewater is discharged intermittently to the Napa River, a water of the State and the United States, provided that the discharge receives a minimum 25 to 1 (25:1) river to wastewater dilution. Under discharge conditions, the plant's effluent discharges into a freshwater, non-tidally influenced section of the Napa River. The plant's discharge outfall (E-001) is located at latitude 30°30'10'' and longitude 122°26'15''. The location is shown on the facility map contained in **Attachment A** to this Order.
7. *Reclamation.* During the dry season, May 1 through November 30, discharge to the Napa River is prohibited and the effluent is either stored in the treatment plant oxidation ponds, or disposed to land through spray irrigation of open grass fields at the City's 88-acre reclamation/disposal facility adjacent to and southeast of the ponds. Reclaimed water discharges to land are governed by Water Reclamation Requirements in Order No. 87-090, adopted by the Regional Water Board on July 15, 1987, and amendments and/or revisions thereto. The Discharger plans to update their reclamation efforts. By a letter dated May 3, 2005, the Discharger notified the Regional Water Board their intent to apply for coverage under the General Reclamation permit (Order No. 96-011) within nine months after this Order becomes effective. Permit coverage under the General Reclamation permit provides improved monitoring requirements and expanded reclamation opportunities.
8. *Dry Weather Capacity and Study.* The average dry weather flow for the past two years was calculated to be 0.5 MGD, based on the dry weather months' (May through October) influent flow in 2003 and 2004. The plant has reached its dry weather flow design capacity of 0.5 MGD. The reclaimed water quality monitoring results for biochemical oxygen demand (BOD₅) and total coliform show some exceedances of the reclamation effluent limits, which also suggest lack of adequate capacity of the plant. Pursuant to the California Code of Regulations, Title 23, Waters, § 2232 Ensuring Adequate Capacity, a provision is included in this Order requiring the Discharger to submit an engineering analysis of the updated dry weather performance and capacity of the plant. This provision also requires the Discharger to conduct a capacity and reliability study for upgrading the plant, expanding reclamation efforts, and achieving zero river discharge.

Treatment Process Description

9. The plant consists of a headworks, an integrated oxidation pond system, and disinfection (chlorination) and dechlorination systems. The facility has an effluent holding pond to allow for storage and subsequent discharge or land application. Effluent is either discharged to a non-tidal reach of the Napa River or reclaimed through a spray irrigation system. **Attachment B** shows a process diagram for the plant.
10. Wastewater from the collection system enters the plant at a below-grade influent pump station via a 24-inch diameter gravity main, which feeds into two open channels. Large solids are reduced by a comminutor in one of the influent channels. The wastewater then enters the pump wet well, which is equipped with a high-water alarm system. Influent is then pumped to the pond influent control structure located adjacent to Pond 1. From the pond influent control structure, wastewater gravity flows through the five-pond system. Wastewater enters Pond 1, a facultative pond with an in-pond digester, via two submerged inlet ports on the pond bottom. Pond 2 is a "high-rate" pond designed as

an oxygen source. Pond 3 serves as a settling pond for algae and other biological solids. Ponds 4 and 5 both serve the dual functions of additional residence time for further breakdown of wastewater constituents, and storage of treated wastewater.

11. *Pond Characteristics.* The physical characteristics of the ponds are tabulated in Table 1 below, in the order of wastewater flow:

Table 1. Pond Characteristics

Pond No.	Pond Type	Surface Area	Depth	Volume	
		(Acres)	(Feet)	(Acre-feet)	(Million Gallons)
1A	Facultative, w/ Digester	2.9	10	29.0	8.1
1B	Facultative, w/Digester	2.1	14	29.4	7.5
2	High-Rate (aeration)	5.1	2.5 – 3	15.3	4
3	Algae Sedimentation	2.5	9	22.5	6.3
4	Maturation/Storage	3.0	11.5	34.5	9.8
5	Maturation/Storage	6.7	13	87.1	24.6

12. *Pond Effluent.* An effluent control facility is located at the southeastern corner of Pond 5, between the Pond and the Napa River. This facility includes disinfection by chlorination through a serpentine-flow chlorine contact basin, dechlorination by sulfur dioxide, final effluent sampling apparatus, flow metering by a 9-inch (5 MGD) Parshall flume and ultrasonic level transmitter, and valves for controlling the rate of gravity flow discharge to the Napa River. The effluent control structure also includes the sampling and pumping equipment for disposal of effluent to land.
13. *Wastewater Solids.* The plant does not include, nor require, equipment for handling and removal of solids (sludge) from the wastewater treatment process. The primary process for sludge handling is the in-pond digester in Pond 1. Influent solids settle out and are reduced by methane-fermenting anaerobic bacteria at the pond bottom, in partitioned areas created by four-foot high redwood walls on either side of the inlet ports. Since the digester is fully contained within Pond 1, external removal of sludge is not needed. Previous investigations found no excessive sludge accumulation.

Collection System Description

14. The Discharger’s sanitary sewer collection system conveys wastewater for the area within the city limits (3,285 acres) to the plant. The system includes 18.8 miles of sewer pipelines ranging in diameter from four to 24 inches, and one lift station located on Crinella Drive.

Sanitary Sewer Management Plan

15. On October 15, 2003, the Regional Water Board adopted Order No. R2-2003-0095 establishing a collaborative effort with the Bay Area Clean Water Agencies (BACWA) to develop guidance for sanitary sewer management plans (SSMPs) aimed at reducing or eliminating sanitary sewer overflows, and for uniform, electronic reporting of sanitary sewer overflows to the Regional Water Board to facilitate the Regional Water Board’s assessment of the problem regionally. A provision is included in this Order requiring the Discharger to fully participate in the BACWA effort, to develop and implement an SSMP once this activity is required by the Regional Water Board or the Executive

Officer, and to report sanitary sewer overflows electronically. The requirements are specified in the Executive Officer's letter (Requirement for Electronic Reporting of Sanitary Sewer Overflows) dated November 4, 2004.

Applicable Plans, Policies and Regulations

16. Water quality objectives (WQOs), water quality criteria (WQC), effluent limitations, and calculations contained in this Order are based on the statutes, documents, and guidance detailed in Section III of the attached Fact Sheet, incorporated by reference.
 - a. On March 30, 2000, U.S. EPA revised its regulation that specifies when new and revised State and Tribal water quality standards become effective for Clean Water Act (CWA) purposes (40 CFR 131.21, 65 FR 24641, April 27, 2000). Under U.S. EPA's new regulation (also known as the Alaska rule), new and revised standards submitted to U.S. EPA after May 30, 2000, must be approved before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to U.S. EPA by May 30, 2000, may be used for CWA purposes, whether or not approved by U.S. EPA
 - b. This Order contains restrictions on individual pollutants that are no more stringent than required by the federal Clean Water Act. Individual pollutant restrictions consist of technology-based restrictions and water quality-based effluent limitations. The technology-based effluent limitations consist of restrictions on biological oxygen demand (BOD), total suspended solids (TSS), pH, Oil and Grease, and total chlorine residual. Restrictions on BOD, TSS, and pH are specified in federal regulations as discussed in Finding 24, and the permit's technology-based pollutant restrictions are no more stringent than required by the Clean Water Act. 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 California Toxics Rule, the California Toxics Rule is the applicable standard pursuant to 40 C.F.R. 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by U.S. EPA on May 1, 2001 or Basin Plan provisions approved by U.S. EPA on May 29, 2000. Most beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by U.S. EPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "applicable water quality standards for purposes of the [Clean Water] Act" pursuant to 40 C.F.R. 131.21(c)(1). The remaining water quality objectives and beneficial uses implemented by this Order (specifically arsenic, chromium (VI), copper (freshwater only), lead, nickel, silver, and zinc) were approved by U.S. EPA on January 5, 2005, and are applicable water quality standards pursuant to 40 C.F.R. 131.21(c)(2). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the Clean Water Act and the applicable water quality standards for purposes of the Clean Water Act.

Beneficial Uses

17. Beneficial uses for the Napa River, as identified in the Regional Water Board's June 21, 1995 *Water Quality Control Plan San Francisco Bay Basin (Region 2)* (the Basin Plan) (Table 2-7), and based on known uses of the receiving waters in the vicinity of the discharge, are:

- a. Municipal and Domestic Water Supply
- b. Agricultural Water Supply
- c. Navigation
- d. Contact and Non-Contact Water Recreation
- e. Warm and Cold Fresh Water Habitat
- f. Wildlife Habitat
- g. Preservation of Rare and Endangered Species
- h. Fish Migration and Spawning

Basis For Effluent Limitations

General Basis

Applicable WQOs/WQC

18. The WQOs and WQC applicable to the receiving water of this discharge are from the Basin Plan, the U.S. EPA's May 18, 2000 *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (the California Toxics Rule, or the CTR), and U.S. EPA's *National Toxics Rule* (the NTR).
 - a. The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in fresh water, lead, mercury, nickel, silver, zinc, and total polynuclear aromatic hydrocarbons (PAHs) in salt water. The narrative toxicity objective states in part "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." The bioaccumulation objective states in part "[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered." Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information.
 - b. The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries, except that where the Basin Plan's Tables 3-3 and 3-4 specify numeric objectives for certain of these priority toxic pollutants, the Basin Plan's numeric objectives apply over the CTR (except in the South Bay south of the Dumbarton Bridge).
 - c. The NTR established numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to, and including, Suisun Bay and the Sacramento-San Joaquin Delta. This includes the receiving water for this Discharger.
19. Where numeric effluent limitations have not been established or updated in the Basin Plan, 40 CFR Part 122.44(d) specifies that water quality-based effluent limitations (WQBELs) may be set based on U.S. EPA criteria, supplemented where necessary by other relevant information, to attain and maintain narrative WQC to fully protect designated beneficial uses. The Fact Sheet for this Permit

discusses the specific bases and rationales for effluent limitations, and is incorporated as part of this Order.

Basin Plan Amendment

20. On January 21, 2004, the Regional Water Board adopted Resolution No. R2-2004-0003 amending the Basin Plan to (1) update the dissolved WQOs for metals to be identical to the CTR WQC except for cadmium; (2) to change the Basin Plan definitions of marine, estuarine and freshwater to be consistent with the CTR definitions; (3) to update NPDES implementation provisions to be consistent with the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (the State Implementation Plan, or SIP); (4) to remove settleable matter effluent limitations for POTWs, and other editorial changes. Subsequent to approval by the State Water Resources Control Board (State Water Board) and the Office of Administrative Law (OAL) (July 22, 2004, and October 4, 2004, respectively), the U.S. EPA approved the amendment on January 5, 2005.

Basin Plan and CTR Receiving Water Salinity Policy

21. The Basin Plan and CTR state that the salinity characteristics (i.e., freshwater versus saltwater) of the receiving water shall be considered in determining the applicable WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than 1 ppt at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to waters with salinities in between these two categories, or tidally influenced fresh waters that support estuarine beneficial uses, the criteria shall be the lower of the salt- or freshwater criteria (the freshwater criteria are calculated based on ambient hardness), for each substance.

Receiving Water Salinity

22. Salinity data indicate that the receiving waters of subject discharge are freshwater in character. Data collected in 2002 at the Napa River Calistoga monitoring station upstream from the discharge outfall, showed salinity values ranging from 0.1 ppt to 0.34 ppt. Therefore, by meeting both CTR and Basin Plan criteria for freshwater 100% of the time, the effluent limitations specified in this Order are based on freshwater WQOs/WQC.

Receiving Water Hardness

23. Some WQOs and WQC are hardness dependent. Hardness data collected through the Collaborative Napa River Receiving Water Evaluation Study are available for the Napa River. In calculating the WQOs and WQC for this Order, Regional Water Board staff determined that a hardness value of 58 mg/L was representative of the receiving waters. This is the minimum hardness value in eight hardness measurements collected in 2002 at the Napa River Calistoga monitoring station. This is the closest station to the discharge and represents the best available information for hardness of the receiving water. This Order requires continued monitoring of hardness in the collaborative program in order to generate more hardness data for the next permit reissuance.

Technology-Based Effluent Limits

24. Permit effluent limitations for conventional pollutants are technology based. Technology-based effluent limitations are put in place to ensure that full secondary treatment is achieved by the wastewater treatment facility, as required under 40 CFR Part 133.102. Effluent limitations for these

conventional pollutants are defined by the Basin Plan. Further, these conventional effluent limits are the same as those from the previous permit for the following constituents:

- Biochemical oxygen demand (BOD)
- BOD percent removal
- Total suspended solids (TSS)
- TSS percent removal
- pH
- Oil and grease, and
- Total chlorine residual

The settleable solids effluent limitations are no longer required per the 2004 Basin Plan amendment.

Water Quality-Based Effluent Limitations

25. Toxic substances are regulated by WQBELs derived from the Basin Plan, Tables 3-3 and 3-4, the CTR, the NTR, and/or best professional judgment (BPJ) as provided in the Basin Plan and in Section IV of the attached Fact Sheet. WQBELs in this Order are revised and updated from the limits in the previous permit and their presence in this Order is based on the evaluation of the Discharger's data as described below under the Reasonable Potential Analysis. Numeric WQBELs are required for all constituents that have reasonable potential to cause or contribute to an excursion above any State water quality standard. Reasonable potential is determined and final WQBELs are developed using the methodology outlined in the SIP. If the Discharger demonstrates that the final limits will be infeasible to meet and provides justification for a compliance schedule, then interim limits are established, with a compliance schedule to achieve the final limits. Further details about the effluent limitations are given below and in the associated Fact Sheet.

- a. Maximum Daily Effluent Limitations (MDELs) are used in this permit to protect against acute water quality effects. It is impracticable to use weekly average limitations to guard against acute effects. Although weekly averages are effective for monitoring the performance of biological wastewater treatment plants, the MDELs are necessary for preventing fish kills or mortality to aquatic organisms.
- b. NPDES regulations, the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (the State Implementation Plan, or SIP), and U.S. EPA's Technical Support Document (TSD) provide the basis to establish MDELs:

(1) NPDES regulations at 40 CFR Part 122.45(d) state:

“For continuous discharges all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall unless impracticable be stated as:

- i. Maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works (POTWs); and
- ii. Average weekly and average monthly discharge limitations for POTWs.” (Emphasis added.)

(2) The SIP (p. 8, Section 1.4) requires that WQBELs to protect aquatic life be expressed as MDELs and average monthly effluent limitations (AMELs). For aquatic life-based

calculations (only), the SIP indicates MDELs are to be used in place of average weekly limitations for POTWs.

(3) The TSD states a maximum daily limitation is appropriate for two reasons:

- i. 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.
- ii. The 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. A maximum daily limitation would be toxicologically protective of potential acute toxicity impacts.

Receiving Water Ambient Background Data used in Calculating WQBELs

26. By letter dated August 6, 2001, the Executive Officer required the Discharger to conduct additional ambient monitoring pursuant to section 13267 of the California Water Code. On March 5, 2003, a group of five dischargers to the Napa River, including the City of St. Helena, submitted the Collaborative Napa River Receiving Water Evaluation Study results. Ambient data collected in 2002, from a location upstream and unaffected by the plant's discharge, were used in evaluating background water quality for this Order.

Constituents Identified in the 303(d) List

27. On June 6, 2003, the U.S. EPA approved a revised list of impaired waterbodies prepared by the State. The list (hereinafter referred to as the 2002-303(d) list) was developed in accordance with Section 303(d) of the Federal Clean Water Act to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources. The Napa River is a tributary to San Pablo Bay and both are listed as impaired water bodies on the 2002 303(d) List. The 2002 303(d) list includes San Pablo Bay as impaired by: chlordane, DDT, diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, nickel, PCBs, dioxin-like PCBs, and selenium. The 2002-303(d) list includes the Napa River as impaired by sediment, pathogens, and nutrients. The impairment in San Pablo Bay is relevant for this discharge because the Napa River is a tributary of San Pablo Bay. Discharges of conservative pollutants (pollutants that do not break down readily) to Napa River could reach San Pablo Bay through sediment transport or in the water column and may contribute to impairment of San Pablo Bay.

Discharge Prohibition Exception

28. The Basin Plan contains a prohibition of discharge of any wastewater which has particular constituents of concern to beneficial uses (1) at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1; or (2) into any non-tidal water, dead-end slough, similar confined waters, or immediate tributaries thereof; or (3) to San Francisco Bay south of the Dumbarton Bridge. An exception to Prohibitions 1, 2, and 3 will be considered where, "[a] discharge is approved as part of a reclamation project" (1995 Basin Plan, pg. 4-5).

29. In issuing the previous permit, the Regional Water Board determined these three prohibitions did not apply to the discharge because the discharge is part of an approved reclamation project (see Finding

7 above). This permit further requires the Discharger to investigate the feasibility of zero river discharge during the permit term.

Dilution and Assimilative Capacity

30. *Previous Permit Dilution Determination.* The Basin Plan classifies a deep water discharge as being discharged through an outfall with a diffuser designed to provide a minimum “initial dilution” of 10:1 in the receiving water. The Discharger does not have a diffuser on its outfall; however, the Discharger has previously been allowed to discharge its effluent to the Napa River only during the wet season (December 1 through April 30), when the river to effluent ratio was 50:1 or greater. This scenario was considered comparable to a “deep water” discharge and therefore, the Regional Water Board allowed a dilution credit of 10:1 (D=9). At all other times, effluent had to be stored or reclaimed.

For this permit reissuance, the Regional Water Board evaluated the United States Geological Survey (USGS) flow monitoring data upstream (USGS Monitoring Station No. 11456000, Napa River near St. Helena) of the Napa River (the receiving water body). The historical Napa River flow monitoring data at this station indicate that during the wet season months (December 1 through April 30) when discharges to the Napa River are allowed, if a discharge of a flow rate of 3.08 MGD (the average river discharge flow rate in the most recent discharge event in January 2003) occurred everyday throughout the discharge season, the discharges would not always receive a minimum 50:1 “volumetric dilution”.

31. *This Permit (2005) Dilution Determination.* The dilution credit granted in this Order follows the policy established in the SIP because the SIP supercedes the Basin Plan on this issue. However, the SIP does not supercede the Basin Plan’s prohibition against discharges that do not receive at least 10:1 dilution, or into any nontidal water (Basin Plan Table 4-1, prohibition 1). As discussed in a previous finding, the Regional Water Board granted the discharge an exemption to this prohibition. One of the conditions for the exemption is that the discharge shall achieve at least a 10:1 dilution ratio.

This Order grants the Discharger a 10:1 dilution credit (D=9) in calculating WQBELs, provided the discharge shall be completely mixed¹, and shall achieve at least an instream dilution ratio of 25:1 river to effluent flows. The SIP provides that dilution credits based on receiving water flows may be granted only for completely mixed discharges (SIP at 1.4.2.1). Incompletely mixed discharges are required to conduct mixing zone studies. The 25:1 instream dilution ratio requirement is necessary to account for uncertainties in stream flow measurements, and the assimilative capacity in the receiving water as further described in the following finding.

This Order specifies that the 25:1 dilution ratio shall be demonstrated based on the Napa River flow as measured at USGS Station No. 11456000 (Napa River near St. Helena), which is upstream of the discharge outfall. The Discharger shall ensure that discharges only occur when a minimum receiving water to effluent dilution ratio of 25:1 is maintained. In addition, the Discharger has agreed to install a diffuser on its outfall prior to any new discharges, barring any circumstances beyond their control. A diffuser will enable the discharge to be completely mixed. The Fact Sheet further details the rationale on requiring a 25:1 dilution ratio.

¹ Completely mixed discharge condition means no more than five (5) percent difference, accounting for analytical variability, in the concentration of a pollutant across a transect of the water body at a point within two stream/river widths from the discharge point. SIP, Appendix 1.

Additionally, while the diffuser is being installed, an interim river to effluent ratio of 10:1 is required (although a 25:1 dilution ratio is necessary for compliance with receiving water standards as described in a previous finding). This 10:1 is based on the fact that the permit limits for toxics are derived using a 10:1 dilution credit. The establishment of this interim limit is consistent with the SIP.

Assimilative Capacity

32. In response to the State Water Board's Order No. WQ 2001-06, the Regional Water Board has evaluated the assimilative capacity of the receiving water for 2002 303(d)-listed pollutants for which the Discharger has reasonable potential in its discharge. The evaluation included a review of RMP data (Mouth of Napa River), fish contamination data, effluent data, and WQOs/WQC. Though the discharge is to an upper reach of the Napa River, data from the mouth of the Napa River are relevant and appropriate in assessing assimilative capacity and impairment of downstream waters for conservative pollutants (pollutants that do not break down readily) that will reach downstream areas through sediment transport or in the water column. From this evaluation, the Regional Water Board has found that the assimilative capacity is highly variable due to the complex hydrology of the downstream receiving water. Therefore, there is uncertainty associated with the representative nature of the appropriate ambient background data to conclusively quantify the assimilative capacity of Napa River and San Pablo Bay downstream. Pursuant to Section 1.4.2.1 of the SIP, "dilution credit may be limited or denied on a pollutant-by-pollutant basis..."
- a. For bioaccumulative and impairing pollutants, based on BPJ, dilution credit is not included in calculating the final WQBELs. This determination is based on available data on concentrations of these pollutants in aquatic organisms, sediment, and the water column. At the present time, dilution credit is not included for several pollutants including mercury, dioxins and furans. Primarily, this determination is based on a San Francisco Bay fish tissue data that show these pollutants exceed screening levels. The fish tissue data are contained in "*Contaminant Concentrations in Fish from San Francisco Bay 1997*", May 1997. Denial of dilution credits in the calculation of WQBELs for bioaccumulative pollutants that are 303(d)-listed is further justified by fish advisories to the San Francisco Bay. The office of Environmental Health and Hazard Assessment (OEHHA) performed a preliminary review of the data from the 1994 San Francisco Bay pilot study, "*Contaminated Levels in Fish Tissue from San Francisco Bay*". The results of the study showed elevated levels of chemical contaminants in the fish tissues. Based on these results, OEHHA issued an interim consumption advisory covering certain fish species from the bay. The health advisory was first posted in December 1994. This interim consumption advice was issued and is still in effect due to health concerns based on exposure to sport fish from the bay contaminated with mercury, polychlorinated biphenyls (PCBs), dioxins, and pesticides (e.g., DDT). Based on these data, the Regional Water Board placed selenium, mercury, and PCBs on the CWA Section 303(d) list. The U.S. EPA added dioxins and furans compounds, dieldrin, chlordane, and 4,4'-DDT on the CWA Section 303(d) list. Therefore, the Regional Water Board must deny dilution credit unless there is pollutant-specific scientific evidence that clearly demonstrates the existence of assimilative capacity and no potential bioaccumulative problems.
 - b. Furthermore, Section 2.1.1 of the SIP states that for bioaccumulative compounds on the 303(d) list, the Regional Water Board should consider whether mass-loading limits should be limited to current levels. The Regional Water Board finds that mass loading limits are warranted for

certain bioaccumulative compounds on the 303(d) list for the receiving waters of this discharge. This is to ensure that this discharge does not contribute further to impairment of the narrative objective for bioaccumulation.

- c. For non-bioaccumulative constituents, a conservative allowance of 10:1 dilution for discharges to the Napa River is necessary for protection of beneficial uses. The basis for limiting the dilution credit is based on SIP provisions in Section 1.4.2. The following outlines the basis for derivation of the dilution credit.
 - i. The receiving waterbody (Napa River) has highly variable, seasonal freshwater flows.
 - ii. There has not been a dilution study to fully account for the cumulative effects of other wastewater discharges or withdrawals to the system.
 - iii. The SIP allows limiting a mixing zone and dilution credit for persistent pollutants (e.g., copper, silver, nickel and lead).

The main justification for using a 10:1 dilution credit is uncertainty in accurately determining ambient background and uncertainty in accurately determining the mixing zone in a complex riverine system with multiple wastewater discharges.

Total Maximum Daily Loads (TMDLs) and Waste Load Allocations (WLAs)

33. The Regional Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for San Pablo Bay for the above 303(d)-listed pollutants within the next ten years, with the exception of dioxin and furan compounds. For dioxin and furan the Regional Water Board intends to consider this matter further after U.S. EPA completes its national health reassessment. The Regional Water Board plans to adopt the TMDLs for Napa River within the permit term. Future review of the 303(d) list for San Pablo Bay and Napa River may result in revision of the schedules and/or provide schedules for other pollutants.
34. The TMDLs will establish waste load allocations (WLAs) and load allocations for point sources and non-point sources, respectively, and will result in achieving the water quality standards for the water body. Depending upon whether the Discharger is found to be impacting water quality in San Pablo Bay and/or the Napa River, the TMDLs may include WLAs for the Dischargers. If the TMDLs address the Discharger, the final effluent limitations for this discharge would be based on the applicable WLAs.
35. The following summarizes the Regional Water Board's strategy to collect water quality data and to develop TMDLs:
 - a. *Data collection* – The dischargers collectively may assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or WQOs/WQC. The Regional Water Board will require dischargers to characterize the pollutant loads from their facilities into the water quality-limited water bodies. The results will be used in the development of TMDLs, but may also be used to update/revise the 303(d) list and/or change the WQOs/WQC for the impaired water bodies including the San Pablo Bay and/or the Napa River.

- b. *Funding mechanism* – The Regional Water Board has received, and anticipates continued receipt of, resources from federal and state agencies for the development of TMDLs. To ensure timely development of TMDLs, the Regional Water Board intends to supplement these resources by allocating development costs among dischargers through appropriate funding mechanisms.

Interim Limitations and Compliance Schedules

36. Pursuant to Section 2.1.1 of the SIP, “the compliance schedule provisions for the development and adoption of a TMDL only apply when: (a) the Discharger requests and demonstrates that it is infeasible for the Discharger to achieve immediate compliance with a CTR criterion; and (b) the Discharger has made appropriate commitments to support and expedite the development of the TMDL. In determining appropriate commitments, the regional water board should consider the Discharger’s contribution to current loadings and the Discharger’s ability to participate in TMDL development.” As further described in a finding below, the Discharger has requested and demonstrated that it is infeasible to achieve immediate compliance for mercury and lead. Also, the Discharger has agreed to assist the Regional Water Board in TMDL development through its affiliation with BACWA. The Regional Water Board adopted Resolution No. 01-103, on September 19, 2001, with BACWA, and other parties to accelerate the development of Water Quality Attainment Strategies including the TMDLs for the San Francisco Bay-Delta and its tributaries.
37. The SIP and the Basin Plan authorize compliance schedules in a permit if an existing discharger cannot immediately comply with a new and more stringent effluent limitation. Compliance schedules for limitations derived from CTR or the NTR WQC are based on Section 2.2 of the SIP, and compliance schedules for limitations derived from Basin Plan WQOs are based on the Basin Plan. Both the SIP and the Basin Plan require the Discharger to demonstrate the infeasibility of achieving immediate compliance with the new limitation to qualify for a compliance schedule. The SIP and Basin Plan require the following documentation to be submitted to the Regional Water Board to support a finding of infeasibility:
 - Descriptions of diligent efforts the Discharger has made to quantify pollutant levels in the discharge, sources of the pollutant in the waste stream, and the results of those efforts.
 - Descriptions of source control and/or pollution minimization efforts currently under way or completed.
 - A proposed schedule for additional or future source control measures, pollutant minimization, or waste treatment.
 - A demonstration that the proposed schedule is as short as practicable.

The Basin Plan provides for a 10-year compliance schedule to implement measures to comply with new standards as of the effective date of those standards. This provision applies to the objectives adopted in the 2004 Basin Plan Amendment. Additionally, the provision authorizes compliance schedules for new interpretations of other existing standards if the new interpretation results in more stringent limitations.

38. On April 20, 2005, the Discharger submitted an infeasibility study that demonstrates, pursuant to Section 2.1 of the SIP that it is infeasible to immediately comply with the mercury and lead WQBELs calculated according to Section 1.4 of the SIP. Regional Water Board staff conducted comparative analysis of recent plant performance data for these pollutants, as further detailed in later findings under the heading Development of Specific Effluent Limitations and also in Section VI.g.3,

Table E of the attached Fact Sheet. Based on these analyses, the Regional Water Board concurs that it is infeasible to achieve immediate compliance for these pollutants.

This Order establishes compliance schedule until April 27, 2010 for mercury, and until December 31, 2014 for lead. This Order establishes a compliance schedule for lead and mercury that extends beyond 1 year. Pursuant to the SIP, and 40 CFR 122.47, the Regional Water Board shall establish interim numeric limitations and interim requirements to control the pollutants. This Order establishes interim limits for lead and mercury based on the previous permit limits or existing plant performance, whichever is more stringent. Specific basis for these interim limits are described in the following findings for lead and mercury.

In addition to interim mercury concentration limits, this Order establishes an interim performance-based mass limitation to maintain the Discharger's current mass loadings of mercury into the Napa River and San Pablo Bay. Mercury is a 303(d)-listed bioaccumulative pollutant. This interim performance-based mass limitation is based on recent treatment plant's performance.

Specific bases for these interim limitations are described in the findings below under mercury. The Regional Water Board may take appropriate enforcement actions if interim limits and requirements are not met.

Antidegradation and Anti-backsliding

39. The limitations in this Order are in compliance with the Clean Water Act Section 402(o) prohibition against establishment of less stringent WQBELs for the following reasons:

- (1) For impairing pollutants, the revised final limitations will be in accordance with TMDLs and WLAs once they are established.
- (2) For nonimpairing pollutants, the final limitations are or will be consistent with current State WQOs/WQC.

The interim limitations in this Order are in compliance with antidegradation requirements and meet the requirements of the SIP because the interim limitations hold the Discharger to performance levels that will not cause or contribute to water quality impairment or further water quality degradation.

Specific Basis

Reasonable Potential Analysis

40. As specified in 40 CFR 122.44(d)(1)(i), permits are required to include WQBELs for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard." Using the method prescribed in Section 1.3 of the SIP, Regional Water Board staff has analyzed the effluent data to determine if the discharge, which is the subject of this Order, has a reasonable potential to cause or contribute to an excursion above a State water quality standard ("Reasonable Potential Analysis" or "RPA"). For all parameters that have reasonable potential, numeric WQBELs are required. The RPA compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQC from the NTR, and the CTR.

RPA Methodology

41. The method for determining reasonable potential involves identifying the observed maximum pollutant concentration in the effluent (MEC) for each constituent, based on effluent concentration data. The RPA for all constituents is based on zero dilution, according to section 1.3 of the SIP. There are three triggers in determining reasonable potential:
- (1) *The first trigger* (Trigger 1) is activated when the MEC is greater than or equal to the lowest applicable WQO/WQC, which has been adjusted for pH, hardness (58 mg/L in this case), and translator, if appropriate. If the MEC is greater than the adjusted WQO/WQC, then that pollutant has reasonable potential, and a WQBEL is required.
 - (2) *The second trigger* (Trigger 2) is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO/WQC ($B > WQO/WQC$), and either:
 - i. the MEC is less than the adjusted WQO/WQC ($MEC < WQO/WQC$), or
 - ii. the pollutant was not detected in any of the effluent samples and all of the detection levels are greater than or equal to the adjusted WQO/WQC.
 - (3) *The third trigger* (Trigger 3) is activated if a review of other information determines that a WQBEL is required even though both MEC and B are less than the WQO/WQC. A limit is only required under certain circumstances required to protect beneficial uses.

RPA Determinations

42. The MECs, WQOs/WQC, bases for the WQOs/WQC, background concentrations used, and reasonable potential conclusions from the RPA are listed in Table 2 for all constituents analyzed. The RPA was based on the effluent monitoring data provided in the Discharger's permit renewal application, dated January 20, 1997, monitoring data collected for the period from February 1998 through January 2003 when discharges to the Napa River occurred, and additional monitoring data collected for the reclaimed water from final treatment Pond 5 in December 2003 (over the period from February 1992 through December 2003). Ambient background data are those collected in 2002 at a Napa River monitoring station upstream from the discharge. The RPA results for some of the constituents in the CTR were not determined because of the lack of objectives/criteria or effluent data. (Further details on the RPA can be found in the Fact Sheet.)
43. *Summary of RPA Results.* Based on the RPA methodology described above and in the SIP, copper, lead, mercury, cyanide, dioxin TEQ, and bis(2-ethylhexyl)phthalate have reasonable potential to cause or contribute to an excursion above WQOs/WQC. Based on the RPA, numeric WQBELs are required to be included in the permit for these constituents except for dioxin TEQ.

RPA Results for Impairing Pollutants

44. While TMDLs and WLAs are being developed, interim concentration limitations are established in this permit for 303(d)-listed pollutants that have a reasonable potential to cause or contribute to an excursion above the water quality standard. In addition, mass limitations are required for bioaccumulative 303(d)-listed pollutants that can be reliably detected. Constituents on the 303(d) list for which the RPA determined a need for effluent limitations are mercury and dioxins. Final determination of reasonable potential for some other constituents identified on the 303(d) list could not be performed owing to the lack of an established WQO or WQC.

Table 2. Summary of Reasonable Potential Analysis Results

CTR No.	Constituent	WQO/WQC (µg/L)	Basis ^[1]	MEC E-001 (µg/L)	Maximum Ambient Background Conc. (µg/L)	Reasonable Potential (Trigger Type) ^[2]
2	Arsenic	150	BP, fw	13	6	No
4	Cadmium	0.5	BP, fw, H=58	0.06	<0.03	No
5b	Chromium (VI)	11	BP, fw	<10	<0.15	No
6	Copper	5.9	BP, fw, H=58	19	1.1	Yes (Trigger 1)
7	Lead	1.6	BP, fw, H=58	56	0.21	Yes (Trigger 1)
8	Mercury*	0.025	BP, fw	3	0.015	Yes (Trigger 1)
9	Nickel*	33	BP, fw, H=58	4.5	4	No
10	Selenium*	5.0	NTR	<0.5	<0.3	No
11	Silver	1.6	BP, fw, H=58	0.9	0.03	No
13	Zinc	76	BP, fw, H=58	21	<2	No
14	Cyanide	5.2	NTR, fw	9	0.197	Yes (Trigger 1)
	2,3,7,8-TCDD TEQ*	1.3x10 ⁻⁸	CTR HH	NA	<6.57x10 ⁻¹⁰	Yes ^[3] (Trigger 3)
68	Bis(2-Ethylhexyl) Phthalate	1.8	CTR HH	3	0.6	Yes (Trigger 1)
	CTR #s 15-126, except for 68	Various or NA	CTR or NTR, HH	Non-detect, less than WQC, no WQC, or NA	Less than WQC or NA	No or Undetermined ^[4]

* = Constituents on 303(d) list for San Pablo Bay.

[1] RPA is based on the following: Hardness (H) is the lowest observed ambient hardness, 58 mg/L as CaCO₃; BP = Basin Plan; CTR = California Toxics Rule; NTR=National Toxics Rule; fw = freshwater; HH = human health.

[2] See a finding above for the definition of three trigger types.

[3] As discussed in a finding below, Trigger 3 was used to determine reasonable potential.

[4] Undetermined because of the lack of objectives/criteria and/or lack of effluent data (see Table B of the Fact Sheet for full RPA results).

Specific Pollutants

45. *PAHs*. This Order implements the policy and regulations of the CTR and SIP in regard to PAHs, i.e., reasonable potential is determined for individual PAHs based on the WQC for the protection of human health. The previous permit included a monthly average WQBEL of 0.03 µg/L for the sum of 16 PAH compounds. None of the 16 individual PAHs were detected in the two samples collected in January and December 2003. Detection limits ranged from 0.001 µg/L to 0.17 µg/L. Based on the RPA for individual PAHs, none of the individual PAHs show reasonable potential. Note that because the WQC for some individual PAHs included in the CTR are significantly lower than these detection limits, the Discharger is required to collect additional data on PAHs in the effluent and the receiving water under the provisions in this Order. When these additional data become available, the Regional Water Board will reevaluate reasonable potential for individual PAH compounds and

determine the need for effluent limitations, if appropriate. There is no applicable total PAH WQO/WQC for freshwater water bodies.

46. *Phenols*. This Order implements the policy and regulations of the CTR and SIP in regard to phenolic compounds. The previous Order contained a monthly average effluent limitation for total phenols of 1,000 µg/L and a daily average limitation of 3000 µg/L. The CTR specifies criteria for individual phenolic compounds, which are a subset of total phenols. The previous total phenols limitation may be more restrictive for several phenolic compounds (e.g., phenol) than the WQBELs calculated from the SIP, owing to the high CTR criteria. However, for most of the phenolic compounds in the CTR, the WQBELs would be more restrictive. Retaining limits for both total and individual phenolics would potentially limit and count the same pollutants twice. Therefore, this Order follows the requirements of the CTR and SIP in lieu of the Basin Plan limit because (1) the water quality considerations of the CTR and SIP are generally more restrictive, and (2) the low historic concentrations of total phenols observed in the discharge. The Discharger has a detected concentration of total phenols of 8 µg/L, the other three measurements are all non-detect, with detection limits ranging from <1 to 100 µg/L. Therefore, there is no reasonable potential for phenolic compounds under the available information, and as a result, no effluent limitations are necessary.
47. *Other Organics with Limited Data*. Since the Discharger had failed to monitor for the 126 priority pollutants pursuant to the August 6, 2001 Letter prior to May 18, 2003, the Regional Water Board issued a Notice of Violation (NOV) to the Discharger on December 4, 2003. Because no discharge to the Napa River has occurred since January 2003, the Discharger sampled wastewater from the final treatment Pond 5, and submitted a complete set of monitoring results for the 126 priority pollutants. As there were literally no data for most of the pollutants before this submission, the Regional Water Board used this data set to perform the RPA. However, there is no dioxin data available. The Discharger will continue to monitor for these constituents according to Provision F.2 of this Order. When additional data become available, the Regional Water Board will reevaluate reasonable potential and determine the need for effluent limitations, if appropriate.
48. *Effluent Limitations Deleted*. There were effluent limitations in the previous permit for arsenic, cadmium, hexavalent chromium, nickel, selenium, silver, and zinc. Based on the recent performance data, these constituents do not have reasonable potential to cause an exceedance of their respective WQOs. Accordingly, this Order does not include effluent limitations for these constituents. This does not represent backsliding because elimination of limits for these pollutants is based on new procedures for applying WQOs/WQC adopted in the SIP since the previous permit issuance.
49. *Permit Reopener*. This Order includes a reopener provision to allow numeric effluent limitations to be added or deleted for any constituent that exhibits or does not exhibit, respectively, reasonable potential. The Regional Water Board will make this determination based on monitoring results.

Development of Effluent Limitations

50. *Copper*
 - a. *Copper WQOs*. To protect fresh water aquatic life at a hardness of 58 mg/L, the Basin Plan provides objectives for copper of 5.9 µg/L as a 4-day average and 8.0 µg/L as a 1-hour average.

- b. *Copper RPA Results.* The 19 µg/L MEC exceeds the governing WQO of 5.9 µg/L, demonstrating reasonable potential by Trigger 1, as defined in a finding above.
- c. *Copper WQBELs.* The copper WQBELs calculated according to SIP procedures are 70 µg/L as MDEL and 35 µg/L as AMEL.
- d. *Plant Performance and Attainability.* Regional Water Board staff cannot perform a meaningful statistical analysis to determine compliance feasibility due to limited effluent data. However, the MEC for copper is 19 µg/L, which is much lower than the calculated AMEL. The Discharger, therefore, is expected to be able to comply with the final WQBELs and no interim limits are necessary.
- e. *Antibacksliding/Antidegradation.* The previous permit contained a monthly average limitation of 78 µg/L, and a daily average limitation of 10,000 µg/L, which are both less stringent than the calculated WQBELs, respectively. The antibacksliding and antidegradation requirements are, therefore, satisfied.

51. Lead.

- a. *Lead WQOs.* To protect fresh water aquatic life, the Basin Plan specifies objectives for lead of 1.6 µg/L as a 4-day average and 40.8 µg/L as a 1-hour average, based on a receiving water hardness value of 58 mg/L as CaCO₃.
- b. *Lead RPA Results.* The 56 µg/L MEC exceeds the governing WQO of 1.6 µg/L, demonstrating reasonable potential by Trigger 1, as defined in a finding above.
- c. *Lead WQBELs.* The lead WQBELs calculated according to SIP procedures are 23 µg/L as MDEL and 12 µg/L as AMEL.
- d. *Immediate Compliance Infeasible.* Interim effluent limitations are required for lead under this case since the Discharger has demonstrated that the final WQBELs will be infeasible to meet immediately. Due to the lack of effluent data, it is not feasible to perform a meaningful statistical analysis to evaluate compliance feasibility. Since the MEC is above the AMEL and MDEL, the Regional Water Board concurred with the infeasibility assertion.
- e. *Lead Interim Performance-based Limitations (IPBL).* The previous permit contained a daily average effluent limitation of 490 µg/L and a monthly average limitation of 23 µg/L. Regional Water Board staff considered self-monitoring data from 1992-2003 (lead concentrations ranged from <5 µg/L to 56 µg/L) to develop interim performance-based limits. Only two concentrations (56 µg/L and 0.56 µg/L) were detected out of ten samples (the MEC sample was collected in 1994). As a result, there are insufficient data to perform a meaningful statistical analysis to determine the 99.87th percentile to establish a performance-based interim limit. Therefore, the previous permit limitation of 23 µg/L as a monthly average effluent limitation is retained in this Order as a monthly average interim limitation.
- f. *Term of IPBL.* The lead IPBL shall remain in effect until December 31, 2014, or until the Regional Water Board amends the limitation based on additional data.

- g. *Anti-backsliding and Anti-degradation.* The interim limitation is unchanged from the previous permit and will hold the Discharger to current performance so that there will be no change in the quality or quantity of the discharge to the receiving water. The antibacksliding and antidegradation requirements are satisfied.

52. *Mercury.*

- a. *Mercury WQOs.* To protect freshwater aquatic life, the Basin Plan specifies objectives for mercury of 0.025 µg/L as a 4-day average and 2.4 µg/L as a 1-hour average for the protection of aquatic life. The CTR specifies a long-term average criterion for the protection of human health of 0.051 µg/L.
- b. *Mercury RPA Result.* The 3 µg/L MEC exceeds the governing WQO of 0.025 µg/L, demonstrating reasonable potential by Trigger 1, as defined in a finding above.
- c. *Mercury WQBELs.* The mercury WQBELs calculated according to SIP procedures are 0.041 µg/L as MDEL and 0.020 µg/L as AMEL.
- d. *Immediate Compliance Infeasible.* The Discharger's Feasibility Study asserts that the Discharger cannot immediately comply with the mercury WQBELs. Due to the lack of enough effluent data, it is not feasible to perform a meaningful statistical analysis to evaluate compliance feasibility. Since the MEC is above the AMEL, Regional Water Board staff concurred with the assertion.
- e. *Mercury IPBL.* Because it is infeasible that the Discharger will immediately comply with the mercury WQBELs, this Order establishes a mercury IPBL. Regional Water Board staff considered a 2001 staff report that identified two statistically derived interim performance-based effluent limitations for mercury - 0.023 µg/L for advanced secondary treatment plants and 0.087 µg/L for secondary treatment plants. Since the Discharger operates a secondary treatment plant, the appropriate IPBL is 0.087 µg/L, expressed as a monthly average. The previous Order included a mercury effluent limitation of 0.08 µg/L as a monthly average and 2 µg/L as a daily average. The monthly average limitation of 0.08 µg/L is more stringent than the pooled IPBL of 0.087 µg/L. Therefore, 0.08 µg/L is retained from the previous permit as the interim monthly average limit.
- f. *Plant Performance and Attainability.* The effluent monitoring data for mercury from February 1992 through December 2003 show concentrations ranging from 0.064 µg/L to 3 µg/L. Only two of the ten samples were detected. In addition, the 3 µg/L is not an ultra-clean data. It is, therefore, expected that if the Discharger uses the ultra-clean sampling technique for future monitoring, the plant can comply with the interim limitation of 0.08 µg/L for mercury.
- g. *Term of IPBL.* The mercury IPBL shall remain in effect until April 27, 2010, or until the Regional Water Board amends the limitations based on additional data or the WLA in the TMDL.
- h. *Mercury Source Control Strategy.* The Regional Water Board is developing a TMDL to control mercury levels in the San Pablo Bay. The Regional Water Board, together with other stakeholders, will cooperatively develop source control strategies as part of the TMDL development. Municipal discharge point sources may not be the most significant mercury loadings to San Pablo Bay. Therefore, the currently preferred strategy is to apply interim mass

loading limits to point source discharges while focusing mass reduction efforts on other more significant and controllable sources. While the TMDL is being developed, the Discharger will cooperate in maintaining ambient receiving water conditions by complying with performance-based mercury mass emission limits. Therefore, this Order includes interim mass loading effluent limitation for mercury, as described in the findings below. The Discharger is required to implement source control measures and cooperatively participate in special studies as described below.

- i. *Mercury TMDL.* The current 303(d) list includes the San Pablo Bay as impaired by mercury, due to high mercury concentrations in the tissue of fish from the Bay. Methyl-mercury, the highly toxic form of mercury, is a persistent bioaccumulative pollutant. There is no evidence to show that the mercury discharged is taken out of the hydrologic system, by processes such as evaporation before reaching San Pablo Bay. Absent this evidence, the Regional Water Board assumes that the mercury reaches the Bay through either sediment transport or water flows. The Regional Water Board intends to establish a TMDL that will lead towards overall reduction of mercury mass loadings into San Pablo Bay. The final mercury effluent limitations will be based on the Discharger's WLA in the TMDL. While the TMDL is being developed, the Discharger will comply with performance-based mercury concentration and mass-based limitations to cooperate in maintaining current ambient receiving water conditions.
- j. *Interim Mercury Mass Emission Limit.* In addition to the concentration-based mercury IPBL, this Order establishes an interim mercury mass loading limit of 0.033 kilogram per year (kg/year). Since the Discharger has only discharged sporadically since 1992, and there are only a few mercury effluent data points available, and all data points except the December 2003 data were collected using non-ultra clean techniques, with the concentrations ranging from <1 to 3 µg/L, therefore, it is not feasible to calculate a mass limit based on the discharge data. The interim mass limit was, therefore, calculated using the average wet season flow, 0.885 MGD, in 2003 and 2004, a mercury concentration of 0.065 µg/L, which is the daily maximum trigger for secondary-level POTWs calculated using the pooled mercury data from secondary POTWs, and a discharge length of 151 days per year. It will maintain current loadings until a TMDL is established and is consistent with state and federal antidegradation and antibacksliding requirements. The final mass-based effluent limitation will be based on the WLA derived from the mercury TMDL.
- k. *Antibacksliding/Antidegradation.* The antibacksliding and antidegradation requirements are satisfied since the interim effluent limitation is unchanged from the previous permit limit. The previous permit does not contain a mass emission limit; therefore, the antibacksliding and antidegradation requirements do not apply to the mass limit.

53. *Cyanide.*

- a. *Cyanide WQOs.* To protect fresh water aquatic life, the Basin Plan specifies objectives for cyanide of 5.2 µg/L as a 4-day average and 22 µg/L as a 1-hour average.
- b. *Cyanide RPA Results.* The 9 µg/L MEC exceeds the governing WQO of 5.2 µg/L, demonstrating reasonable potential by Trigger 1, as defined in a finding above.
- c. *WQBELs.* The cyanide WQBELs calculated according to SIP procedures are 83 µg/L as MDEL and 41 µg/L as AMEL. The previous permit contained a WQBEL of 52 µg/L as a daily average

limitation. This number is lower than the calculated MDEL, above. Although the calculated MDEL is greater than the previous Order's cyanide daily average limitation, the new WQBELs derived using the SIP procedures are considered to be more protective of the water quality. The AMEL will limit the discharge to a lower long-term average level than the previous permit limitation, which only limits the daily average concentration of the effluent, and as a result, the Discharger could practically discharge an effluent with long-term average at the previous daily average level. Therefore, the new WQBELs are considered to be more stringent, and are established as the new WQBELs.

- d. *Plant Performance and Attainability.* Regional Water Board staff cannot perform a meaningful statistical analysis to determine compliance feasibility due to the limited effluent data. However, the MEC for cyanide is 9 µg/L, which is much lower than the calculated WQBELs. The Discharger, therefore, is expected to be able to comply with the final WQBELs and no interim limits are necessary.
- e. *Antibacksliding/Antidegradation.* The cyanide effluent limitations in this Order are in compliance with the Clean Water Act Section 402(o) prohibition against establishment of less stringent WQBELs because the limitations calculated using the SIP's procedures (AMEL=41 µg/L, and MDEL=83 µg/L), as a pair are more stringent than the previous Order's singular daily average limitation of 52 µg/L.

54. *Dioxin*

- a. *Dioxin WQC.* The CTR establishes a numeric human health WQC of 0.013 picogram per liter (pg/L) for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) based on consumption of water and aquatic organisms. The preamble of the CTR states that California NPDES permits should use toxicity equivalents (TEQs) where dioxin-like compounds have a reasonable potential with respect to narrative criteria. In U.S. EPA's National Recommended WQOs, December 2002, U.S. EPA published the 1998 World Health Organization Toxicity Equivalence Factor (TEF)² scheme. In addition, the CTR preamble states U.S. EPA's intent to adopt revised WQC guidance subsequent to their health reassessment for dioxin-like compounds. The SIP applies to all toxic pollutants, including dioxins and furans. Staff used TEQs to translate the narrative WQOs to numeric WQOs for the other 16 congeners.
- b. The Basin Plan contains a narrative WQO for bioaccumulative substances:

"Many pollutants can accumulate on particulates, in sediments, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered."

This narrative WQO applies to dioxin and furan compounds, based in part on the consensus of the scientific community that these compounds associate with particulates, accumulate in sediments, and bioaccumulate in the fatty tissue of fish and other organisms.

² The 1998 WHO scheme includes TEFs for dioxin-like PCBs. Since dioxin-like PCBs are already included within "Total PCBs," for which the CTR has established a specific standard, dioxin-like PCBs are not included in this Order's version of the TEF scheme.

- c. U.S. EPA's 303(d) listing determined that the narrative objective for bioaccumulative pollutants was not met because of the levels of dioxins and furans in the fish tissue.
- d. *RPA Results.* The Discharger has not conducted any dioxin TEQ monitoring. On May 15, 2003, BACWA submitted a collaborative receiving water study entitled the *San Francisco Bay Ambient Water Monitoring Interim Report*. This report addresses monitoring results from sampling events in 2002 and 2003 for the remaining priority pollutants not monitored by the RMP. While these "interim" data have not been used to evaluate RP for Trigger 2, they show elevated dioxin levels in the San Francisco Bay at the Yerba Buena Island station. (Dioxin sampling and analysis was not performed at the San Pablo Bay RMP station). Based on these data and the inclusion of dioxins and furans on the 303(d) list for San Pablo Bay, the Regional Water Board has determined that there is reasonable potential for dioxin using Trigger 3 in the SIP.
- e. *Effluent Limitations for Dioxin and Furans.* The TCDD TEQ WQBELs calculated according to SIP procedures are 0.013 pg/L as AMEL and 0.026 pg/L as MDEL.
- f. *Immediate Compliance Infeasible and Dioxin Effluent Limitations.* The detection limits historically used by the dischargers in this area are insufficient to accurately determine the concentrations of the dioxin congeners in the discharge. In addition, the MLs for all 17 dioxin congeners range from 5 pg/L to 50 pg/L (see BACWA Letter dated April 23, 2002), which are higher than the WQBELs, therefore, the Regional Water Board has determined that it is infeasible for the Discharger to achieve immediate compliance. Since there is no effluent data, as a result, this permit does not contain an interim effluent limitation or a compliance schedule for TCDD TEQ. The final limitations for TCDD TEQ will be based on the WLA assigned to the Discharger in the TMDL. This Order requires dioxin monitoring to complement the Clean Estuary Project's special dioxin project, consisting of impairment assessment and a conceptual model for dioxin loading into the Bay. The permit will be reopened, as appropriate, to include interim dioxin limitations when additional data become available.

55. *Bis(2-Ethylhexyl)Phthalate*

- a. *Bis(2-Ethylhexyl)Phthalate (BEHP) WQC.* The CTR establishes a human health value of 1.8 µg/L for bis(2-ethylhexyl)phthalate, based on consumption of water and organisms.
- b. *RPA Results.* The 3 µg/L MEC exceeds the governing WQO of 1.8 µg/L, demonstrating reasonable potential by Trigger 1, as defined in a finding above.
- c. *BEHP Monitoring.* The WQBELs calculated for BEHP are: AMEL of 14 µg/L and MDEL of 28 µg/L. The Discharger has only one detected, but not quantified value of 3 µg/L, therefore, the Regional Water Board has determined that there is insufficient information to determine the feasibility of compliance. In addition, many POTWs in this area have encountered sampling contamination for this pollutant which may yield false positive high values. Therefore, a provision is included in this Order requiring the Discharger to perform a special study to characterize BEHP in the plant's effluent. Based on the result of this study, the permit may be reopened, to include effluent limits for BEHP.

Whole Effluent Acute Toxicity

56. a. *Permit Requirements.* This Order includes effluent limits that are unchanged from the previous permit for whole-effluent acute toxicity. Compliance evaluation is based on 96-hour static renewal bioassays. All bioassays shall be performed according to the U.S. EPA-approved method in 40 CFR Part 136, currently “Methods for Measuring the Acute Toxicity of Effluents and Receiving Water, 5th Edition.” The Discharger is required to use the 5th Edition method for compliance determination upon the effective date of this Order.
- b. *Test Species.* The Discharger uses two species, fathead minnow and rainbow trout, for compliance monitoring. As provided in the Basin Plan and as allowed in this Order, the Executive Officer may consider allowing compliance monitoring with only one fish species, either fathead minnow or rainbow trout, if the Discharger runs concurrent tests, which may be conducted as static renewal tests, to determine the most sensitive species.
- c. *Monitoring Results.* In January 2003, a sample tested for acute toxicity showed no survival. In its self-monitoring report, the Discharger indicated that the January 2003 effluent sample was potentially contaminated. No re-testing of the discharge could be conducted since the discharge had ceased. In December 2003, as required by the December 4, 2003 NOV letter, the Discharger took a water sample from the final treatment pond (Pond 5), and conducted another round of acute toxicity test. The rainbow trout had a 100% survival rate, while the fathead minnow had more than 30 percent mortality. A phase I toxicity identification evaluation (TIE) was initiated. The toxicity was not persistent, as the TIE baseline sample did not show any significant mortality. However, the TIE report concluded that un-ionized ammonia likely caused fathead minnow toxicity in the sample when the sample pH drifted higher. A provision of this Order requires the Discharger to complete a TIE study by April 30, 2006. If there will be no discharge to the Napa River during this period, the Discharger is required to perform TIE study using samples collected from the discharge to land. In addition, although collecting samples from discharge to land will be useful in indicating whether there may be toxicity in the effluent, exceedances of toxicity would only be considered a violation for discharges to the Napa River.
- c. *Ammonia Toxicity.* The Discharger utilizes static renewal for the acute toxicity testing and static renewal testing sometimes results in an upward pH drift that changes the existing form of ammonia from ionized (non-toxic) to unionized (toxic) ammonia. If the Discharger demonstrates to the satisfaction of the Executive Officer that exceedance of the toxicity limits is caused by ammonia and that the ammonia in the discharge is not adversely impacting receiving water quality or beneficial uses, then such toxicity does not constitute a violation of this effluent limit. If ammonia toxicity is established through a TIE acceptable to the Executive Officer, the Discharger may utilize a pH adjustment protocol for the testing.

Bacteria Limitations

57. This Order retains the same total coliform limitations included in the previous permit, which are based on Table 4-2 of the Basin Plan. This Order also allows the Discharger to conduct a bacteriological assessment study as specified in a provision of this Order, to evaluate the feasibility of using an alternate bacteria limitation, and grants a short-term exception to the total coliform limits during the study. Because the receiving water is currently listed as impaired by pathogens, the scope of the Discharger’s study will also generate data to (1) demonstrate that the Discharger does not and will not contribute to the impairment, and (2) support the TMDL for pathogens in the Napa River.

Source Control and Pollution Prevention

58. On October 15, 2003, the Regional Water Board adopted Resolution R2-2003-0096 in support of a collaborative working approach between the Regional Water Board and BACWA to promote Pollution Prevention Program (“P2 Program”) development and excellence. Specifically, the Resolution embodies a set of eleven guiding principles that will be used to develop tools such as “P2 menus” for specific pollutants, as well as provide guidance in improving P2 program efficiency and accountability. Key guiding principles in the Resolution include promoting watershed, cross-program and cross-media approaches to pollution prevention, and jointly developing tools to assess individual Discharger’s program performance that may include peer reviews, self-audits or other formats.
59. Section 2.4.5 of the SIP specifies under what situations and for which priority pollutant(s) (i.e., reportable priority pollutants) the Discharger shall be required to conduct a Pollutant Minimization Program. For constituents with compliance schedules under this permit, specifically, lead and mercury, the applicable source control/pollutant minimization requirements of SIP Section 2.1 will also apply.

Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy

60. On August 6, 2001, the Regional Water Board sent a letter to all the permitted dischargers pursuant to Section 13267 of the California Water Code requiring the submittal of effluent and receiving water data on priority pollutants. This formal request for technical information addresses the insufficient effluent and ambient background data, and the dioxin study. The letter (described above) is referenced throughout the permit as the “August 6, 2001 Letter”.

Monitoring Requirements (Self-Monitoring Program)

61. The SMP includes monitoring at the outfalls for conventional, non-conventional, toxic pollutants, and acute toxicity. Treatment plant influent monitoring is also required for selected parameters to assess treatment system performance. Most of the monitoring requirements have not been changed from the previous Order. When there is river discharge, monthly monitoring for acute toxicity is required; for mercury, lead, copper, and cyanide, monthly monitoring is required to determine compliance with effluent limits. For bis(2-ethylhexyl)phthalate, monitoring is required as specified by the Discharger’s special study plan, and after the study, annual monitoring may be required, as appropriate. For dioxins and furans and all the 126 priority pollutants, monitoring shall be in compliance with Provision F.2; if no river discharge ever occurs during the permit term, the water samples shall be collected from the discharge to land. The Discharger will only be considered in violation of any applicable effluent limits, however, for samples collected from discharges to the Napa River.

In lieu of near field discharge specific ambient monitoring, it is acceptable that the Discharger participates in collaborative receiving water monitoring with other dischargers (e.g., Town of Yountville and City of Calistoga) under the provisions of the August 6, 2001 letter, and the RMP.

Further, during all discharges, the Discharger is required to measure and report Napa River flow data and the dilution received once per day, from a USGS gauging station located upstream from the

discharge, to ensure compliance with the minimum 25:1 (receiving water to effluent) dilution condition. During the interim period before a diffuser is installed, a minimum of 10:1 dilution shall be achieved. The dilution shall be determined using the an instantaneous river flow obtained from USGS Station No. 11456000 and the daily average discharge flow at Outfall E-001; the average dilution ratio within a calendar day shall be reported.

Operations and Maintenance Manual

62. *Operations and Maintenance Manual.* An Operations and Maintenance (O&M) Manual is maintained by the Discharger for purposes of providing plant and regulatory personnel with a source of information describing all key equipment, recommended operation strategies, process control monitoring, and maintenance activities. In order to remain a useful and relevant document, the manual shall be kept updated to reflect significant changes in treatment facility equipment and operation practices.

Optional Mass Offset

63. *Optional Mass Offset.* This Order contains requirements to prevent further degradation of the impaired waterbody. Such requirements include the adoption of interim mass limits that are based on plant performance, provisions for aggressive source control, feasibility studies for wastewater reclamation, and plant optimization. After implementing these efforts, the Discharger may find that further net reductions of the total mass loadings of the 303(d)-listed pollutants to the receiving water can only be achieved through a mass offset program. This Order includes an optional provision for a mass offset program.

NPDES Permit and CEQA

64. *NPDES Permit.* This Order serves as an NPDES Permit, adoption of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code [California Environmental Quality Act (CEQA)] pursuant to Section 13389 of the California Water Code.

Notification

65. The Discharger and interested agencies and persons have been notified of the Regional Water Board's intent to reissue requirements for the existing discharges and have been provided an opportunity to submit their written views and recommendations. Regional Water Board staff prepared a Fact Sheet and Response to Comments, which are hereby incorporated by reference as part of this Order.

Public Hearing

66. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code, regulations, and plans and policies adopted thereunder, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, that the Discharger shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. Discharge of treated wastewater at a location or in a manner different from that described in this Order is prohibited.
2. Average dry weather flow to the treatment plant greater than 0.5 MGD is prohibited. The average dry weather flow shall be determined over three consecutive dry weather months each year.
3. Discharge of treated wastewater at any point where it does not receive an initial dilution ratio of at least 25:1 is prohibited except as explained further below. The available dilution shall be determined by the measured flow at USGS Station No. 11456000 (Napa River near St. Helena).

During the design and construction of its diffuser, the discharge of treated wastewater, at any point where it does not receive an initial dilution of at least 10:1 is prohibited. This interim dilution ratio shall not last beyond November 30, 2007. Extensions beyond this date may be granted by the Executive Officer, provided the Discharger submit a written request that demonstrates that the delays are beyond its control.

4. The bypass or overflow of untreated or partially treated wastewater to waters of the State, either at the plant or from the collection system or pump stations tributary to the plant, is prohibited, except as provided for bypasses under the conditions stated in 40 CFR 122.41(m)(4) and in Standard Provisions A.13.

The discharge of blended wastewater, that is biologically treated wastewater blended with wastewater that has been diverted around biological treatment units or advanced treatment units, is allowable only 1) during wet weather, and 2) when the discharge complies with the effluent and receiving water limitations contained in this Order. Furthermore, the Discharger shall operate the facility as designed and in accordance with the Operation and Maintenance Manuals developed for the facility. This means that the Discharger shall optimize storage and use of equalization units, and shall fully utilize the biological treatment units, and advanced treatment units if applicable. The Discharger shall report these incidents of blended effluent discharges in routine monitoring reports, and shall conduct monitoring of this discharge as specified elsewhere in this Order.

5. Discharge to the Napa River is prohibited during the period from May 1 through November 30 of each year. Discharge to the Napa River later than May 1 or prior to November 30 may be authorized by the Executive Officer, for a specified period not to exceed 1 month, based on a written request from the Discharger documenting that adequate dilution is available at the discharge point, and/or disposal to land is infeasible due to wet weather conditions.

B. EFFLUENT LIMITATIONS

The term 'effluent' in the following limitations means the fully treated wastewater from the Discharger's wastewater treatment facility, as discharged to the Napa River, at times when the river to wastewater ratio is at least 25:1.

Conventional and Non-Conventional Pollutants

1. The effluent shall not exceed the following effluent limits specified in Table 3.

Table 3. Effluent Limitations for Conventional Pollutants

Constituent	Units	Monthly Average	Weekly Average	Daily Maximum	Instantaneous Maximum
a. Biochemical Oxygen Demand (BOD)	mg/L	30	45		--
b. Total Suspended Solids (TSS)	mg/L	30	45		--
c. Oil and Grease	mg/L	10		20	
d. Total Chlorine Residual ^[1]	mg/L				0.0

[1] This effluent limit is defined as below the limit of detection in standard test methods defined in the 18th edition of the *Standard Methods for the Examination of Water and Wastewater*. The Discharger may elect to use a continuous on-line monitoring system(s) for measuring flows, chlorine and sodium bisulfite dosage (including a safety factor) and concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Regional Water Board staff may conclude that these false positive chlorine residual exceedances are not violations of this permit limit.

2. *pH*

The pH of the discharge shall not exceed 9.0 nor be less than 6.0. The Discharger may only begin discharging after demonstrating that the pH of the effluent is within the allowable pH range. If the Discharger employs continuous pH monitoring, the Discharger shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied:

- a. The total time during which the pH values are outside the required range shall not exceed 7 hours and 26 minutes in any calendar month.
- b. No individual excursion from the required range of pH values shall exceed 60 minutes.

3. *85 Percent Removal, BOD₅ and TSS*

The arithmetic mean of the biochemical oxygen demand (5-day, 20 °C) and total suspended solids values for effluent samples collected each calendar month shall not exceed 15 percent of the arithmetic mean of the respective values for influent samples collected at approximately the same times during the same period.

4. *Total Coliform Bacteria*

The effluent, at some point in the treatment process prior to discharge, shall meet the following limits of bacteriological quality:

- a. The 5-day moving median value for the most probable number (MPN) of total coliform bacteria shall not exceed 23 MPN/100 mL; and
- b. Any single sample shall not exceed 240 MPN/100 mL.

The Discharger may conduct a bacteriological assessment study, as specified in Provision F. 10 of this Order, to evaluate the feasibility of using an alternate bacteria limitation instead of meeting

4.a. and 4.b. above (total coliform limits) provided that it can be conclusively demonstrated through a study approved by the Regional Water Board that such substitution will not result in unacceptable adverse impacts on the beneficial uses of the receiving water.

During the study period, the Discharger is exempt from coliform limitation in 4.a. and 4.b. above for the term of the study as long as the Discharger can demonstrate that the exceedances of the total coliform limits are solely due to the study, and that there is compliance in the receiving water with the bacteriological objectives specified in the Basin Plan.

5. *Whole Effluent Acute Toxicity*

Representative samples of the effluent shall meet the following limitation for acute toxicity. Compliance with these limits shall be achieved in accordance with Provision F.7 of this Order:

The survival of organisms in undiluted effluent shall be at least 70 percent survival in each bioassay.

Bioassays shall be performed using the most up-to-date U.S. EPA protocol and the most sensitive species as specified in writing by the Executive Officer based on the most recent screening test results. Bioassays shall be conducted in compliance with “Methods for Measuring The Acute Toxicity of Effluents and Receiving Water To Freshwater and Marine Organisms”, currently 5th Edition, with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP) upon the Discharger’s request with justification.

Toxic Pollutants

6. The discharge of effluent to the Napa River shall meet the following effluent limitations specified in Table 4.

Table 4. Effluent Limits for Toxic Pollutants ^[1]

Constituent	WQBEL (µg/L)		Interim Monthly Average (µg/L)
	MDEL	AMEL	
Copper	70	35	
Lead ^[2]			23
Mercury ^[3]			0.08
Cyanide ^[4]	83	41	

- [1] a. Compliance with these limitations is intended to be achieved through secondary treatment and, as necessary, pretreatment and source control.
- b. All analyses shall be performed using current U.S. EPA methods, or equivalent methods approved in writing by the Executive Officer. The Discharger is in violation of the limitation if the discharge concentration exceeds the effluent limitation and the reported ML for the analysis for that constituent.
- c. Limitations apply to the average concentration of all samples collected during the averaging period (daily = 24-hour period; monthly = calendar month).
- [2] This interim limitation for lead shall remain in effect until December 31, 2014, or until the Regional Water Board amends the limitation based on additional data.

[3] Effluent mercury monitoring shall be performed by using ultra-clean sampling and analysis techniques, with a method detection limit of 0.002 µg/L or lower. The interim limitation for mercury shall remain in effect until April 27, 2010, or until the Regional Water Board amends the limitation based on a WLA in the TMDL for mercury.

[4] Compliance may be demonstrated by measurement of weak acid dissociable cyanide.

7. Mercury Mass Emission Limitation

Until TMDL and WLA efforts for mercury provide enough information to establish a different WQBEL, the Discharger shall demonstrate that the current mercury mass loading to the receiving water does not increase by complying with the following:

- a. *Mass limit.* The annual mass loading for mercury shall not exceed **0.033 kg/year**.
- b. Compliance with this limit shall be evaluated using annual mass loading, computed as described below:

Monthly Mass Loading (kg/month) = monthly plant discharge flows (in MGD) from the Outfall (E-001) × monthly effluent concentration measurements (in µg/L) corresponding to the above flows, for samples taken at E-001 × 0.1151 (conversion factor to convert million gallons/day × µg/L to kg/month)

Annual Mass Loading (kg/year) = sum of monthly mass loadings for the previous 12 months

If there is no river discharge during a particular month, the flow is set to zero for the calculation. If more than one measurement is obtained in a calendar month, the average of these concentrations is used as the monthly value for that month. If the results are less than the method detection limit used, the concentrations are assumed to be equal to the method detection limit.

- c. The Discharger shall submit a cumulative total of mass loadings for the previous 12 months with each monthly Self-Monitoring Report. Compliance each month will be determined based on the sum of the mass loadings from the previous 12 months, calculated using the method described in section B.7.b. above. The Discharger may use monitoring data collected under accelerated schedules (i.e., special studies) to determine compliance.
- d. The mercury TMDL and WLAs will supersede the interim mass emission limitation upon its completion. The Clean Water Act's anti-backsliding rule, Section 402(o), indicates that this Order may be modified to include a less stringent requirement following completion of the TMDLs and WLAs, if the requirements for an exception to the rule are met.

C. RECEIVING WATER LIMITATIONS

1. The discharges shall not cause the following conditions to exist in waters of the State at any place:
 - a. Floating, suspended, or deposited macroscopic particulate matter or foam;
 - b. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;

- c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - d. Visible, floating, suspended, or deposited oil or other products of petroleum origin; and
 - e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or which render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.
2. The discharges shall not cause nuisance, or adversely affect the beneficial uses of the receiving water.
 3. The discharges shall not cause the following limits to be violated in waters of the State at any one place within one foot of the water surface:
 - a. Dissolved Oxygen: 7.0 mg/L, minimum

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharges shall not cause further reduction in ambient dissolved oxygen concentrations.
 - b. Dissolved Sulfide: 0.1 mg/L, maximum
 - c. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH by more than 0.5 pH units.
 - d. Un-ionized Ammonia: 0.025 mg/L as N, annual median; and
0.16 mg/L as N, maximum.
 - e. Nutrients: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
 4. The discharges shall not cause a violation of any particular water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.

D. POND LIMITATIONS

1. Wastewater within one foot of the surface of all wastewater ponds shall meet the following limits, in any grab samples:
 - a. Dissolved Oxygen 2.0 mg/L, minimum
 - b. Dissolved Sulfide 0.1 mg/L, maximum

2. A minimum freeboard of at least two (2) feet shall be maintained in all wastewater ponds, except for Pond No.1.
3. A minimum freeboard of at least one (1) foot shall be maintained in Pond No. 1.
4. All ponds shall be protected against erosion, flooding and washout from floods having a predicted frequency of once in 100 years.

E. SLUDGE MANAGEMENT PRACTICES

1. All sludge generated by the Discharger must be disposed of in a municipal solid waste landfill, reused by land application, or disposed of in a sludge-only landfill in accordance with 40 CFR Part 503. If the Discharger desires to dispose of sludge by a different method, a request for permit modification must be submitted to the U.S. EPA 180 days before start-up of the alternative disposal practice. All the requirements in 40 CFR 503 are enforceable by U.S. EPA whether or not they are stated in an NPDES permit or other permit issued to the Discharger. The RWQCB should be copied on relevant correspondence and reports forwarded to the U.S. EPA regarding sludge management practices.
2. Sludge treatment, storage and disposal or reuse shall not create a nuisance, such as objectionable odors or flies, or result in groundwater contamination.
3. Due to mitigate: The Discharger shall take all reasonable steps to prevent or minimize any sludge use or disposal which has a likelihood of adversely affecting human health or the environment.
4. The discharge of biosolids shall not cause waste material to be in a position where it is, or can be carried from the sludge treatment and storage site and deposited in the waters of the State.
5. The sludge treatment and storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect boundaries of the site from erosion, and to prevent any conditions that would cause drainage from the materials in the temporary storage site. Adequate protection is defined as protection from at least a 100-year storm and protection from the highest possible tidal stage that may occur.
6. For sludge that is applied to the land, placed on a surface disposal site, or fired in a biosolids incinerator as defined in 40 CFR 503, the Discharger shall submit an annual report to the U.S. EPA and the Regional Water Board containing monitoring results and pathogen and vector attraction reduction requirements as specified by 40 CFR 503, postmarked February 15 of each year, for the period covering the previous calendar year.
7. Sludge that is disposed of in a municipal solid waste landfill must meet the requirements of 40 CFR 258. In the annual self-monitoring report, the Discharger shall include the amount of sludge disposed of, and the landfill(s) to which it was sent.
8. Permanent on-site sludge storage or disposal activities are not authorized by this permit. A report of Waste Discharge shall be filed and the site brought into compliance with all applicable regulations prior to commencement of any such activity by the Discharger.

9. Sludge Monitoring and Reporting Provisions of this Regional Water Board's "Standard Provisions and Reporting Requirements", dated August 1993, apply to sludge handling, disposal and reporting practices.
10. The Regional Water Board may amend this permit prior to expiration if changes occur in applicable state and federal sludge regulations.

F. PROVISIONS

1. Permit Compliance and Rescission of Previous Waste Discharge Requirements

The Discharger shall comply with the limitations, prohibitions, and other provisions of this Order on the effective date of this NPDES Permit. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 92-006. Order No. 92-006 is hereby rescinded upon the effective date of this permit.

2. Effluent Monitoring

The Discharger shall continue its effort to monitor and evaluate the discharge from Outfall E-001 for all 126 priority pollutants in the CTR as indicated in the sampling plan submitted or an updated sampling plan pursuant to the August 6, 2001 Letter from the Regional Water Board.

Updated Sampling Plan: If the Discharger plans to submit an updated sampling plan with new sampling schedules, the study plan shall be submitted by **August 1, 2005**. If there will not be river discharge during the permit term, samples shall be collected from the discharge to land.

Reports: Available monitoring data shall be reported in the monthly monitoring report. A final report is due with the NPDES permit renewal application (180 days before permit expiration).

3. Receiving Water Monitoring

The Discharger shall collect or participate in collecting background ambient receiving water monitoring data for priority pollutants that is required to perform an RPA and to calculate effluent limitations. The data on the conventional water quality parameters (pH, salinity, and hardness) shall also be sufficient to characterize these parameters in the receiving water at a point after the discharge has mixed with the receiving waters. This provision may be met through monitoring through the Collaborative Napa River Receiving Water Study, or a similar ambient monitoring program for the Napa River. This permit may be reopened, as appropriate, to incorporate effluent limits or other requirements based on Regional Water Board review of these data.

Final Report: The Discharger shall submit a final report that presents all the data to the Regional Water Board 180 days prior to permit expiration. This final report shall be submitted with the application for permit reissuance.

4. Dry Weather Capacity and Reliability Study

By **May 1, 2006**, the Discharger shall submit an engineering report, for approval by the Executive Officer, documenting any proposed increase in dry weather flow capacity and performance of the

collection system and the treatment plant. For the Regional Water Board to evaluate a flow increase, information to be submitted must include, but may not be limited to, the following:

- a. Engineering reports documenting adequate reliability, capacity and performance of the completed or planned improvement with time schedules to the collection system, treatment facility, and disposal facilities;
- b. Documentation that any proposed increase in discharges (evaluation must include assessment of wet weather flow) will not violate the State Water Board's antidegradation policy, State Water Board Resolution No. 68-16;
- c. An investigation of establishing a reclamation program (e.g., year-round reclamation and additional storage) to further reduce discharges to the Napa River, and achieve zero river discharge; and,
- d. Documentation of compliance schedule with the California Environmental Quality Control Act.

5. Bis(2-ethylhexyl)phthalate Special Study

The Discharger shall conduct a study to ensure that future laboratory sampling, sample handling, and sample analysis for bis(2-ethylhexyl)phthalate (BEHP) accurately and precisely represent the Discharger's final effluent. The Discharger shall submit a study plan and the study will address whether past BEHP laboratory techniques were erroneous. Consequently, if new BEHP measurements conducted under this special study are determined to be adequate and valid, Board staff may re-evaluate the reasonable potential for BEHP.

Tasks	Compliance Date
a. Develop a study plan, acceptable to the Executive Officer, to investigate laboratory sampling and analysis techniques for BEHP.	Within six months after permit adoption.
b. Following approval by the Executive Officer, commence work in accordance with the study plan and time schedule submitted pursuant of Task a.	Within 30 days after approval of study plan by the Executive Officer.
c. Submit a final report, acceptable to the Executive Officer, documenting the findings of the study described above.	Within 3 months after after completion of data collection.

6. Diffuser Study and Installation

The Discharger is required to evaluate the feasibility of installing a diffuser to achieve complete mixing in the Napa River. The Discharger shall comply with the following tasks and deadlines:

Task	Deadline
a. The Discharger shall evaluate the feasibility of installing a diffuser versus moving toward zero discharge. If the decision is made to move toward zero discharge, the Discharger shall notify the Executive Officer in writing with a justification for the feasibility of this approach.	Progress report on February 1, 2006. Final report on June 30, 2006.

<i>If the Discharger elects not to move toward zero discharge, the following schedule will be implemented:</i>	
b. The Discharger shall complete the design of a diffuser.	December 15, 2006.
c. The Discharger shall initiate and facilitate the environmental review process, which is expected to include permits from at least the State Lands Commission, State Fish and Game, and the Regional Water Board.	January 15, 2007, to initiate the environmental review process.
d. The Discharger shall complete construction of the diffuser after approval of necessary environmental and other permits. Construction is expected to take 8 to 9 months, and should be completed in the dry season when river flows are low.	Starting in the month of May, following approval of necessary environmental and other permits, and ending no later than the following December 15.
e. The Discharger shall provide progress reports on the status of the diffuser installation by February 1 of each year, starting in 2007, until the project is completed.	Annually on February 1.

7. Whole Effluent Acute Toxicity Testing and TIE Study

Compliance with acute toxicity requirements of this Order shall be achieved in accordance with the following:

- a. (1) Compliance with the acute toxicity effluent limits of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour static renewal bioassays.
- (2) Test organisms shall be rainbow trout and fathead minnow tested concurrently. The Executive Officer may consider allowing compliance monitoring with only one fish species (the most sensitive, if known), if the Discharger can also document that the acute toxicity has been observed in only one fish species.
- (3) All bioassays shall be performed according to the “Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms,”(currently 5th Edition), with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).
- b. By **October 1, 2005**, the Discharger shall submit a TIE/TRE study plan to the Regional Water Board to identify the cause of the observed toxicity in the January 2003 and December 2003 samples. By **April 30, 2006**, the Discharger shall complete a TIE/TRE study. If there is no discharge to the Napa River, samples will be collected from the discharge to land. Final report shall be submitted within 60 days of the completion of the study.
- c. All bioassays shall be performed according to the “Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms,”(currently 5th Edition), with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

8. Pollutant Minimization Program (PMP)

In accordance with the SIP, the Discharger shall comply with the following PMP requirements. The goal of the PMP shall be to reduce all potential sources of priority pollutant(s) through pollutant minimization (control) strategies to maintain the effluent concentration at or below a WQBEL. For constituents which are detected above the new detection limits but below the former analytical quantification limit established, and it is determined that the pollutant has reasonable potential to cause or contribute to exceedance of State water quality standards, in the absence of effluent limits, the Discharger shall implement a waste minimization plan to achieve the water quality standards. The program shall include, but not limited to, the following actions and submittals:

Task	Deadline
<p>a. <i>Pollution Minimization Program Plan.</i> The plan shall include, but is not limited to:</p> <ol style="list-style-type: none"> (1) an annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures approved by the Executive Officer if it is demonstrated source monitoring is unlikely to produce useful analytical data; (2) quarterly monitoring for the priority pollutant(s) in the influent to the wastewater treatment system, or alternative measures approved by the Executive Officer if it is demonstrated influent monitoring is unlikely to produce useful analytical data; (3) control strategy design to proceed toward the goal of maintaining concentrations of the priority pollutant(s) in the effluent at or below the effluent limitation, (4) implementation of appropriate cost-effective control measures for the priority pollutant(s), consistent with the control strategy. 	<p>Within 6 months, after reasonable potential has been determined and notification by the Executive Officer.</p>
<p>b. <i>Implementation of Plan.</i> The Discharger shall implement an approved PMP in order to reduce pollutant loadings to the treatment plant, and subsequently, to receiving waters.</p>	<p>30 days after approval by Executive Officer.</p>
<p>c. <i>Quarterly Monitoring.</i> The Discharger will conduct quarterly monitoring for the priority pollutant(s) in the influent to the wastewater treatment system.</p>	<p>90 days after implementation of PMP, and quarterly thereafter.</p>
<p>d. <i>Annual Report.</i> The Discharger shall submit an Annual Status Report to the Regional Water Board acceptable to the Executive Officer. The report should include the following:</p> <ol style="list-style-type: none"> (1) All PMP monitoring results of the previous year, including quarterly monitoring results; (2) A list of potential sources of the priority pollutant(s); (3) A summary of all actions undertaken pursuant to the control strategy, and a description of actions to be taken in the following year. 	<p>Within 12 months after implementation of the PMP and annually thereafter.</p>

9. Optional Mass Offset

The Discharger may submit to the Regional Water Board for approval a mass offset plan to reduce 303(d)-listed pollutants to the same watershed or drainage basin. The Regional Water Board may modify this Order to allow an approved mass offset program.

10. Optional Receiving Water Beneficial Use and Alternative Bacteriological Limits Study

In order to develop information that may be used in a subsequent permit amendment to establish alternate bacteria limits that are consistent with a TMDL for pathogens, and that are supportive of the TMDL for pathogens, the Discharger may, at its option, conduct a bacteriological assessment study, acceptable to the Executive Officer. The study will evaluate the impacts of the Discharger's effluent on the receiving waters (including worst case conditions). The Basin Plan allows alternate bacteria limitations provided that the Discharger conclusively demonstrates "through a program approved by the Regional Water Board that such substitution will not result in unacceptable adverse impacts on the beneficial uses of the receiving waters". If the study demonstrates that the exceedances of the total coliform limits are solely due to the study, and that there is compliance in the receiving water with the bacteriological objectives specified in the Basin Plan, the Regional Water Board may consider establishing alternate bacteria limitations.

Tasks	Compliance Date
a. Develop a study plan, acceptable to the Executive Officer, to include, a receiving water bacteria study, selection and justification for alternative bacteriological limitation (enterococci, fecal coliform, or <i>E. coli</i>), and tasks and schedules necessary to assess the beneficial uses attributed to the outfall location.	At the Discharger's discretion during the permit term.
b. Following approval by the Executive Officer, commence work in accordance with the study plan and time schedule submitted pursuant to the approved plan.	As specified in the study plan.
c. Submit a final report, acceptable to the Executive Officer, documenting the results of the beneficial use investigation described above.	As specified in the study plan.

During the study, the Discharger is exempt from the total coliform limitation during the data collection period. If there is a total coliform exceedance during the data collection period, the Discharger shall demonstrate that the exceedance is due to the study in order for the exemption to apply.

11. Sanitary Sewer Management Plan

The Discharger shall fully participate in BACWA's collaborative program to develop a regional reporting system and guidelines for sanitary sewer management plans (SSMPs). The Discharger shall develop and implement a Discharger-specific SSMP, acceptable to the Executive Officer, as required by the Regional Water Board. The Discharger shall also report sanitary sewer overflows electronically as required in the Regional Water Board November 4, 2004 letter.

12. Wastewater Facilities, Review and Evaluation, and Status Reports

- a. The Discharger shall operate and maintain its wastewater collection, treatment, and disposal facilities in a manner to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary, in order to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities.
- b. The Discharger shall regularly review and evaluate its wastewater facilities and operation practices in accordance with section a. above. Reviews and evaluations shall be conducted as an ongoing component of the Discharger's administration of its wastewater facilities.
- c. The Discharger shall provide the Executive Officer, upon his or her request, a report describing the current status of its wastewater facilities and operation practices, including any recommended or planned actions and an estimated time schedule for these actions. The Discharger shall also include, in each Annual Self-Monitoring Report, a description or summary of review and evaluation procedures, and applicable wastewater facility programs or capital improvement projects.

13. Operations & Maintenance Manual Review and Status Reports

- a. The Discharger shall maintain an O & M Manual as described in the findings of this Order for the Discharger's wastewater facilities. The O & M Manual shall be maintained in usable condition, and available for reference and use by all applicable personnel.
- b. The Discharger shall regularly review, revise, or update, as necessary, the O & M Manual(s) so that the document(s) may remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and revisions or updates shall be completed as necessary. For any significant changes in treatment facility equipment or operation practices, applicable revisions shall be completed within 90 days of completion of such changes.
- c. The Discharger shall provide the Executive Officer, upon his or her request, a report describing the current status of its O&M manual, including any recommended or planned actions and an estimated time schedule for these actions. The Discharger shall also include, in each Annual Self-Monitoring Report, a description or summary of review and evaluation procedures, and applicable changes to, its operations and maintenance manual.

14. Contingency Plan Review and Status Reports

- a. The Discharger shall maintain a Contingency Plan as required by Regional Water Board Resolution 74-10 (available online—see Standard Language and Other References Available Online, below), and as prudent in accordance with current municipal facility emergency planning. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or adequately implement a contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.

- b. The Discharger shall regularly review, and update as necessary, the Contingency Plan so that the plan may remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and updates shall be completed as necessary.
- c. The Discharger shall provide the Executive Officer, upon his or her request, a report describing the current status of its Contingency Plan review and update. The Discharger shall also include, in each Annual Self-Monitoring Report, a description or summary of review and evaluation procedures, and applicable changes to, its contingency plan.

15. 303(d)-listed Pollutants Site-Specific Objective and TMDL Status Review

The Discharger shall participate in the development of TMDLs or SSOs in San Pablo Bay and in the Napa River. By January 31 of each year, the Discharger shall submit an update to the Regional Water Board to document efforts made in participation in the development of TMDL(s) and/or SSO(s). Active participation by the Discharger in the Clean Estuary Partnership (CEP) will be considered to fulfill the requirements of this provision as it applies to San Pablo Bay. The Discharger, along with other CEP partners, may elect to annually report TMDL progress collectively through the partnership. Regional Water Board staff shall review the status of TMDL development. This Order may be reopened in the future to reflect any changes required by TMDL development.

16. Self-Monitoring Program

The Discharger shall comply with the Self-Monitoring Program (SMP) (Attachment C) for this Order as adopted by the Regional Water Board. The SMP may be amended by the Executive Officer pursuant to U.S. EPA regulations 40 CFR 122.63.

17. Standard Provisions and Reporting Requirements

The Discharger shall comply with all applicable items of the Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993 (which is available online), or any amendments thereafter. Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in “Standard Provisions”, the specifications of this Order shall apply.

18. Change in Control or Ownership

- 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.
- b. To assume responsibility of and operations under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order (see Standard Provisions & Reporting Requirements, August 1993, Section E.4.). Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.

19. Permit Reopener

The Regional Water Board may modify or reopen this Order and Permit prior to its expiration date in any of the following circumstances:

- (1) If present or future investigations demonstrate that the discharge(s) governed by this Order and permit will or have a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;
- (2) New or revised WQOs come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this permit will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order and permit are not intended to restrict in any way future modifications based on legally adopted WQOs or as otherwise permitted under Federal regulations governing NPDES permit modifications;
- (3) If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified. The Discharger may request permit modification on this basis. The Discharger shall include in any such request an antidegradation and antibacksliding analysis.

20. Effective Date of NPDES Permit

This Order shall serve as a National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective on June 16, 2005, provided the U.S. EPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

21. Order Expiration and Reapplication

- a. This Order expires on April 27, 2010.
- b. In accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code, the Discharger must file a report of waste discharge no later than 180 days before the expiration date of this Order as application for reissue of this permit and waste discharge requirements. The application shall be accompanied by a summary of all available water quality data including conventional pollutant data from no less than the most recent three years, and of toxic pollutant data no less than from the most recent five years, in the discharge and receiving water. Additionally, the Discharger must include with the application the final results of any studies that may have bearing on the limits and requirements of the next permit. Such studies include dilution studies, translator studies and alternate bacteria indicator studies.

I, Bruce Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 15, 2005.

BRUCE H. WOLFE
Executive Officer

Attachments:

- A. Discharge Facility Location Map
- B. Discharge Facility Treatment Process Diagram
- C. Self-Monitoring Program, Part B
- D. Fact Sheet
- E. Discharger's Feasibility Study
- F. The following documents are part of this Order but are not physically attached due to volume. They are available on the Internet at:
<http://www.waterboards.ca.gov/sanfranciscobay/Download.htm>.
 - Self-Monitoring Program, Part A (August 1993)
 - Standard Provisions and Reporting Requirements, August 1993
 - Regional Water Board Resolution No. 74-10
 - Statistical Analysis of Pooled Data from Regionwide Ultraclean Mercury Sampling for Municipal Dischargers, June 2001
 - August 6, 2001 Regional Water Board staff letter, "Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy"

City of St. Helena
NPDES Permit No. CA0038016
SMP Part B Tentative Order

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

SELF-MONITORING PROGRAM

FOR

**CITY OF ST. HELENA
WASTEWATER TREATMENT AND RECLAMATION PLANT
ST. HELENA, NAPA COUNTY**

NPDES PERMIT NO. CA0038016

ORDER NO. R2-2005-XXXX

Consists of:

**Part A (not attached)
Adopted August 1993**

and

**Part B (Attached)
Adopted: [fill in date]**

Note: Part A (dated August 1993, Standard Provisions and Reporting Requirements for NPDES Surface Water Discharger Permits (dated August 1993), and Resolution No. 74-10 referenced in this Self Monitoring Program are not attached but are available for review or download on the Regional Water Board's website at <http://www.waterboards.ca.gov/sanfranciscobay/Download.htm>.

Self-Monitoring Program – Part B

I. Description of Sampling and Observation Stations

<u>Station</u>	<u>Description</u>
A. INFLUENT	
A-001	At any point in the treatment facility headworks at which all waste tributary to the system is present and preceding any phase of treatment, and exclusive of any return flows or process side-streams.
B. EFFLUENT	
E-001	At a point in the effluent from the treatment facility at which treatment of the wastewater is complete, between the point of discharge (outfall) and the point at which all waste tributary to that outfall is present (may be the same as E-001-D or E-001-S).
E-001-D	At any point in the effluent from the treatment facility, downstream of the disinfection facilities, at which point adequate contact with the disinfectant is assured.
E-001-S	At a point in the effluent from the treatment facility downstream of the dechlorination point.
C. RECEIVING WATERS	
CF	The same station as USGS monitoring station, STH (No. 11456000), in the California Data Exchange Center database (maintained by the California Department of Natural Resources and the USGS).
C-1	At a point in the Napa River, located about 200 feet upstream from the point of discharge.
C-2	At a point in the Napa River, located at the point of discharge.
C-3	At a point in the Napa River, located about 100 feet downstream from the point of discharge.
C-4	At a point in the Napa River, located about 1000 feet downstream from the point of discharge.

D. LAND OBSERVATIONS

L-1 through L- 'n' Pond Levees: Points located along the perimeter levees of the wastewater ponds, at intervals not to exceed 500 feet.

P-1 through P- 'n' Plant Perimeter: Points located at the corners and mid-points of the perimeter boundary of the wastewater treatment plant.

E. GROUNDWATER

G-1 The well located at the treatment plant site, between the headworks building and Pond No. 2.

F. OVERFLOWS AND BYPASSES

OV-1 through OV-'n' At points in the collection system including manholes, pump stations, or any other location where overflows or bypasses occur.

- NOTES :
1. A map and description of each known or observed overflow or bypass location shall accompany the Annual report for each calendar year.
 2. Each occurrence of a bypass or overflow shall be reported to the Regional Water Board in accordance with the reporting requirements specified in Part A. Each annual report shall include a map and description of the location(s) of each known bypass or overflow occurred within the calendar year.

II. Schedule of Sampling, Measurements, and Analysis

A. The schedule of sampling, measurements, and analysis shall be that given in Table 1 below.

Table 1. Schedule for Sampling, Measurements, and Analyses [1]

Sampling Station:	A-001			E-001			E-001-S		C-3	All C	G	ALL L	ALL P	ALL OV
Type of Sample: [notes]	C-24	G	Cont.	G	C-24	Cont.	G	C-24	G	G/O	G	O	O	G/O
Sampling Required:	Year-round			While Discharging to Napa River			While Discharging to Napa River		While Discharging to Napa River	While Discharging to Napa River	Year-round	Year-round	Year-round	Year-round
Flow Rate (MGD) [2]			D			D								E
Dilution Ratio (River to Effluent) [3]						D				D (CF only)				
BOD, 5-day, 20 °C (mg/L) [4]	W				3/W									E
Total Suspended Solids (mg/L & kg/day) [4]	W				3/W									
Oil and Grease (mg/L & kg/day) [5]				M										
Chlorine Residual (mg/L) [6]							Cont/2H							
Total Coliform (MPN/100 mL)							3/W							E
Turbidity (NTU)										M				
pH (Standard Units) [7]				D						M				
Temperature (°C)				D						M				
Dissolved Oxygen (mg/l & %-Saturation)				D						M				
Sulfides, total and dissolved (mg/L) (if DO < 2.0 mg/L)				D						M				
Ammonia Nitrogen (mg/L & kg/day)					M				M					
Nitrate Nitrogen (mg/L & kg/day)					M						3M			

Sampling Station:	A-001			E-001			E-001-S		C-3	All C	G	ALL L	ALL P	ALL OV
	C-24	G	Cont.	G	C-24	Cont.	G	C-24	G	G/O	G	O	O	G/O
Total Organic Nitrogen (mg/L & kg/day)					M									
Un-ionized Ammonia Nitrogen (mg/L as N)									M					
Total Dissolved Solids (mg/L)									M		3M			
Chloride (mg/L)											3M			
Hardness (mg/L) [8]									M					
Chlorophyll- α (μ g/L)									M					
Acute Toxicity (% Survival) [9]					M									
Copper (Lead (μ g/L)					M									
Lead (μ g/L)					M									
Mercury (μ g/L & kg/month) [10]				M										
Cyanide (μ g/L)				M										
2,3,7,8-TCDD and Congeners (pg/L)				[11]										
Bis(2-Ethylhexyl)Phthalate (μ g/L)				[12]										
All priority pollutants [13]				In accordance with Provision F.2 and F.3										
Standard Observations [14]				D						M		W	W	E

LEGEND FOR TABLE 1

Types of Stations

A = treatment plant influent
E = treatment plant effluent
C = receiving waters
G = groundwater
L = pond levee stations
P = treatment facility perimeter
OV = overflow or bypass points

Types of Samples

Cont. = continuous
C-24 = 24-hour composite
G = grab
O = observations

Frequency of Sampling

D = once each day
W = once each week
M = once each month
A = once each year
E = each event
3/W = 3 days a week
2H = every 2 hours
3M = every 3 months

FOOTNOTES FOR TABLE 1

[1] Composite sampling: 24-hour composites may be made up of discrete grabs collected over the course of a day and volumetrically or mathematically flow-weighted. Samples for inorganic pollutants may be combined prior to analysis. Samples for organic pollutants should be analyzed separately. If only one grab sample will be collected, it should be collected during periods of maximum peak flows. Samples shall be taken on random days.

[2] Flow Monitoring:
Flows shall be monitored continuously and the following shall be reported in monthly self-monitoring reports:

Influent and Effluent:

Daily: Flow Rate (MGD)
Monthly: Average Daily Flow Rate (MGD)
Maximum Daily Flow Rate (MGD)
Minimum Daily Flow Rate (MGD)
Total Flow Volume (MG)

Effluent: Report also the total number of calendar days when effluent discharge to the river occurred.

[3] River Flow and Volumetric Dilution:
The dilution during a calendar day shall be calculated and reported once per day as long as the discharge continues. The dilution shall be determined as the ratio of an instantaneous flow at a fixed time of the day (e.g., 7 am) recorded at USGS Station No. 11456000 to the discharge flow at Outfall E-001. The Discharger shall exercise its best judgment to ensure the minimum dilution ratio to be achieved throughout the discharge, e.g., it is expected to see significant variations of river flows during and after a rainfall event.

[4] BOD & TSS:
Influent: Weekly sampling and analysis, all year.
Effluent: Sampling and analysis for BOD and TSS are required 3 days per week during the first week when discharge occurs in each calendar month, and then 1 day per week for the remaining weeks in that calendar month.

The percent removal for BOD and TSS shall be reported for each calendar month, in accordance with Effluent Limitation B.3.

[5] Oil & Grease Monitoring:
Each Oil & Grease sampling event shall consist of a composite sample comprised of three grab samples taken at equal intervals during the sampling date, with each grab sample being collected in a glass container.

Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsings as soon as possible after use, and the solvent rinsings shall be added to the composite sample for extraction and analysis.

- [6] Chlorine Residual: Monitor dechlorinated effluent continuously or, at a minimum, every hour. Report, on a daily basis, both maximum and minimum concentrations, for samples taken both prior to, and following dechlorination. If continuous monitoring is used, the Discharger may record discrete readings from the continuous monitoring every hour on the hour. Report, on a daily basis, the maximum concentration observed following dechlorination. Total chlorine dosage (kg/day) shall be recorded on a daily basis.
- [7] In addition to daily monitoring of the discharge, the Discharger shall collect and analyze one sample of the effluent prior to initiating a period of discharge. Discharge may not be initiated until the pH of the effluent is within the allowable pH range.
- [8] Sampling for hardness shall occur at the upstream receiving water station.
- [9] Monitoring of the bioassay water shall include, on a daily basis during the test, the parameters specified in the U.S. EPA-approved method, such as pH, dissolved oxygen, ammonia nitrogen, and temperature. These results shall be reported. If the fish survival rate in the effluent is less than 70 percent or if the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new batches of fish and shall continue back to back until compliance is demonstrated.
- [10] The Discharger may, at its option, sample effluent mercury either as grab or as 24-hour composite samples. Use ultra-clean sampling (U.S. EPA 1669) to the maximum extent practicable and ultra-clean analytical methods (U.S. EPA 1631) for mercury monitoring. The Discharger may use alternative methods of analysis (such as U.S. EPA 245), if that alternative method has an ML of 2 ng/L or less.
- [11] Chlorinated dibenzodioxins and chlorinated dibenzofurans shall be analyzed using the latest version of U.S. EPA Method 1613; the analysis shall be capable of achieving one-half of the U.S. EPA MLs and the Discharger shall collect 4-liter samples to lower the detection limits to the greatest extent practicable. Alternative methods of analysis must be approved by the Executive Officer. The minimum levels for 2,3,7,8-TCDD and all other 16 congeners using U.S. EPA 1613 range from 5 – 50 pg/L. These MLs were developed in collaboration with BACWA as levels that were achievable by BACWA participants (see BACWA Letter dated April 23, 2003).
- [12] Sampling shall be performed according to the Discharger's study plan as required by Provision F.5 of the permit. If reasonable potential is supported by new data, the Discharger shall monitor the pollutant on annual basis when there is discharge to the Napa River. Otherwise, monitoring for this pollutant shall be conducted according to Provision F.2.
- [13] Sampling for priority pollutants in the SIP is addressed in a letter dated August 6, 2001, from Regional Water Board Staff: "Requirements for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy" (not attached, but available for review or download on the Regional Water Board's website at www.waterboards.ca.gov/sanfranciscobay/) and Provision F.2. of the permit.
- [14] Receiving water observations shall include only those contained in Items D.1.a, D.1.b, D.1.c, and D.3 of Part A (August 1993) of the Self-Monitoring Program. Perimeter observations shall include only E.5.a (odors) of Part A of the same program.

III. MODIFICATIONS to PART A of SELF-MONITORING PROGRAM

- A. If any discrepancies exist between Part A and Part B of the SMP, Part B prevails.

B. Section C.2.h of Part A shall be amended as follows:

- h. When any type of bypass occurs, except for bypasses that are consistent with Prohibition 4, composite samples shall be collected on a daily basis for all constituents at all affected discharge points that have effluent limits for the duration of the bypass.

When bypassing occurs from any treatment process (primary, secondary, chlorination, dechlorination, etc.) in the treatment facilities that is consistent with Prohibition 4, during high wet weather inflow, the self-monitoring program shall include the following sampling and analyses in addition to the Table 1 schedule:

- i. When bypassing occurs from any primary or secondary treatment unit(s), composite samples shall be collected for the duration of the bypass event for BOD and TSS analyses, and continuous monitoring of flow. Samples in accordance with proper sampling techniques for all other limited pollutant parameters shall also be collected and retained for analysis if necessary. If BOD or TSS values exceed the effluent limits, daily analysis of the retained samples shall be conducted for all constituents that have effluent limits for the duration of the bypass, until the BOD and TSS are in compliance with effluent limitations.
- ii. When bypassing the chlorination process, grab samples shall be collected at least daily for total coliform analyses; and continuous monitoring of flow shall be conducted.
- iii. When bypassing the dechlorination process, grab samples shall be collected hourly for chlorine residual; and continuous monitoring of flow shall be conducted.

C. Sections C.3. and C.5. are satisfied by participation in the Regional Monitoring Program.

D. Modify Section F.1, first paragraph, as follows:

Spill Reports

A report shall be made of any spill of oil or other hazardous material. The spill shall be reported by telephone as soon as possible and no later than 24 hours following occurrence or Discharger's knowledge of occurrence. Spills shall be reported by telephone as follows:

During weekdays, during office hours of 8 am to 5 pm, to the Regional Water Board: (510) 622-5633, (510) 622-2460 (FAX).

During non-office hours, to the State Office of Emergency Services: Current telephone number: (800) 852-7550.

A report shall be submitted to the Regional Water Board within five (5) working days following telephone notification, unless directed otherwise by Regional Water Board staff. A report submitted by facsimile transmission is acceptable for this reporting. The written report shall contain information relative to:

E. Modify Section F.3, first paragraph, as follows:

Reports of Plant Bypass, Treatment Unit Bypass and Permit Violation

The following requirements apply to all treatment plant bypasses and significant non-compliance occurrences, except for bypasses under the conditions contained in 40 CFR Part 122.41 (m)(4) as stated in Standard Provision A.13. In the event the Discharger violates or threatens to violate the conditions of the waste discharge requirements and prohibitions or intends to experience a plant bypass or treatment unit bypass due to:

F. Modify Section F.4, first paragraph, as follows:

Self-Monitoring Reports

For each calendar month, a self-monitoring report (SMR) shall be submitted to the Regional Water Board in accordance with the requirements listed in Self-Monitoring Program, Part A. The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this Order, as demonstrated by the monitoring program data and the Discharger's operation practices. The report shall be submitted to the Regional Water Board **on the first day of the second month after the reporting period ends.**

And add at the end of Section F.4 the following:

- g. If the Discharger wishes to invalidate any measurement, the letter of transmittal will include: a formal request to invalidate the measurement; the original measurement in question; the reason for invalidating the measurement; all relevant documentation that supports the invalidation (e.g., laboratory sheet, log entry, test results, etc.); and discussion of the corrective actions taken or planned (with a time schedule for completion), to prevent recurrence of the sampling or measurement problem. The invalidation of a measurement requires the approval of Regional Water Board staff, and will be based solely on the documentation submitted at this time.
- h. The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. The ERS format includes, but is not limited to, a transmittal letter, summary of violation details and corrective actions, and transmittal receipt. If there are any discrepancies between the ERS requirements and the "hard copy" requirements listed in the SMP, then the approved ERS requirements supersede.

G. Add at the end of Section F.5, Annual Reporting, the following:

- d. A plan view drawing or map showing the Dischargers' facility, flow routing and sampling and observation station locations.

H. Add as Section F.6 the following:

Reports of Wastewater Overflows

Overflows of sewage from the Discharger's collection system, other than overflows specifically addressed elsewhere in this Order and SMP, shall be reported to the Regional Water Board in accordance with the reporting requirements and specifications developed with BACWA pursuant to the Regional Water Board's Resolution No.R2-2003-0095.

I. Amend Section E as Follows:

Recording Requirements – RECORDS TO BE MAINTAINED

Written reports, electronic records, strip charts, equipment calibration and maintenance records, and other records pertinent to demonstrating compliance with waste discharge requirements including SMP requirements, shall be maintained by the Discharger in a manner and at a location (e.g., wastewater treatment plant or Discharger offices) such that the records are accessible to Regional Water Board staff. These records shall be retained by the Discharger for a minimum of 3 years. The minimum period of retention shall be extended during the course of any unresolved litigation regarding the subject discharges, or when requested by the Regional Water Board or by the Regional Administrator of U.S. EPA, Region IX.

Records to be maintained shall include the following:

1. Parameter Sampling and Analyses, and Observations.

For each sample, analysis or observation conducted, records shall include the following:

- a. Identity of parameter
- b. Identity of sampling or observation station, consistent with the station descriptions given in this SMP.
- c. Date and time of sampling or observation.
- d. Method of sampling (grab, composite, other method). Date analysis started and completed, and name of personnel or contract laboratory performing the analysis.
- e. Reference or description of procedure(s) used for sample preservation and handling, and analytical method(s) used.
- f. Calculations of results.
- g. Analytical method detection limits and related quantitation parameters.
- h. Results of analyses or observations.

2. Flow Monitoring Data.

For all required flow monitoring (e.g., influent and effluent flows), records shall include the following:

- a. Total flow or volume, for each day.
- b. Maximum, minimum and average daily flows for each calendar month.

3. Wastewater Treatment Process Solids.

- a. For each treatment unit process which involves solid removal from the wastewater stream, records shall include the following:
 - (1). Total volume and/or mass quantification of solids removed from each unit (e.g., grit, skimmings, undigested sludge), for each calendar month; and
 - (2). Final disposition of such solids (e.g., landfill, other subsequent treatment unit).
- b. For final dewatered sludge from the treatment plant as a whole, records shall include the following:

- (1). Total volume and/or mass quantification of dewatered sludge, for each calendar month;
Solids content of the dewatered sludge; and
- (2). Final disposition of dewatered sludge (point of disposal location and disposal method).

4. Disinfection Process.

For the disinfection process, records shall be maintained documenting process operation and performance, including the following:

a. For bacteriological analyses:

- (1). Date and time of each sample collected;
- (2). Wastewater flow rate at the time of sample collection;
- (3). Results of sample analyses (coliform count);
- (4). Required statistical parameters of cumulative coliform values (e.g., moving median or geometric mean for number of samples or sampling period identified in waste discharge requirements).

b. For chlorination process, at least daily average values for the following:

- (1). Chlorine residual in contact basin (mg/L);
- (2). Chlorine dosage (kg/day);
- (3). Dechlorination chemical dosage (kg/day)

5. Treatment Process Bypasses.

A chronological log of all treatment process bypasses, other than wet weather bypasses addressed elsewhere in this permit and SMP, including the following:

- a. Identification of treatment process bypassed;
- b. Date(s) and times of bypass beginning and end;
- c. Total bypass duration;
- d. Estimated total volume;
- e. Description of, or reference to other report(s) describing, bypass event, cause, corrective actions taken, and any additional monitoring conducted.

6. Collection System Overflows

A chronological log of all collection system overflows, including the following:

- a. Location of overflow;
- b. Date(s) and times of overflow beginning and end;
- c. Total overflow duration;
- d. Estimated total volume;
- e. Description of, or reference to other report(s) describing, overflow event, cause, corrective actions taken, and any additional monitoring conducted.

IV. ADDITIONS TO PART A OF SELF-MONITORING PROGRAM

Reporting Data in Electronic Format:

The Discharger has the option to submit all monitoring results in electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit the SMRs electronically, the following shall apply:

- a. *Reporting Method:* The Discharger shall submit SMRs electronically via the process approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS).
- b. *Modification of reporting requirements:* Reporting requirements F.4 in the attached *Self-Monitoring program, Part A*, dated August 1993, shall be modified as follows. In the future, the Regional Water Board intends to modify Part A to reflect these changes.
- c. *Monthly Report Requirements:* For each calendar month, a self-monitoring report (SMR) shall be submitted to the Regional Water Board in accordance with the following:
 - i. The report shall be submitted to the Regional Water Board no later than the first day of the second month after the reporting period ends.
 - ii. *Letter of Transmittal:* Each report shall be submitted with a letter of transmittal. This letter shall include the following:
 - (1) Identification of all violations of effluent limits or other discharge requirements found during the monitoring period;
 - (2) Details of the violations: parameters, magnitude, test results, frequency, and dates;
 - (3) The cause of the violations;
 - (4) Discussion of corrective actions taken or planned to resolve violations and prevent recurrence, and dates or time schedule of action implementation. If previous reports have been submitted that address corrective actions, reference to such reports is satisfactory;
 - (5) If the Discharger wishes to invalidate any measurement, the letter of transmittal will include: a formal request to invalidate the measurement; the original measurement in question; the reason for invalidating the measurement; all relevant documentation that supports the invalidation (e.g., laboratory sheet, log entry, test results, etc.); and discussion of the corrective actions taken or planned (with a time schedule for completion), to prevent recurrence of the sampling or measurement problem. The invalidation of a measurement requires the approval of Regional Water Board staff, and will be based solely on the documentation submitted at this time.
 - (6) *Signature:* The letter of transmittal shall be signed by the Discharger's principal executive officer or ranking elected official, or duly authorized representative, and shall include the following certification statement:

"I certify under penalty of law that this document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. 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."

- (7) Compliance evaluation summary: Each report shall include a compliance evaluation summary. This summary shall include the number of samples in violation of applicable effluent limits.
- (8) Results of analyses and observations.
- (9) Tabulations of all required analyses and observations, including parameter, sample date, sample station, and test result.
- (10) If any parameter is monitored more frequently than required by this permit and SMP, the results of this additional monitoring shall be included in the monitoring report, and the data shall be included in data calculations and compliance evaluations for the monitoring period.
- (11) Calculations for all effluent limits that require averaging of measurements shall utilize an arithmetic mean, unless specified otherwise in this permit or SMP.

V. MONITORING METHODS AND MINIMUM DETECTION LEVELS

The Discharger may use the methods listed in the August 6, 2001 Letter or alternate test procedures that have been approved by the U.S. EPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5 (revised as of May 14, 1999).

VI. SELF-MONITORING PROGRAM CERTIFICATION

I, Bruce H. Wolfe, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

- A. Has been developed in accordance with the procedure set forth in this Regional Water Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Water Board Order No. R2-2005-XXXX.
- B. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Discharger, and revisions will be ordered by the Executive Officer.
- C. Is effective as of June 16, 2005.

BRUCE H. WOLFE
EXECUTIVE OFFICER