

**CALIFORNIA REGIONAL WATER QUALITY  
CONTROL BOARD**

**SAN FRANCISCO BAY REGION**

**ORDER NO. 01-071**

**NPDES PERMIT NO. CA0037541**

**CITY OF SAN MATEO, WASTEWATER TREATMENT PLANT,  
SAN MATEO COUNTY**

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

**ORDER NO. 01-071                      NPDES PERMIT NO. CA0037541  
REISSUING WASTE DISCHARGE REQUIREMENTS FOR:**

**CITY OF SAN MATEO WATER QUALITY CONTROL PLANT  
SAN MATEO, SAN MATEO COUNTY**

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

- 1) *Discharger and Permit Application.* The City of San Mateo Water Quality Control Plant (the Discharger), has applied to the Board on September 14, 1999 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).
- 2) *Treatment Facilities.* The Discharger presently discharges an average year-round flow of approximately 13.8 million gallons per day (mgd), and an average dry weather flow of 12.6 MGD from its treatment plant. The treatment plant has a current dry weather design capacity of 15.7 mgd. and a peak wet weather flow capacity of approximately 40 mgd. The Discharger currently provides secondary treatment from October 1 until April 30 (the winter months) and advanced-secondary treatment from May 1 through September 30 (discretionary operation as necessary to meet dry weather discharge requirements during the summer months). Treatment facilities consist of primary clarifiers, aeration tanks, final clarifiers, pressure filters (during the summer months), chlorination, and dechlorination. Sludge is thermally treated, dewatered using vacuum filters, and disposed of in a permitted landfill. This plant treats domestic and commercial wastewater from the City of San Mateo, the City of Foster City, the Town of Hillsborough, and portions of the City of Belmont and unincorporated San Mateo County (the Discharger's service area). The Discharger serves a total population of approximately 133,000. The treated wastewater is discharged into the deep water channel of lower San Francisco Bay, a water of the State and United States, at a point approximately 3,700 feet offshore and 500 feet north of the San Mateo-Hayward Bridge (Latitude 37 deg., 34 min., 50 sec.; longitude 122 deg., 14 min., 45 sec.) through a submerged diffuser at a depth of 41 feet below mean lower low water. The outfall is designed to provide an initial dilution of approximately 40:1 (ratio of receiving water to discharge).
- 3) *Waste Discharge Requirements.* The discharge is presently regulated by Waste Discharge Requirements Order No. 95-055, adopted by the Board on March 15, 1995 (Order No. 95-055), and as amended by Waste Discharge Requirements Order 98-089, adopted by the Board on September 16, 1998 (Order No. 98-089), which allows discharge into San Francisco Bay.
- 4) *Coliform Organism Limitations.* The Water Quality Control Plan, San Francisco Bay Region (the Basin Plan), allows fecal coliform organisms limitations to be substituted for total coliform organisms limitations provided the Discharger demonstrates that there is no unacceptable adverse impact on the beneficial uses of the receiving water (the Basin Plan, pg. 4-69, Table 4-2 footnote (d)). In January 1997, the Discharger initiated a study to measure the effect of reduced chlorine residual on fecal coliform detections in the effluent and in the off-shore and shoreline receiving waters. The Discharger submitted study results in January 1998 concluding there was no discernible relationship between the discharger's effluent fecal coliform levels and receiving water fecal

coliform levels. Order No. 98-089 amended the discharger's original Order, replacing total coliform limitations with fecal coliform limitations.

- 5) *Collection System.* The discharger's wastewater collection system includes approximately 257 miles of sanitary sewer lines (gravity lines and force mains), and 23 pump stations.
- 6) *Solids Handling and Disposal.* The Discharger currently disposes all its sludge at the Richmond Landfill. The Discharger initiated Phase II expansion in September 2000, consisting of a second anaerobic digester and new dewatering facilities to replace the existing solids processing system. This project is scheduled for completion in spring of 2003.
- 7) *Wastewater Reclamation.* The Discharger currently only reclaims treated wastewater for in-plant process use. The Regional Board encourages the Discharger to investigate the feasibility of increasing wastewater reclamation within its service area to such uses as landscape irrigation, golf course irrigation, and new development irrigation.

### TREATMENT PLANT STORMWATER DISCHARGES

- 8) *Stormwater Discharge Regulations.* Federal stormwater discharge regulations were promulgated by the United States Environmental Protection Agency (U.S. EPA) on November 19, 1990, and are contained in Title 40 of the Code of Federal Regulations, Parts 122, 123, and 124 (40 CFR Parts 122, 123, and 124). These regulations require specific categories of industrial activity (industrial stormwater) to obtain an NPDES permit and to control pollutants in their stormwater discharges by implementing Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT).
- 9) *Facility Flows.* Stormwater flows from most of the discharger's wastewater treatment facility process areas are directed to the treatment plant headworks and treated along with regular wastewater flows to the treatment plant. Some of the stormwater from the facility flows offsite to the Seal Slough. The discharger samples this creek regularly under the requirements of the General Industrial Stormwater Permit.

### REGIONAL MONITORING PROGRAM

- 10) Regional Board Resolution No. 92-043, adopted on April 15, 1992, directs the Executive Officer to implement a regional monitoring program for the San Francisco Bay estuary (the Bay). After public hearing and various meetings, Regional Board staff requested major NPDES permit holders in this region to report on the water quality of the estuary. This request was made under authority of section 13267 of California Water Code. These permit holders, including the Discharger, are complying with this request by participating in a collaborative effort with San Francisco Estuary Institute (formerly the Aquatic Habitat Institute). This collaborative effort is the San Francisco Bay Regional Monitoring Program for Trace Substances (the RMP). The RMP includes collecting data on pollutants and toxicity in water, sediment and biota of the estuary, and submitting annual reports to the Regional Board. This Order references RMP annual reports, and requires the Discharger to continue to participate in the RMP.

### APPLICABLE PLANS, POLICIES AND REGULATIONS

- 11) *Basin Plan.* The Basin Plan is the Regional Board's updated and consolidated master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board (the State Board) and the Office of Administrative Law (OAL) on July 20, 1995 and November 13, 1995 respectively. A summary of regulatory provisions is contained in Title 23,

Section 3912 of the California Code of Regulations. The Basin Plan identifies beneficial uses for waters of the State in the Region, including surface waters and groundwater (see Finding 13, below). The Basin Plan also identifies water quality objectives, and establishes discharge prohibitions and effluent limitations to protect beneficial uses. This Order implements the plans, policies and provisions of Basin Plan.

- 12) *Beneficial Uses*. The Basin Plan identifies the following Beneficial uses for lower San Francisco Bay and contiguous waters, as *identified* in the Basin Plan and based on known uses of the receiving waters in the vicinity of the discharges, are:
- Industrial Service Supply
  - Industrial Process Supply
  - Navigation
  - Water Contact Recreation
  - Non-contact Water Recreation
  - Ocean Commercial and Sport Fishing
  - Wildlife Habitat
  - Preservation of Rare and Endangered Species
  - Fish Migration
  - Fish Spawning
  - Shellfish Harvesting
  - Estuarine Habitat.
- 13) *State Implementation Policy (SIP) and California Toxics Rule (CTR)*. The State Water Board and the OAL adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy – SIP) on March 2, 2000 and April 28, 2000, respectively. The SIP establishes implementation provisions for priority pollutant criteria and objectives contained in the U.S. EPA's National Toxics Rule, the U.S. EPA's California Toxics Rule (CTR), and the Regional Boards' Basin Plans. The SIP also establishes monitoring requirements for 2,3,7,8-TCDD equivalents and chronic toxicity control provisions.

#### **BASIS FOR EFFLUENT LIMITATIONS**

- 14) *Applicability*. This Order applies effluent limitations to the subject discharge pursuant to sections 301 through 305, and Section 307 of the Federal Water Pollution Control Act, as amended.
- 15) *Authority*. This Order contains effluent limitations based on:
- the SIP;
  - the Basin Plan;
  - the California Toxics Rule
  - the U.S. EPA's *Quality Criteria for Water*, 440/5-85-001, 1986, as amended (U.S. EPA 440/5-86-001, 1986 and subsequent amendments, U.S. EPA) (the Gold Book);
  - applicable Federal Regulations (40 CFR Parts 122 and 131)

- the National Toxics Rule, as amended (57 FR 60848, 22 December 1992 and 40 CFR Part 131.36(b), amended in Federal Register Volume 60, Number 86, 4 May 1995, pages 22229-22237) (the NTR),
- Best Professional Judgment (BPJ) as defined in the Basin Plan and described in Finding 17, below.

Title 40 CFR, part 122.44(d) specifies that where numeric effluent limitations have not been established in the Basin Plan, the CTR or the NTR, water quality based effluent limitations (WQBELs) may be set based on U.S. EPA criteria and supplemented where necessary by other relevant information to attain and maintain narrative water quality criteria to fully protect identified beneficial uses. This Order's associated Fact Sheet discusses the specific basis and rationale for effluent limitations, and is incorporated as part of this Order.

16) *Best Professional Judgment* The U.S. EPA guidance documents upon which BPJ is developed include:

- Technical Support Document for Water Quality Based Toxics Control March 1991,
- U.S. EPA Region 9 Guidance For NPDES Permit Issuance February 1994,
- Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria October 1, 1993,
- Whole Effluent Toxicity (WET) Control Policy July 1994,
- National Policy Regarding Whole Effluent Toxicity Enforcement, August 14, 1995,
- Clarifications Regarding Flexibility in 40 CFR Part 136 Whole Effluent Toxicity (WET) Test Methods, April 10, 1996,
- Interim Guidance for Performance - Based Reductions of NPDES Permit Monitoring Frequencies April 19, 1996,
- U.S. EPA Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Programs Final May 31, 1996,
- Draft Whole Effluent Toxicity (WET) Implementation Strategy February 19, 1997.

17) *Applicable Water Quality Objectives*. The Basin Plan includes numeric Water Quality Objectives (WQOs) and the following narrative toxicity WQO to protect beneficial uses:

"All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms".

The CTR includes a comprehensive list of numeric WQOs for inorganics and organics. This Order applies the CTR numeric WQOs to the subject discharge, except where they are superseded by applicable Basin Plan WQOs. The Basin Plan directs that BPJ will be used in deriving numerical effluent limitations that will ensure attainment of narrative WQOs prior to formal adoption or promulgation of applicable WQO's. The effluent limitations and provisions contained in this Order are designed to implement these narrative objectives, based on available information.

18) *Receiving Water Salinity*. The subject discharge's receiving waters are lower San Francisco Bay, as described in Finding 2, above (the receiving waters). The receiving waters are tidally influenced salt waters, with significant fresh water inflows during wet weather. The CTR states that the receiving water's salinity characteristics (i.e., fresh water vs. marine water) shall be considered in establishing water quality objectives. Freshwater water quality objectives (WQOs) apply for discharges to waters with salinities lower than 1 part per thousand (ppt) at least 95 percent of the time. Saltwater (marine) WQOs apply for discharges to waters with salinities greater than 10 ppt at least 95 percent of the

time in a normal water year. For discharges to waters with salinities between these two concentrations, or to tidally-influenced fresh waters that support estuarine beneficial uses, applicable WQOs shall be the lower of the marine or freshwater WQOs, considering ambient hardness, for each substance. Regional Board staff assessed salinity data obtained from the two RMP stations nearest to the outfall, San Bruno Shoal and Redwood Creek, for the period from 1993 to 1998 to determine the receiving waters' salinity. This assessment indicates the receiving waters are marine by the CTR's definition. Therefore, this Order's effluent limitations are based on the marine water quality objectives (WQOs) based on the receiving waters having salinities above 10 ppt more than 95% of the time. Finally, previous Order limits were also based on marine standards

- 19) *Receiving Water Ambient Background for Inorganic Constituents.* This Order utilizes ambient background values in the reasonable potential analysis and the effluent limit calculations. The SIP states that ambient background concentration shall be defined as either the observed maximum ambient water column concentration or the arithmetic mean of observed ambient water concentrations. The arithmetic mean is to be used when calculating effluent limitations based on human health WQO's. Regional Board staff determined maximum observed concentrations of inorganic constituents (CTR constituent numbers 1 – 15) in Central San Francisco Bay are most representative of ambient background conditions within the Bay, and selected ambient background concentrations accordingly. The Yerba Buena Island and Richardson Bay RMP monitoring stations (the two designated RMP ambient stations) located in the Central Bay have been sampled for inorganics since 1992. Regional Board staff used the RMP data set from 1992 through 1998 to determine the following ambient background concentrations for RPA and effluent limit calculation:

**Table 1. Ambient Background Concentrations-Total Values**

All concentrations in  $\mu\text{g/L}$

	Constituent									
	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc
Arithmetic Mean	1.86	0.064	1.44	1.8	0.29	0.003	2.10	0.12	0.01	2.37
Max Observed	2.46	0.13	4.4	2.45	0.8	0.006	3.5	0.39	0.07	4.6

The RMP does not sample for all the inorganic constituents, and Regional Board staff could not determine the ambient background values for those constituents not sampled. Provision 16 (below) requires the Discharger to determine ambient background for the unanalyzed constituents, either through participation in new RMP special studies, or through equivalent studies conducted jointly with other dischargers. Upon completion of the required ambient background monitoring, the Regional Board staff will use the improved data to conduct the RPA and determine if water quality-based effluent limitations (WQBEL's) are required, as described in Finding 30, below.

- 20) *Receiving Water Ambient Background for Organics (CTR Constituent Numbers 16-126).* The SIP procedures for identifying ambient background concentrations, the procedures for conducting reasonable potential analysis and calculating effluent limitations, and the applicability of data from the Central Bay to the receiving waters are the same for organic constituents (CTR numbers 16 – 126) as those outlined in Finding 19, above, for inorganic constituents. The RMP station at Yerba Buena Island has been sampled for organics since 1993. Regional Board staff used the RMP data set

from 1993 through 1998 for organic constituents to identify ambient background concentrations and utilized them in the RPA and determine if WQBELs are required. The organic ambient background concentrations are listed in Attachment D2 of this Order.

Similar to the case for inorganic constituents described in Finding 19, above, the RMP does not sample for all organic constituents. The applicability of Provision 16, below, the requirements for additional data gathering by the discharger and for the Regional Board's use of those data in conducting RPA's and determining the need for WQBELs is the same for organics as described for inorganics in Finding 19, above.

21) *Technology Based Effluent limitations.* Effluent limitations for conventional pollutants are technology based. Technology-based effluent limitations ensure that full secondary treatment is achieved by the wastewater treatment facility as required under 40 CFR Part 133.102. Conventional pollutants are defined by the Basin Plan (Table 4-2):

- Biochemical Oxygen Demand (BOD5);
- Total Suspended Solids (TSS);
- 85 % Removal of BOD5 and TSS
- Total Coliform Organisms
- pH
- Settleable Matter;
- Oil and Grease; and
- Chlorine Residual.

Under provisions of Title 40 CFR Part 133.102 (a) (4), Carbonaceous Biochemical Oxygen Demand (CBOD) may be substituted for BOD. Order No. 95-055 was amended by Order 98-89 to substitute CBOD for BOD. This Order establishes a technology-based effluent limitation for CBOD.

22) *Water Quality-Based Effluent limitations.* This Order revises and updates limits contained in the previous Order based on analysis of discharger's data and the results of the reasonable potential analysis. This Order includes WQBELs derived consistently with narrative and numeric WQO's contained in the Basin Plan, the U.S. EPA Gold Book, the NTR, the CTR, and/or BPJ. The SIP contains a methodology for developing WQBELs. The Fact Sheet attached to this Order contains additional details regarding the WQBELs.

### **Total Maximum Daily Loads**

23) *Purpose of Total Maximum Daily Loads* Section 303(d) of the Clean Water Act requires states to list impaired water bodies (the 303(d) list). Section 303(d) further requires that states prepare total maximum daily loads (TMDL's) for those 303(d)-listed water bodies which are not expected to attain water quality standards after implementation of technology-based effluent limitations on point sources (impaired water bodies). The 303(d) list is updated biannually and contains listings for each impaired water body and the constituent(s) for which it is impaired. On May 12, 1999, the U.S. EPA approved the State's 303(d) list and added dioxins, furans, and dioxin-like polychlorinated biphenyls (PCBs) to it. California's current 303(d) list includes lower San Francisco Bay, listed as impaired by:

- copper,
- mercury,
- nickel,
- exotic species,
- dioxin and furan compounds,
- Total PCB's,
- dioxin-like PCBs,
- chlordane,
- DDT,
- Dieldrin, and
- Diazinon.

- 24) *Impairment reassessment for copper and nickel.* The Discharger, together with other dischargers to lower San Francisco Bay, is performing additional monitoring and data analysis to determine if lower San Francisco Bay is impaired for copper and nickel in the 2002 303(d) listing cycle. Once the new information is gathered and analyzed, the Regional Board will reevaluate whether lower San Francisco Bay is impaired for copper and nickel.
- 25) *Assimilative Capacity.* In response to the State Board's recommendation (SB Order #2001-06), staff has evaluated the assimilative capacity of the receiving water for 303(d) listed pollutants and pollutants which San Mateo has reasonable potential. The evaluation included review of RMP data (local and Central Bay stations), effluent data and WQOs. From this evaluation, staff has found that the assimilative capacity is highly variable due to the complex hydrology of the receiving water. Therefore, there is uncertainty associated with the representativeness of the appropriate ambient background data to conclusively quantify the assimilative capacity of the receiving water. Pursuant to Section 1.4.2.1 of the SIP, "dilution credit may be limited or denied on pollutant-by-pollutant basis...". So for bioaccumulative pollutants, based on best professional judgment, dilution credit is not included in calculating the final WQBEL. However, in calculating the final WQBEL to facilitate the demonstration of feasibility to comply for non-bioaccumulative constituents, it is assumed there is assimilative capacity, and a 10:1 dilution is granted.
- 26) *TMDL Development Schedule* The Regional Board plans to adopt TMDLs for lower San Francisco Bay no later than 2010, except for the TMDL's for dioxin and furan compounds. The Regional Board defers development of TMDLs for dioxins and furans to the U.S. EPA. Future review of the 303(d) list for lower San Francisco Bay may revise the schedules, add other pollutants, and/or delist constituents.
- 27) *Waste Load Allocations and Load Allocations.* The TMDLs will include waste load allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and background and natural loadings. These allocations are intended to attain water quality standards for the 303 (d)-listed waterbodies. Final effluent limitations for 303(d) listed constituents in the subject discharge will be based on the WLAs and will be included in future revisions to this NPDES permit.
- 28) *TMDL Development Strategy* The Regional Board intends to follow these steps in developing TMDLs:

- a. Data collection – The Regional Board will request dischargers to collectively assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants in concentrations no greater than their water quality objectives. The Regional Board will require dischargers to characterize the pollutant loads from their facilities into the impaired waterbodies. The Regional Board will use the results in the developing TMDLs, and may also use them to revise the 303(d) list, and to change water quality standards for the impaired waterbodies.
- b. Funding mechanism – The Regional Board has received, and anticipates continuation to receive, resources from federal and state agencies for the development of TMDLs. To ensure timely development of TMDLs, The Regional Board intends to supplement these resources by allocating development costs among dischargers through the RMP or other appropriate funding mechanisms.
- c. Pursuant to Section 2.1.1 of the SIP, “the compliance schedule provisions for the development and adoption of a TMDL only apply when: ... (b) the discharger has made appropriate commitments to support and expedite the development of the TMDL. In determining appropriate commitments, the RWQCB should consider the discharge’s contribution to current loadings and the discharger’s ability to participate in TMDL development.” The discharger has agreed to assist the Board in TMDL development. One mechanism to demonstrate the commitment maybe for the discharger to enter into agreement with the Board staff to provide specific work products to complete TMDLs.

### Interim Limits and Compliance Schedules

29)

a.) Until final WQBELs or WLAs are adopted, state and federal anti-backsliding and antidegradation policies, and the SIP, require that the Regional Board include interim effluent limitations. The interim effluent limitations will be the lower of the following:

- current performance; or
- the previous order’s limits

This permit establishes interim performance-based mass limits in addition to interim concentration limits to limit discharge of 303(d)-listed bioaccumulative pollutants’ mass loads to their current levels. These interim performance-based mass limits are based on recent discharge data. Where pollutants have existing high detection limits (such as for total PCBs, Chlordane, DDT, Dieldrin, Dioxins and Furans, etc.), interim mass limits are not established because meaningful performance-based mass limits cannot be calculated for pollutants with non-detectable concentrations. However, the discharger is required to investigate alternative analytical procedures that result in lower detection limits, either through participation in new RMP special studies or through equivalent studies conducted jointly with other dischargers.

Compliance schedules are established based on Section 2.2 of the SIP for limits derived from CTR criteria or based on the Basin Plan for limits derived from the Basin Plan WQOs.

b.) If an existing discharger cannot immediately comply with a new and more stringent effluent limitation, the SIP and the Basin Plan authorize a compliance schedule in the permit. To qualify for a compliance schedule, both the SIP and the Basin Plan require that the discharger demonstrate that it is infeasible to achieve immediate compliance with the new limit. The SIP and Basin Plan require that the following information be submitted to the Board to support a finding of infeasibility:

- i. documentation that diligent efforts have been made to quantify pollutant levels in the discharge and sources of the pollutant in the waste stream, including the results of those efforts;
- ii. documentation of source control and/or pollution minimization efforts currently under way or completed;
- iii. a proposed schedule for additional or future source control measures, pollutant minimization or waste treatment; and
- iv. a demonstration that the proposed schedule is as short as practicable

c.) On May 23, 2001, the discharger submitted a feasibility study which demonstrated according to the Basin Plan (page 4-14, Compliance Schedule) and SIP (Section 2.1, Compliance Schedule), it is infeasible to immediately comply with the WQBELs, therefore, this permit establishes a five-year compliance schedule of June 30, 2006 for final limits based on CTR or NTR criteria (e.g., copper), a compliance schedule of May 18, 2010 for final limits based on the Basin Plan objectives (e.g., mercury). The June 30, 2006 and May 18, 2010 compliance schedules both exceed the length of the permit, therefore, these calculated final limits are intended for point of reference for the feasibility demonstration and are only included in the findings by reference to the fact sheet. Additionally, the actual final WQBELs for copper and mercury will very likely be based on either the SSO or TMDL/WLA as described in other findings specific to each of the pollutants.

d.) Pursuant to the SIP (Section 2.2.2, Interim Requirements for Providing Data), where available data are insufficient to calculate a final effluent limit (e.g., cyanide), a compliance schedule of May 18, 2003 is established. This Order contains a provision requiring the Discharger to conduct studies for data collection in the ambient background and to determine site specific objectives. The Discharger is required to fully implement the studies and submit reports to the Board by 2003. The Board intends to include, in a subsequent permit revision, a revised final limit based on the study required as an enforceable limit. However, if the discharger requests and demonstrates that it is infeasible to comply with the revised final limit, the permit revision will establish a maximum five-year compliance schedule.

During the compliance schedules, interim limits are included based on current treatment facility performance or on existing permit limits, whichever is more stringent to maintain existing water quality. The Board may take appropriate enforcement actions if interim limits and requirements are not met.

### Reasonable Potential Analysis

30) *Overview* Title 40 CFR Part 122.44(d) (1) (i) requires Orders 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," (have reasonable potential). Regional Board Staff used the existing effluent data and methods consistent with the SIP to conduct a reasonable potential analysis (RPA) and determine which pollutants, if any, in the subject discharge have reasonable potential.

- a. *Reasonable Potential Methodology.* The RPA identifies the observed maximum effluent concentration (MEC) for each pollutant based on effluent concentration data. The RPA then compares the MEC with applicable WQOs. There are two triggers for reasonable potential:

- i) The first trigger compares the MEC with the lowest applicable WQO, which has been adjusted for pH, hardness, and translator data, if appropriate. If the MEC is greater than the (adjusted) WQO, then that pollutant has reasonable potential, and a WQBEL is required.
  - ii) The second trigger applies if the MEC is less than the adjusted WQO or if 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. The observed background ambient concentration (B) for the pollutant is compared with the adjusted WQO. A WQBEL is required if B is greater than the adjusted WQO. If B is less than the WQO, then a limit is only required under certain circumstances as specified in Section 1.3 of the SIP:
- b. *Data Used For The RPA's.* This Order's RPA's are based on different data sets for different groups of pollutants:
- i) *Inorganics Effluent Data.* Regional Board staff evaluated effluent monitoring data for inorganics from January 1998 through December 2000. The following metals were detected in the discharged effluent above respective analytical detection limits: arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc. Regional Board staff conducted RPA's for these inorganic constituents.
  - ii) *Organics Effluent Data* For total phenols and cyanide there was adequate effluent data to use in the analysis from January 1998 to December 2000. For most other organic pollutants effluent data from 1995 to 2000 was used in the RPA. Some other organics contained insufficient effluent monitoring data to determine reasonable potential, and as a result provisions are included in the Order to expand the analytical list for effluent monitoring to include all organics referenced in the CTR(Listed in Table 2 of the SMP).
  - iii) *Receiving Water Data* Adequate ambient monitoring data exist for some constituents in receiving water. Regional Board staff used data for the two designated RMP ambient stations (Yerba Buena Island and Richardson Bay) from 1992 – 1998 for inorganic constituents, and data from 1993 – 1998 for organic constituents.
- c. *Summary of RPA Results.* The following table sets out the Water Quality Objective (WQOs), Maximum Effluent Concentrations (MECs), Ambient Background concentrations (B) and results of the RPA or data evaluation for all constituents in the CTR. Terms used in the table are defined as follows:

**TABLE 2**

Concentrations: given as micrograms per liter (µg/L) unless otherwise specified as picograms per liter (pg/L).

N/A: Concentration not available.

Reasonable Potential Analysis Results:

- Y: Reasonable Potential exists;
- N: Reasonable Potential does not exist;
- I<sub>d</sub>: Cannot be determined, detection limit(s) above WQO;
- I<sub>b</sub>: Cannot be determined, inadequate ambient background data;
- I<sub>o</sub>: Indeterminate objective concentration.

CTR No.	Constituent	MEC	Governing WQO	Back-ground	RPA Results
2	Arsenic	2.1	36	2.46	N
4	Cadmium	0.36	9.3	0.13	N
5	Chromium	11	50	4.4	N
6	Copper	29	3.7	2.45	Y
7	Lead	8.4	5.6	0.8	Y
8	Mercury	0.26	.025	0.006	Y
9	Nickel	27	7.1	3.5	Y
10	Selenium	1.5	5	0.39	N
11	Silver	2	2.24	0.068	N
13	Zinc	180	58	4.6	Y
14	Cyanide	8.4	1	NA	Y
16	2,3,7,8-TCDD (Dioxin) (303(d) listed)	NA	.014 pg/L	NA	
17	Acrolein	NA	780	NA	N, I <sub>d</sub> , I <sub>b</sub>
18	Acrylonitrile	NA	0.66	NA	N, I <sub>d</sub> , I <sub>b</sub>
19	Benzene	0.5	71	NA	N, I <sub>b</sub>
20	Bromoform	.5	360	NA	N, I <sub>b</sub>
21	Carbon Tetrachloride	.5	4.4	NA	N, I <sub>b</sub>
22	Chlorobenzene	.5	21,000	NA	N, I <sub>b</sub>
23	Chlordibromomethane	0.5	34	NA	N, I <sub>b</sub>
24	Chloroethane	.5	NA	NA	N, I <sub>o2</sub> , I <sub>b</sub>
25	2-Chloroethylvinyl Ether	1	NA	NA	N, I <sub>o2</sub> , I <sub>b</sub>
26	Chloroform	8.4	NA	NA	N, I <sub>o2</sub> , I <sub>b</sub>
27	Dichlorobromomethane	0.29	46	NA	N, I <sub>b</sub>
28	1,1-Dichloroethane	0.5	NA	NA	N, I <sub>o2</sub> , I <sub>b</sub>
29	1,2-Dichloroethane	0.5	99	NA	N, I <sub>b</sub>
30	1,1-Dichloroethylene	0.5	3.2	NA	N, I <sub>b</sub>
31	1,2-Dichloropropane	0.5	39	NA	N, I <sub>b</sub>
32	1,3-Dichloropropylene	0.5	1,700	NA	N, I <sub>b</sub>
33	Ethylbenzene	0.5	29,000	NA	N, I <sub>b</sub>
34	Methyl Bromide	0.5	4,000	NA	N, I <sub>d</sub> , I <sub>b</sub>
35	Methyl Chloride	NA	NA	NA	N, I <sub>o2</sub> , I <sub>b</sub>
36	Methylene Chloride	59	1,600	NA	N, I <sub>b</sub>
37	1,1,2,2-Tetrachloroethane	.5	11	NA	N, I <sub>b</sub>
38	Tetrachloroethylene	.5	8.85	NA	N, I <sub>b</sub>
39	Toluene	2	200,000	NA	N, I <sub>b</sub>
40	1,2-Trans-Dichloroethylene	.21	140,000	NA	N, I <sub>b</sub>
41	1,1,1-Trichloroethane	.2	NA	NA	N, I <sub>o2</sub> , I <sub>b</sub>
42	1,1,2-Trichloroethane	.2	42	NA	N, I <sub>b</sub>
43	Trichloroethylene	.2	81	NA	N, I <sub>b</sub>
44	Vinyl Chloride	.5	525	NA	N, I <sub>b</sub>
45	Chlorophenol	0.2	400	NA	N, I <sub>b</sub>
46	2,4-Dichlorophenol	0.26	790	NA	N, I <sub>b</sub>
47	2,4-Dimethylphenol	0.2	2,300	NA	N, I <sub>b</sub>
48	2-Methyl-4,6-Dinitrophenol	0.5	765	NA	N, I <sub>b</sub>

CTR No.	Constituent	MEC	Governing WQO	Back-ground	RPA Results
49	2,4-Dinitrophenol	.5	14,000	NA	N, I <sub>b</sub>
50	2-Nitrophenol	0.26	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
51	4-Nitrophenol	0.66	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
52	3-Methyl-4-Chlorophenol	0.1	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
53	Pentachlorophenol	0.5	7.9	NA	N, I <sub>b</sub>
54	Phenol	.94	4,600,000	NA	N, I <sub>b</sub>
55	2,4,6-Trichlorophenol	.2	6.5	NA	N, I <sub>b</sub>
56	Acenaphthene	0.1	2,700	0.0015	N
57	Acenaphthylene	0.1	NA	0.00053	N, I <sub>o</sub>
58	Anthracene	0.1	110,000	0.0005	N
59	Benzidine	NA	0.00054	NA	N, I <sub>d</sub> , I <sub>b</sub>
60	Benzo(a)Anthracene	NA	0.049	0.0053	N, I <sub>d</sub>
61	Benzo(a)Pyrene	NA	0.049	0.0025	N, I <sub>d</sub>
62	Benzo(b)Fluoranthene	NA	0.049	0.0046	N, I <sub>d</sub>
63	Benzo(ghi)Perylene	0.4	NA	0.006	N, I <sub>o</sub>
64	Benzo(k)Fluoranthene	NA	0.049	0.0015	N, I <sub>d</sub>
65	Bis(2-Chloroethoxy)Methane	1	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
66	Bis(2-Chloroethyl)Ether	1	1.4	NA	N, I <sub>b</sub>
67	Bis(2-Chloroisopropyl)Ether	0.2	170,000	NA	N, I <sub>b</sub>
68	Bis(2-Ethylhexyl)Phthalate	8.3	5.9	NA	Y
69	4-Bromophenyl Phenyl Ether	0.1	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
70	Butylbenzyl Phthalate	0.27	5,200	NA	N, I <sub>b</sub>
71	2-Chloronaphthalene	0.1	4,300	NA	N, I <sub>b</sub>
72	4-Chlorophenyl Phenyl Ether	0.1	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
73	Chrysene	NA	0.049	0.0041	N, I <sub>d</sub>
74	Dibenzo(a,h)Anthracene	NA	0.049	0.0006	N, I <sub>d</sub>
75	1,2 Dichlorobenzene	.29	17,000	NA	N, I <sub>b</sub>
76	1,3 Dichlorobenzene	0.57	2,600	NA	N, I <sub>b</sub>
77	1,4 Dichlorobenzene	0.46	2,600	NA	N, I <sub>b</sub>
78	3,3-Dichlorobenzidine	NA	0.077	NA	N, I <sub>b</sub> , I <sub>d</sub>
79	Diethyl Phthalate	0.34	120,000	NA	N, I <sub>b</sub>
80	Dimethyl Phthalate	0.1	2,900,000	NA	N, I <sub>b</sub>
81	Di-n-Butyl Phthalate	16	12,000	NA	N, I <sub>b</sub>
82	2,4-Dinitrotoluene	0.1	9.1	NA	N, I <sub>b</sub>
83	2,6-Dinitrotoluene	1.8	NA	NA	N, I <sub>o</sub>
84	Di-n-Octyl Phthalate	.29	NA	NA	N, I <sub>o</sub>
85	1,2-Diphenylhydrazine	NA	0.54	NA	N, I <sub>d</sub> , I <sub>b</sub>
86	Fluoranthene	0.1	370	0.007	N
87	Fluorene	0.1	14,000	0.002078	N
88	Hexachlorobenzene	NA	0.00077	NA	N, I <sub>d</sub> , I <sub>b</sub>
89	Hexachlorobutadiene	0.2	50	NA	N, I <sub>b</sub>
90	Hexachlorocyclopentadiene	0.2	17,000	NA	N, I <sub>b</sub>
91	Hexachloroethane	0.2	8.9	NA	N, I <sub>b</sub>
92	Indeno(1,2,3-cd) Pyrene	NA	0.049	0.004	N, I <sub>d</sub>
93	Isophorone	0.5	600	NA	N, I <sub>b</sub>

CTR No.	Constituent	MEC	Governing WQO	Back-ground	RPA Results
94	naphthalene	0.1	NA	0.00229	N, I <sub>o</sub>
95	Nitrobenzene	0.5	1,900	NA	N, I <sub>b</sub>
96	N-Nitrosodimethylamine	5	8.1	NA	N, I <sub>b</sub>
97	N-Nitrosodi-n-Propylamine	1.0	1.4	NA	N, I <sub>d</sub> , I <sub>b</sub>
98	N-Nitrosodiphenylamine	0.2	16	NA	N, I <sub>b</sub>
99	Phenanthrene	0.1	NA	0.0061	N, I <sub>o</sub>
100	Pyrene	0.1	11,000	0.0051	N
101	1,2,4-Trichlorobenzene	0.1	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
102	Aldrin	NA	0.00014	ND	N, I <sub>b</sub> , I <sub>d</sub>
103	alpha-BHC	0.002	0.013	0.0005	N
104	beta-BHC	0.004	0.046	0.0004	N
105	gamma-BHC	0.043	0.063	0.0007	N
106	delta-BHC	0.004	NA	0.0005	N, I <sub>o</sub>
107	Chlordane	NA	0.00059	0.00018	N, I <sub>d</sub>
108	4,4-DDT	NA	0.00059	0.000066	N, I <sub>d</sub>
109	4,4-DDE	NA	0.00059	0.00069	Y
110	4,4-DDD	NA	0.00084	0.000313	N, I <sub>d</sub>
111	Dieldrin (303(d) listed )	NA	0.00014	0.000264	Y
112	alpha-Endosulfan	0.002	0.0087	0.000031	N
113	beta-Endosulfan	0.004	0.0087	0.000069	N
114	Endosulfan Sulfate	0.006	240	0.000011	N
115	Endrin	NA	0.0023	0.000016	N, I <sub>d</sub>
116	Endrin Aldehyde	0.01	0.81	NA	N, I <sub>b</sub>
117	Heptachlor	NA	0.00021	0.000019	N, I <sub>d</sub>
118	Heptchlor Epoxide	0.015	0.00011	0.000094	N, I <sub>d</sub>
119-125	PCBs	NA	0.00017	NA	N, I <sub>d</sub>
126	Toxaphene	NA	0.0002	NA	N, I <sub>b</sub> , I <sub>d</sub>
	Tributyltin	0.016	0.010	NA	Y

d. *Specific RPA Results.* Based on the results summarized in the table above, Regional Board staff carried out the specific RPA's described below.

- i) *Phenols.* The Basin Plan contains a numeric WQO for total phenol of 500 µg/L. The CTR contains a numeric total phenol WQO of 4,600,000 µg/L for protection of human health based on organism consumption. The CTR includes WQO's for both total and individual phenol constituents (see Table, above). The currently available data do not permit a determination of the ambient background concentrations of total and individual phenols. Due to the low historic concentrations of total and individual phenols in the effluent, WQBELs are not required for them, based on the first trigger of the RPA. The second trigger of the RPA cannot be determined due to the lack of ambient background data for phenols. However, the CTR and SIP require that sufficient ambient data be gathered to complete the RPAs for individual and total phenols. Provisions 11 and 14 in this Order require the Discharger to monitor the effluent and receiving water for total phenol and individual phenols for which the WQO may be lower than the total phenol WQO contained in the Basin Plan. Upon completion of the required ambient background monitoring,

Regional Board staff will use the data to complete the RPA for individual phenols (CTR Constituent Numbers 45-53, 55) and determine if WQBELs are required.

ii) *Dioxin.*

- (1) The CTR establishes a numeric human health WQO of 0.14 picograms per liter (pg/l) for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) based on consumption of aquatic organisms.
- (2) The preamble of the CTR states that California NPDES permits should use toxicity equivalents (TEQs) where dioxin-like compounds have reasonable potential with respect to narrative criteria. The preamble further states that U.S. EPA intends to use the 1998 World Health Organization Toxicity Equivalence Factor (TEF)<sup>1</sup> scheme in the future and encourages California to use this scheme in State programs. Additionally, the CTR preamble states U.S. EPA's intent to adopt revised water quality criteria guidance subsequent to their health reassessment for dioxin-like compounds.
- (3) The SIP applies to all toxic pollutants, including dioxins and furans. The SIP requires a limit for 2,3,7,8-TCDD if a limit is necessary, and requires monitoring for a minimum of 3 years by all major NPDES dischargers for the other sixteen dioxin and furan compounds.

- (4) The Basin Plan contains a narrative WQO for bio-accumulative substances:

"Many pollutants can accumulate on particulates, in sediments, or bio-accumulate 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 scientific community's consensus that these compounds associate with particulates, accumulate in sediments, and bio-accumulate in the fatty tissue of fish and other organisms.

- (5) The U.S. EPA's 303(d) listing determined that the narrative objective for bio-accumulative pollutants was not met because of the levels dioxins and furans in the fish tissue.
  - (6) The Discharger has monitored infrequently for dioxins and furans, and there is little effluent data to conduct an RPA or calculate an interim limit. Pursuant to the SIP, the Discharger will be required to monitor for dioxins and furans. Once there is enough information an RPA will be conducted to determine if limits are required.
- iii) *Polynuclear Aromatic Hydrocarbons (PAHs).* The RPA was conducted on individual PAHs not total PAHs, as required by the SIP and CTR. The effluent monitoring data set is based on semiannual sampling from 1995 to 2000, and many of the concentrations were reported as non-detected with detection limits higher than the WQO's. Based on BPJ, this is insufficient data to determine reasonable potential. Provision 13 requires the discharger to characterize the effluent for individual PAH constituents listed in Table 2 of the SMP

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<sup>1</sup> 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.

with improved detection limits. Upon completion of the required effluent monitoring, the Board shall use the gathered data to complete the RPA for all individual PAH constituents (as listed in the CTR) and determine if a water quality-based effluent limitation is required.

- iv) *4,4 DDE*. Regional Board staff could not determine an MEC for 4,4 DDE because it was not detected in the effluent, and all of the detection limits are higher than lowest WQO (Sec. 1.3 of the SIP). Regional Board staff conducted the 4,4 DDE RPA by comparing the WQO with RMP ambient background concentration data gathered using research-based sample collection, concentration, and analytical methods. The RPA indicates that 4,4 DDE has reasonable potential, and a numeric WQBEL is required.

The current 303(d) list includes the Lower Bay as impaired for DDT; 4,4 DDE is chemically linked to the presence of DDT. The Regional Board intends to develop a TMDL that will lead towards overall reduction of 4,4-DDE. The water quality-based effluent limit specified in this Order may be changed to reflect the WLAs from this TMDL. To assist the Board in developing TMDL, the discharger shall participate in a special study, through the RMP, or other mechanism, to investigate the feasibility and reliability of different methods of increasing sample volumes to lower the detection limit for these compounds.

Furthermore, the discharger shall have the preferred method approved by US EPA. If analytical methodologies improve and the detection levels decrease to a point that show discharge concentrations above the limit in this Order, the Board will re-evaluate the Discharger's feasibility to comply with the limit and determine the need for a compliance schedule and interim performance limits at that time.

Since 4,4-DDE is bioaccumulative and on the 303(d) list due to fish tissue concentrations, there is no assimilative capacity, and no dilution credit was allowed in the final limit calculation.

- v) *Dieldrin*. An MEC could not be determined for Dieldrin because the pollutant was not detected in the effluent, and all of the detection limits are greater than lowest WQO. Regional Board staff conducted the Dieldrin RPA by comparing the WQO with RMP ambient background concentration data gathered using research-based sample collection, concentration, and analytical methods. The RPA indicates that Dieldrin has reasonable potential, and a numeric WQBEL is required.

The current 303(d) list includes the Lower Bay as impaired for Dieldrin. The Regional Board intends to develop a TMDL that will lead towards overall reduction of Dieldrin. The water quality-based effluent limit specified in this Order may be changed to reflect the WLAs from this TMDL. To assist the Board in developing TMDL, the discharger shall participate in a special study, through the RMP, or other mechanism, to investigate the feasibility and reliability of different methods of increasing sample volumes to lower the detection limit for dieldrin. Furthermore, the discharger shall have the preferred method approved by US EPA. If analytical methodologies improve and the detection levels decrease to a point that show discharge concentrations above the limit in this Order, the Board will re-evaluate the Discharger's feasibility to comply with the limit and determine the need for a compliance schedule and interim performance limits at that time.

Since Dieldrin is bioaccumulative and on the 303(d) list due to fish tissue concentrations, there is no assimilative capacity, and no dilution credit was allowed in the final limit calculation.

- vi) *Other organics* The Discharger has generally performed organics sampling twice a year over the past few years under their pretreatment program. This sampling effort has covered

most of the organic constituents listed in the CTR. This data set was used to perform the RPA for other organics. The full RPA is presented as an attachment in the Fact Sheet. In most cases (about 100 out of the 126 priority pollutants), reasonable potential cannot be determined because detection limits are higher than the lowest WQO's and/or ambient background concentrations are not available. The Discharger will continue to monitor for these constituents in the effluent and the receiving water using analytical methods that provide the best feasible detection limits. When sufficient data are available, a reasonable potential analysis will be conducted to determine whether to add numeric effluent limitations to the Order or to continue monitoring.

- vii) *Monitoring.* This Order does not include effluent limitations for constituents that do not show a reasonable potential, but continued monitoring for them is required as described in the SMP. If concentrations of these constituents increase significantly the Discharger will be required to investigate the source of the increases and establish remedial measures if the increases result in a reasonable potential to cause or contribute to an excursion above the applicable water quality standard.
- viii) *Permit Reopener.* The Order includes a reopener provision to allow numeric effluent limitations to be added or deleted in the future for any constituent that exhibits or does not exhibit, respectively, reasonable potential. This determination will be made by The Regional Board, based on monitoring results.

### Development of Effluent Limitations

#### 31) Copper

- a. *Water Quality Objectives.* The CTR contains a numeric WQO for dissolved copper in salt water of 3.1 µg/L. The CTR also includes conversion factors (translators) to convert the dissolved metals objectives to total metals objectives. The discharger may perform a translator study to determine a more site-specific translator. The SIP, Section 1.4.1, and the June 1996 U.S. EPA guidance document The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion describe this process.
- b. *Water Effects Ratios.* The CTR provides for adjusting the criteria by deriving site-specific objectives (SSOs) through application of the water-effect ratio (WER) procedure. The U.S. EPA includes WERs to assure that the metals criteria are appropriate for the chemical conditions under which they are applied. A WER accounts for differences between a metal's toxicity in laboratory dilution water and its toxicity in water at the site. The U.S. EPA's February 22, 1994 Interim Guidance on Determination and Use of Water Effects Ratios for Metals superseded all prior U.S. EPA guidance on this subject. If the Discharger decides to pursue SSOs, they shall be developed in accordance with procedures contained in Section 5.2 of the SIP.
- c. *Effluent Limitations.* This Order contains a copper WQBEL because the 1998 303(d) list includes Lower San Francisco Bay as impaired by copper, and because the RPA determined that copper in the subject discharge has reasonable potential. The Discharger and other dischargers from north of the Dumbarton Bridge are currently conducting impairment assessment studies designed to collect additional data on copper in Lower San Francisco Bay. The Regional Board will consider these studies in its 303(d) listing decision in 2002, and when considering any SSO proposed for copper. The final WQBEL for copper will be based on the WLA contained in a TMDL if one is completed. Alternatively, if the discharger pursues, the copper WQBEL will be developed consistent with: SIP procedures (Section 5.2) if the impairment studies support adoption of an SSO, a finding that the Bay is not impaired by copper, and delisting of Lower San Francisco Bay

for copper. Existing RMP dissolved copper results show most of the Bay north of the Dumbarton Bridge complies with the CTR's 3.1 µg/L dissolved copper WQO. The SIP requires the interim numeric effluent limit for the pollutant to be based on either current treatment facility performance, or on the previous Order limitation, whichever is more stringent. This Order establishes an interim performance-based copper limit of 33.1 µg/L for the subject discharge, which is more stringent than the prior Order limit of 37 µg/L.

- d. *Treatment Plant Performance and Compliance Attainability.* Effluent concentrations during the past three years (1998-2000) range from 2.1 to 29 µg/L (36 samples). The subject discharge to lower San Francisco Bay has consistently complied with the previous Order limit of 37 µg/L.

### 32) Mercury

- a. *Mercury Water Quality Objectives* The national chronic criterion for mercury aims at protecting human health by limiting the bioaccumulation of methyl-mercury in fish and shellfish to levels that are safe for human consumption. The Gold Book describes the derivation of the mercury criteria. The fresh water mercury criterion is based on a Final Residual Value of 0.012 µg/L derived from the bioconcentration factor (BCF) of 81,700 for methyl mercury with the fathead minnow, assuming that essentially all discharged mercury is methyl-mercury. The 1986 Basin Plan listed the saltwater criterion of 0.025 µg/L was similarly derived using a BCF of 40,000 for methyl-mercury with the eastern oyster. The CTR adopted a dissolved mercury WQO of 0.05 µg/L for protection of human health. However, Footnote b in the CTR's Table of Criteria for Priority Toxic Pollutants states

“ criteria apply to California water except for those waters subject to objectives in Table III-2A and III-2B of the San Francisco Regional Water Quality Control Board's (SFRWQCB) 1986 Basin Plan, that were adopted by the SFRWQCB and the State Board, approved by U.S. EPA, and which continue to apply.”

Thus, while ambient background concentrations of mercury in Lower San Francisco Bay are below both fresh- and salt-water aquatic species WQOs, the more stringent WQOs intended to protect human consumption of fish and shellfish apply.

- b. *Mercury TMDL.* The current 303(d) list includes Lower San Francisco Bay as impaired by mercury, due to exceedences in fish tissue levels. Methyl-mercury is a persistent bioaccumulative pollutant. The Regional Board intends to develop a TMDL that will reduce mercury mass loadings in Lower San Francisco Bay. The final mercury effluent limitations will be based on the Discharger's WLA in the TMDL. As discussed in Finding 30, above, the final effluent limitation for a bioaccumulative pollutant will be a WQBEL derived from a WLA contained in an adopted TMDL.
- c. *Mercury Control Strategy.* Regional Board staff is developing a TMDL to control mercury levels in San Francisco Bay. The Regional Board, together with other stakeholders, will cooperatively develop source control strategies as part of TMDL development. Municipal discharge point sources may not be the most significant mercury loadings to the Estuary. Therefore, the currently preferred strategy is applying 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 concentration and mass loading effluent limitations for mercury, as described in Paragraphs d, e, and f, below. The Discharger is required to implement source

control measures and cooperatively participate in special studies as described in Paragraph g, below.

- d. *Concentration-Based Effluent Limitation.* This Order establishes an interim monthly average limit for mercury based on staff's analysis of the performance of over 20 secondary treatment plants in the Bay Area. This analysis is described in a Board staff report titled "Staff Report, Statistical Analysis of Pooled Data from Regionwide Ultraclean Mercury Sampling". The objective of the analysis is to provide an interim concentration limit that characterizes regional facility performance using only ultra-clean data and compliance of which will ensure no further degradation of the receiving water quality resulting from the discharge. The conclusions of the report demonstrate that the statistical performance based mercury limit for a secondary plant is 87 ng/L, and for an advanced secondary plant is 23 ng/L. Therefore, because of the seasonal variation in treatment described in Finding 2, San Mateo receives the secondary value of 87 ng/L from October through April, and the advanced secondary value of 23 ng/L from May through September. Based on Board staff's report titled "Watershed Management of Mercury in the San Francisco Bay Estuary: Total Maximum Daily Load Report to U.S. EPA," dated June 30, 2000, municipal sources are a very small contributor of the mercury load to the Bay. Because of this, it is unlikely that the TMDL will require reduction efforts beyond the source controls required by this permit.
- e. *Mass-Based Effluent Limitations.* This Order establishes a mercury mass-based effluent limitation of 0.15 kilograms per month (Effluent Limitations - Section B.6.a). This mass-based effluent limitation is calculated using the formulas given in Effluent Limitations Section B.6, below. This mass based effluent limitation maintains 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.
- f. *Treatment Plant Performance and Compliance Attainability.* Effluent daily maximum mercury concentrations during 1998-2000 ranged from 0.008 to 0.26  $\mu\text{g/L}$ , and averaged 0.039  $\mu\text{g/L}$  (36 samples). The effluent discharged to lower San Francisco Bay consistently complied with the previous Order's limits of 1  $\mu\text{g/L}$  daily maximum, and 0.21  $\mu\text{g/L}$  monthly average, and compliance with this Order's effluent limitations is attainable.
- g. *Source Control and Special Studies.* Provision 7 below requires the Discharger to develop and implement a source control program if necessary to comply with the mercury mass and concentration loading limits outlined in Effluent Limit B.6 and B.8. The source control program should maximize the Discharger's control over mercury sources in its influent, and should optimize costs and benefits. The source control program will also evaluate the Discharger's ability to consistently comply with concentration and mass loading limits, and to reduce any significant, controllable sources of mercury impairment of the receiving waters. The Discharger should continue cooperating with other municipal dischargers in broader efforts to maximize mercury source control and pollution prevention efforts, assess alternatives for reducing mercury loading to receiving waters, and protect their beneficial uses. This Order contains a time schedule for the mercury source control program.

### 33) Nickel

- a. *Water Quality Objectives.* The Basin Plan contains a numeric water quality objective for total nickel of 7.1  $\mu\text{g/L}$ . No translator value is needed.
- b. *Effluent Limitations.* Based on the comparison of MEC and the AMEL calculated based on Section 1.4 of the SIP, the discharger can comply with the final WQBEL. The final WQBEL

may be revised based on TMDL/WLA or SSO and translator. The current 303(d) list includes Lower San Francisco Bay as impaired by nickel. As noted in Finding 24, above, The Discharger is participating in impairment assessment studies aimed at gathering additional data on nickel concentration in Lower San Francisco Bay. The Regional Board will consider these studies in its 303(d) listing decision in 2002, and when considering any SSO proposed for nickel. Existing RMP dissolved nickel results show most of the Bay north of the Dumbarton Bridge is in compliance with the CTR's dissolved nickel WQO of 8.2 µg/L.

- c. *Treatment Plant Performance and Compliance Attainability.* Effluent concentrations during the past three years (1998 - 2000) range from 0.5 to 27 µg/L (36 samples). The average monthly value was 5.3 µg/L. The subject discharge to lower San Francisco Bay has consistently complied with the previous Order limit of 65 µg/L.

#### 34) Dioxins and Furans

- a. *Previous Limit* The previous Order, Order No.95-055, does not include a limit for dioxins.
- b. *Numerical Water Quality Objective* The CTR establishes a numeric human health WQO of 0.14 picograms per liter (pg/l) for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) based on consumption of aquatic organisms. Finding 31.d.iii, above, discusses the use of TEQ's for other dioxin-like compounds, the RPA procedures, and SIP requirements. Staff will use TEQs to translate the narrative WQOs to numeric WQOs for the other 16 congeners.
- c. *Interim Monitoring Requirements and Schedules.* The Discharger has monitored infrequently for dioxins and furans, and there is insufficient effluent data to conduct an RPA or calculate an interim limit. Pursuant to the SIP, this Order requires the Discharger to monitor for dioxins and furans. If a subsequent RPA determines the subject discharge has reasonable potential for dioxins and furans, a performance-based interim limit will be established based on TEQs.
- d. The Final Limit for dioxins and furans will be derived based on the TMDL/WLA to be developed by U.S. EPA.

#### 35) Tributyltin

- a. *Previous Limit.* The previous Order did not contain an effluent limitation for Tributyltin (TBT),
- b. *Numerical Water Quality Objective* The Discharger has monitored infrequently for TBT. The WQO of 0.010 µg/L is a numeric interpretation of the narrative WQO, based on BPJ. The U.S. EPA published guidance on August 7, 1997 (Title 62CFR Part 42554) proposing a TBT aquatic life criterion of 0.010 µg/L for States and Tribes to consider when adopting water quality criteria. The RPA based on the discharger's data has determined the subject discharge has reasonable potential for TBT, so that a WQBEL is required in this Order.
- c. *Effluent Limitations.* Although no ambient background data are available for calculating the WQBELs for tributyltin, Board staff calculated a WQBEL assuming no dilution credit. This WQBEL is intended to be a point of reference for the Discharger to conduct a feasibility study of immediate compliance. In its feasibility study report, the Discharger demonstrated it is infeasible to comply with the calculated WQBELs despite past diligent effort in pollution prevention and source controls. This Order contains a provision requiring the Discharger to conduct a study to collect ambient background data. The Discharger is required to submit the study results to the Board by May 18, 2003. The Board intends to include, in a subsequent permit revision, a revised final limit based on the study required as an enforceable limit. However, if the discharger requests and demonstrates that it is infeasible to comply with the revised final limit, the permit

revision will establish a maximum ten-year compliance schedule. In the meantime, an interim limit is established based on the past performance.

### 36) Cyanide

- a. The CTR specifies that the salt water Criterion Chronic Concentration (CCC) of 1 µg/l for cyanide is applicable to Central San Francisco Bay. This CCC value is below the presently achievable reporting limit (ranges from approximately 3 to 5 µg/l).
- b. The background data set was very limited as there was only six dissolved and six total cyanide data points, which were all non-detects (<1 ug/L) collected in 1993 from the two background stations. The non-detect value (<1 ug/L) is equivalent to the WQO (1 ug/L) and causes the dilution portion of the final effluent limit equation to be eliminated, thereby giving no dilution. The final WQBELs for cyanide, presented in the fact sheet, are a point of reference to conduct a feasibility study for immediate compliance. The final WQBEL will be recalculated based on additional effluent and ambient background information, or a cyanide SSO. Cyanide is a regional problem associated with the analytical protocol for cyanide analysis due to matrix inferences. A body of evidence exists to show that cyanide measurements in effluent may be an artifact of the analytical method. This question is being explored in a national research study sponsored by the Water Environment Research Foundation (WERF).
- c. Concern has been raised by the discharger about the occurrence of artifactual (false positive) cyanide as evidenced by effluent concentrations greater than influent concentrations. The discharger supports efforts to develop a site-specific objective for cyanide in the Bay, given that cyanide does not persist in the environment and that the current WQO was based on testing with East Coast species. A cyanide SSO for Puget Sound, Washington using West Coast species has been approved by US EPA Region X.
- d. This Order contains a provision requiring the Discharger to conduct a study for data collection. The Discharger is required to fully implement the study and submit a final report to the Board by May 18, 2003. The Board intends to include, in a subsequent permit revision, a revised final limit based on the study required as an enforceable limit. However, if the discharger requests and demonstrates that it is infeasible to comply with the revised final limit, the permit revision will establish a maximum five-year compliance schedule. In the meantime, an interim limit is established based on the previous permit limit of 10 µg/L

### 37) Bis (2-Ethylhexyl) Phthalate

The previous Order did not contain an effluent limit for bis (2-ethylhexyl) phthalate. The discharger has monitored for this pollutant in its effluent. Pursuant to Section 1.4.2.1 of the SIP, "dilution credit may be limited or denied on pollutant-by-pollutant basis...". So for bioaccumulative pollutants, based on best professional judgment, dilution credit is not included in calculating the final WQBEL. The highest detectable value exceeds the WQO of 5.9 µg/L from the CTR, so a WQBEL is required in this order. Based on the Finding of Feasibility performed by Staff, San Mateo cannot meet the calculated WQBEL. Therefore, an interim performance based effluent limit, and a compliance schedule are included in this permit.

### Whole Effluent Acute Toxicity

- 38) This Order includes effluent limitations for whole-effluent acute toxicity. Compliance evaluation is currently based on 96-hour flow-through bioassays. U.S. EPA promulgated updated test methods for acute toxicity bioassays on October 16, 1995, in 40 CFR Part 136. Dischargers have identified

various practical and technical issues that need to be resolved before implementing the new procedures. This Order contains provisions allowing the Discharger twelve (12) months to implement the new test methods; the Discharger is required to continue using the current test protocols in the interim.

#### Whole Effluent Chronic Toxicity

39)

- a. *Program History.* The Basin Plan contains a narrative toxicity objective stating that "All waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental responses to aquatic organisms" and that "there shall be no chronic toxicity in ambient waters." In 1986, the Regional Board initiated the Effluent Toxicity Characterization Program (ETCP) to develop and implement toxicity limits for each discharger based on actual characteristics of both receiving waters and waste streams. The Discharger and other dischargers participating in the ETCP monitored their effluent using critical life stage toxicity tests to generate data on toxicity test species sensitivity and effluent variability, and facilitate development of appropriate chronic toxicity effluent limitations. Two rounds of effluent characterization were conducted by selected dischargers beginning in 1988 and in 1991. A second round was completed in 1995, and the Regional Board is evaluating the need for a third round. The Regional Board published guidelines for conducting toxicity tests and analyzing results in 1988 and last updated them in 1991.

The Regional Board adopted Order No. 92-104 in August 1992 amending the Orders of eight dischargers to include numeric chronic toxicity limits. However, a subsequent court decision invalidated the California Enclosed Bays and Estuaries Plan and Inland Surface Waters Plan, which formed the basis for Order No. 92-104. The State Water Resources Control Board (SWRCB) stated in a November 8, 1993 letter that the Regional Board would have to reconsider Order No. 92-104. The SWRCB letter also committed to providing guidance to the Regional Boards on issuing Orders in the absence of the State Plans (Guidance for NPDES Permit Issuance, SWRCB, February 1994).

The SWRCB's Toxicity Task Force's October 1995 report contained consensus-based recommendations for consideration in redrafting the State Plans. A key recommendation was that permits should include narrative rather than numeric limits. Numeric test values should be used as toxicity "triggers" to first accelerate monitoring and then initiate Toxicity Reduction Evaluations (TREs) if required.

The Regional Board intends to reconsider Order No. 92-104 as directed by the SWRCB, and to update, as appropriate, the Regional Board's chronic and acute Whole Effluent Toxicity program guidance and requirements. The Regional Board will base its consideration on analysis of discharger routine monitoring and ETCP results, in accordance with current U.S. EPA and SWRCB guidance. In the interim, the Regional Board will make its decisions regarding the necessity and scope of chronic toxicity requirements for individual dischargers consistent with the SIP.

- b. *Permit Requirements.* This Order includes requirements for chronic toxicity monitoring based on the Basin Plan narrative toxicity objective, consistent with U.S. EPA and SWRCB Toxicity Task Force guidance, and BPJ. This Order includes the Basin Plan narrative toxicity objective as the applicable effluent limit, with numeric values as "triggers" implemented via monitoring to initiate accelerated monitoring and a chronic TRE as necessary.

- c. *Permit Reopener.* The Regional Board will consider amending this Order to include numeric toxicity limits if the Discharger fails to aggressively implement all reasonable control measures included in its approved TRE workplan, following detection of consistent significant non-artifact toxicity.

### **Pretreatment Program**

- 40) The Discharger has implemented and is maintaining a U.S. EPA approved pretreatment program in accordance with Federal Pretreatment Requirements (40 CFR 403) and the requirements specified in Attachment 6 "Pretreatment Requirements" and its revisions thereafter.

### **Pollutant Minimization/Pollution Prevention**

- 41) a. The discharger has an approved Pretreatment Program and has established a Pollution Prevention Program under the requirements specified by the Regional Board.
  - b. The discharger's Pretreatment and Pollution Prevention Programs have resulted in a significant reduction of toxic pollutants discharged to the treatment plant and to the receiving waters.
  - c. This reduction is reflected in its influent and effluent data.
  - d. 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 in accordance with Section 2.4.5.1.
  - e. There may be some redundancy required between the Pollution Prevention Program and the Pollutant Minimization Program.
  - f. Where the two programs' requirements overlap, the Discharger is allowed to continue/modify/expand its existing Pollution Prevention Program to satisfy the Pollutant Minimization Program requirements.
  - g. For copper, mercury, and cyanide, the Discharger will conduct any additional source control or pollutant minimization measures in accordance with California Water Code 13263.3 and Section 2.1 of the SIP. Section 13263.3 establishes a separate process outside of the NPDES permit process for preparation, review, approval, and implementation of such source control and pollution minimization measures.
- 42) The Board staff intends to require an objective third party to establish baseline programs, and to review program proposals and reports for adequacy.

### **Special Studies**

- 43) *Dioxin Study.* The SIP states that each Regional Board shall require major and minor POTWs and industrial dischargers in its region to conduct effluent monitoring for the 2,3,7,8 TCDD congeners (as listed in Provision 14), whether or not an effluent limit is required for 2,3,7,8 - TCDD. The monitoring is intended to assess the presence and amounts of the congeners being discharged to inland surface waters, enclosed bays, and estuaries. The Regional Boards will use these monitoring data to establish strategies for a future multi-media approach to control these chemicals.
- 44) *Effluent Characterization for Selected Constituents.* Staff's review of effluent monitoring data from January 1995 through March 2000 found that there were insufficient effluent monitoring data to

determine reasonable potential for some pollutants listed in the SIP. Therefore, this Order contains provisions to expand the analytical list for effluent monitoring (Listed in Table 2 of the SMP).

- 45) *Ambient Background Concentration Determination.* Staff's review of the ambient background concentrations found that there were insufficient receiving water data to determine reasonable potential and calculate numeric WQBELs for some pollutants listed in the SIP. Therefore, this Order contains provisions to expand the analytical list for ambient receiving water monitoring (Listed in Table 2 of the SMP) at representative ambient background stations. The Discharger may meet this requirement by participating in new or expanded RMP special studies or by conducting equivalent studies jointly with other dischargers.

### **Other Permit Conditions and Discharge Characteristics**

- 46) *Optional Mass Offset.* This Order contains requirements to prevent further degradation of the impaired waterbody, including:

- adoption of mass limits based on the treatment plant's performance,
- provisions for aggressive source control and waste minimization,
- feasibility studies for wastewater reclamation, and
- treatment plant optimization.

The Discharger may find that after implementing these efforts it can achieve further net reductions of total mass loadings of the 303(d)-listed pollutants to the receiving water via a mass offset program. This Order includes an optional provision for a mass offset program.

- 47) *Operations and Maintenance Manual.* The Discharger maintains an Operations and Maintenance Manual to provide plant and regulatory personnel with descriptions of key collection system and pump station equipment, treatment and disposal procedures, recommended operation strategies, process control monitoring provisions, and maintenance activities. The manual shall be kept updated to reflect significant changes in treatment facility equipment and operation practices.
- 48) *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.
- 49) *Notification.* The Discharger and interested agencies and persons have been notified of the Regional Board's intent to reissue requirements for the existing discharge and have been provided an opportunity to submit their written views and recommendations.
- 50) *Public Hearing.* The Regional 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 and regulations adopted thereunder, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, that the City of San Mateo 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. Discharge of wastewater at any point where it does not receive an initial dilution of at least 10:1 is prohibited.

- 2) The bypass or overflow of untreated wastewater to waters of the State, either at the treatment plant or from the discharger's collection system or pump stations tributary to the treatment plant, is prohibited, except as provided under conditions stated in 40 CFR 122.41 (m)(4). The bypass of partially treated wastewater to waters of the State is also prohibited, except that bypassing of individual treatment processes, for example during periods of high wet weather flow, is allowable provided that the combined discharge of fully treated and partially treated wastewater complies with the effluent and receiving water limitations contained in this Order. Compliance during bypasses shall be demonstrated in accordance with the Self-Monitoring Program.
- 3) The discharge of average dry weather flows greater than 15.7 mgd is prohibited. The average dry weather flow shall be determined over three consecutive dry weather months each year.
- 4) Discharges of water, materials, or wastes other than stormwater, which are not otherwise authorized by an NPDES permit, to a storm drain system or waters of the State are prohibited.

**B. EFFLUENT LIMITATIONS**

The following effluent limitations apply to effluent discharged to the lower San Francisco Bay outfall (Sampling Station E-001):

1) Seasonal Limitations

i. *During the months of May through September the effluent shall not exceed the following limits:*

Constituent	Units	Monthly Average	Weekly Average	Daily Maximum	Instantaneous Maximum
a. Carbonaceous Biochemical Oxygen Demand (CBOD)	mg/L	15	25	35	--
b. Total Suspended Solids (TSS)	mg/L	20	30	40	--
c. Oil & Grease	mg/L	10	--	20	--
d. Settleable Matter	ml/l-hr	0.1	--	0.2	--
e. Total Chlorine Residual <sup>+</sup>	mg/L	--	--	--	0.0
f. Turbidity	NTU	15	--	30	--

<sup>+</sup> Requirement defined as being below the limit of detection in standard test methods defined in the latest edition of 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, sodium hypochlorite, 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 Board staff will conclude that these false positive chlorine residual exceedances are not violations of the Order limit.

ii. *During the months of October through April, inclusive, the effluent shall not exceed the following limits:*

Constituent	Units	Monthly Average	Weekly Average	Daily Maximum	Instantaneous Maximum
a. Carbonaceous Biochemical Oxygen Demand (CBOD)	mg/L	25	40	50	--
b. Total Suspended Solids (TSS)	mg/L	30	45	60	--

c. Oil & Grease	mg/L	10	--	20	--
d. Settleable Matter	ml/l-hr	0.1	--	0.2	--
e. Total Chlorine Residual <sup>+</sup>	mg/L	--	--	--	0.0
f. Turbidity	NTU	15	--	30	--

<sup>+</sup> Requirement defined as being below the limit of detection in standard test methods defined in the latest edition of 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, sodium hypochlorite, 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 Board staff will conclude that these false positive chlorine residual exceedances are not violations of the Order limit.

2) *85 Percent Removal, CBOD and TSS:*

The arithmetic mean of the carbonaceous biochemical oxygen demand (CBOD) and total suspended solids (TSS) values, for effluent samples collected in 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.

3) *Fecal Coliform Bacteria:*

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

- a. The five day log mean fecal coliform density shall not exceed a most probable number of 200 per 100 milliliters (200 MPN/100 ml)
- b. The 90th percentile fecal coliform value shall not exceed 400 MPN/100ml.

4) *Whole Effluent Acute Toxicity:*

Representative samples of the effluent shall meet the following limits for acute toxicity. Compliance with these limits shall be achieved in accordance with Provision E.6. of this Order.

- a. The survival of specified bioassay test organisms in 96-hour bioassays of undiluted effluent shall be:

- (i) an 11-sample median value of not less than 90 percent survival; and
- (ii) an 11-sample 90th percentile value of not less than 70 percent survival.

- b. These acute toxicity limits are further defined as follows:

- (iii) 11-sample median limit:

Any bioassay test showing survival of 90 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit, if five or more of the past ten or fewer bioassay tests also show less than 90 percent survival.

- (iv) 90th percentile limit:

Any bioassay test showing survival of 70 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit, if one or more of the past ten or fewer bioassay tests also show less than 70 percent survival.

- (v) If the Discharger demonstrates to the satisfaction of the Executive Officer that toxicity exceeding the levels cited above 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.

5) *Chronic Toxicity:*

Compliance with the Basin Plan narrative chronic toxicity objective shall be demonstrated based on results from representative samples of the treated final effluent meeting the test acceptability criteria and according to the following tiered requirements:

- (i) routine monitoring;
- (ii) accelerated monitoring after exceeding a three sample median value of 10 chronic toxicity units<sup>2</sup> (TUc) or a single sample maximum of 20 TUc or greater. Accelerated monitoring shall consist of monitoring at intervals of one half the interval given for routine monitoring in the SMP of this Order;
- (iii) return to routine monitoring if accelerated monitoring does not exceed either trigger in ii, above;
- (iv) initiate approved toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) work plan if accelerated monitoring confirms consistent toxicity above either trigger in ii, above;
- (v) return to routine monitoring after appropriate elements of TRE work plan are implemented and either
  - the chronic toxicity test values drops below trigger in ii above or,
  - the Executive Officer authorizes a return to routine monitoring based on the results of the TRE.

6) *Mass Emission Limits for Mercury:*

Until the mercury TMDL and associated WLAs are completed, the Discharger shall demonstrate that the total mass loadings for these conditions from discharges to lower San Francisco Bay have not increased by complying with the following:

a. Mass Emission Limit:

The subject discharge's mass emission limit for mercury is 0.15 kilograms per month (kg/month). The total mercury mass load shall not exceed this limit.

b. Compliance with this limit shall be evaluated using monthly moving averages of total mass load, computed as described below:

12-Month Monthly Moving Average of Total Mass Load = Average of the monthly total mass loads from the past 12 months

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<sup>2</sup> A TUc equals 100 divided by the no observable effect level (NOEL). The NOEL is determined from IC, EC, or NOEC values. Monitoring and TRE requirements may be modified by the Executive Officer in response to the degree of toxicity detected in the effluent or in ambient waters related to the discharge. Failure to conduct the required toxicity tests or a TRE within a designated period shall result in the establishment of effluent limitations for chronic toxicity.

Monthly Total Mass Load (kg/month) = monthly plant effluent flows in mgd from Central San Francisco Bay Outfall (E-001) x monthly effluent concentration measurements in µg/L corresponding to the above flows, for samples taken at E-001 x 0.1151. (If more than one concentration measurement is obtained in a calendar month, the average of these measurements is used as the monthly concentration value for that month. If test results are less than the method detection limit used, the concentration value shall be assumed to be equal to the method detection limit.)

- c. The Discharger shall submit a cumulative total of mass loadings for the previous twelve months with each monthly Self-Monitoring Report. Compliance each month will be determined based on the 12-month moving averages over the previous twelve months of monitoring. 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 this mass emission limitation upon their completion. The Clean Water Act's antibacksliding rule, Section 402(o), indicates that this Order may be modified to include a less stringent requirement following completion of the TMDL and WLA, if the requirements for an exception to rule are met.
- 7) *pH*: The pH of the effluent shall not be greater than 9.0 nor less than 6.0. Pursuant to 40 CFR 401.17, pH Effluent Limitations Under Continuous 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 of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and
  - b. No individual pH excursion from the specified range of pH values shall exceed 60 minutes.
- 8) *Toxic Substances*: The effluent shall not exceed the following limits:

Constituent	Daily Maximum Limit	Monthly Average Limit	Interim Daily Maximum	Interim Monthly Average	Units	Notes
Copper	--	--	33.1	--	µg/L	(1), (7)
Mercury	--	--	--	87: Oct-April; 23: May-Sept.	ng/L	(1), (2), (4), (9)
Nickel	71.1	29.5	--	--	µg/L	(1)
Cyanide	--	--	10	--	µg/L	(1), (3), (6)
Lead	53	30.7	--	--	µg/L	(1)
Tributyltin	--	--	0.064	--	µg/L	(6)
Zinc	580	398	--	--	µg/L	(1)
Dieldrin	0.00028	0.00014	--	--	µg/L	(1), (5)
4,4-DDE	0.00118	0.00059	--	--	µg/L	(1), (5)
Bis-2 Ethylhexyl Phthalate				21.0	µg/L	(1), (8)

Footnotes :

(1) General Conditions:

- (a) These limits are based on marine water quality objectives. Compliance with these limits shall be achieved through secondary treatment and, as necessary, pretreatment, source control, and pollution prevention.
- (b) All analyses shall be performed using current U.S. EPA methods, or equivalent methods approved in writing by the Executive Officer.
- (c) Limits apply to the average concentration of all samples collected during the averaging period (Daily = 24-hour period; Monthly = calendar month).
- (2) Mercury: Measurement of effluent mercury shall be performed using ultra-clean sampling and analysis techniques, with a detection limit of 0.002 µg/L, or lower.
- (3) Cyanide: Due to a lack of detectable cyanide data, the interim daily maximum cyanide is the previous Order limit of 10 ppb. Compliance may be demonstrated by measurement of weak acid dissociable cyanide.
- (4) This interim limit shall remain in effect until May 18, 2010, or until the Board amends the limit based on the Waste Load Allocation in the TMDLs for mercury. However, during the next permit reissuance, Board staff may re-evaluate the interim limits.
- (5) As outlined in Section 2.4.5 of the SIP, compliance with these effluent limits is determined by comparing the effluent data with the corresponding Minimum Levels in Appendix 4 of the SIP: for Dieldrin—0.01 ppb, and 4,4-DDE—0.05 ppb.
- (6) This interim limit shall remain in effect until May 18, 2003, or until the Board amends the limit based on additional background data and/or site specific objectives for cyanide and tributyltin. However, during the next permit reissuance, Board staff may re-evaluate the interim limits.
- (7) This interim limit shall remain in effect until June 30, 2006, or until the Board amends the limit based on site specific objectives or the Waste Load Allocation in the TMDL for copper. However, during the next permit reissuance, Board staff may re-evaluate the interim limits.
- (8) This interim limit shall remain in effect until June 30, 2006. However, during the next permit reissuance, Board staff may re-evaluate the interim limits.
- (9) The 23 ng/L limit shall apply when the filtration process at the plant is in operation.

### **C. RECEIVING WATER LIMITATIONS**

- 1) The discharge of waste 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;
  - c. Alteration of temperature, turbidity, or apparent color;
  - d. Visible, floating, suspended, or deposited oil or other products of petroleum origin; and
  - e. All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. Detrimental responses include, but are not limited to, decreased growth rate and decreased reproductive success of resident or indicator species, decreased fertilization success, larval development, population abundance, community

composition, or any other relevant measure of the health of an organism, population, or community.

- 2) The discharge of waste shall not cause the following limits to be exceeded in waters of the State anywhere within one foot of the water surface:
  - a. Dissolved Oxygen: greater than 5.0 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 discharge shall not cause further reduction in ambient dissolved oxygen concentrations.
  - b. Dissolved Sulfide: 0.1 mg/L, maximum
  - c. pH: Variation 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.
- 3) The Clean Water Act and regulations adopted thereunder provide that the discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Board. Accordingly, 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 Board may reopen and revise or modify this Order in accordance with such more stringent standards.
- 4) Because the RMP, in which the Discharger is participating, collects receiving water samples, the Discharger is relieved of collecting any receiving water samples as part of this Order unless so directed by the Regional Board. However, the Discharger is responsible for providing to the Regional Board data from those constituents it is required to sample by the SIP that are not sampled by the RMP. The Discharger may meet this requirement by either participating in new RMP special studies or by conducting equivalent studies jointly with other dischargers.

#### **D. SLUDGE MANAGEMENT PRACTICES**

- 1) The Discharger shall comply with all current state and federal regulations in all sludge treatment, processing, storage or disposal activities under its control.
- 2) The Discharger shall include in its Self Monitoring Program Annual Report submitted to the Regional Board a summary of the sewage sludge disposal practices report it submits to the U.S. EPA under the provisions of 40 CFR 503.
- 3) Sludge treatment, storage, disposal, or reuse, shall not create a nuisance, including objectionable odors or attracting flies, or result in groundwater contamination.
- 4) Treatment and temporary storage of sewage sludge at the Discharger's wastewater treatment facility shall not cause waste material to be carried from the sludge treatment and storage site and deposited in Waters of the State.

- 5) The Regional Board may amend this Order prior to expiration if changes occur in applicable state and federal sludge regulations.

## **E. PROVISIONS**

### **1. Compliance with this Order.**

The discharger shall comply with all sections of this Order beginning on July 1, 2001.

### **2. Rescission of Previous Waste Discharge Requirements.**

Requirements prescribed by this Order supersede the requirements prescribed by Order Nos. 95-055 and 98-089. Order Nos. 95-055 and 98-089 are rescinded after July 1, 2001.

### **3. Self-Monitoring Program.**

The Discharger shall comply with the Self-Monitoring Program (SMP, Attachment C) for this Order as adopted by the Regional Board as may be amended by the Executive Officer thereafter. Self-Monitoring Reports (SMRs) shall be received by the Regional Board no later than 30 days after the end of the reporting month. An Annual Report shall also be submitted for each calendar year. The report shall be submitted to the Regional Board by February 15 of the following year.

### **4. 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 (Standard Provisions)(attached), 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.

### **5. Facility Operations during Wet Weather Conditions**

- b. The discharger shall maintain and operate its collection system in a manner to optimize control and conveyance of wastewater flows to the treatment plant facility and minimize collection system overflows.
- c. The discharger shall maintain and operate the treatment plant facility in a manner to optimize treatment performance.
- d. In order to provide adequate overall reliability of the treatment process, especially during wet weather conditions, the Discharger shall at all times provide emergency stand-by power for all treatment units necessary to provide full secondary treatment, including disinfection processes.

### **6. Acute Toxicity Compliance:**

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

- a. From permit adoption date until **May 31, 2002**:
  - i. All bioassays shall be performed according to the Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms 3<sup>rd</sup> Edition, with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).
  - ii. Compliance with the acute toxicity effluent limitations of this Order shall be evaluated by measuring survival of test organisms exposed to 96 hour continuous flow-through bioassays.

iii. Test organisms shall be fathead minnows and three-spined sticklebacks unless specified otherwise in writing by the Executive Officer.

b. After **June 1, 2002**:

- i. All bioassays shall be performed according to the Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms 4<sup>th</sup> Edition, with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).
- ii. Compliance with the acute toxicity effluent limitations of this Order shall be evaluated by measuring survival of test organisms exposed to 96 hour continuous flow-through bioassays, or static renewal bioassays. If the Discharger will use static renewal tests or continue to use 3<sup>rd</sup> Edition methods, they must submit a technical report by June 1, 2002, identifying the reasons why flow-through and/or static-renewal bioassay is not feasible using the approved EPA protocol (4<sup>th</sup> edition).
- iii. Test organisms shall be fathead minnows or rainbow trout unless specified otherwise in writing by the Executive Officer.

## 7. Mercury Mass Loading Reduction Study and Schedule

If mercury mass loading exceeds the mass loading effluent limitation specified in Effluent limit B.6. of this Order, then the Discharger shall initiate the following actions:

- a. *Notification*: All exceedences of the mercury mass loading effluent limitation shall be reported to the Regional Board in accordance with Section E.6.b. of the Regional Board's Standard Provisions.
- b. *Verification*: The Discharger shall resample to verify the increase in loading. If re-sampling confirms that the mass loading effluent limitation has been exceeded, the Discharger shall initiate a Mercury Source Control and Reduction Program to address the Order violation.
- c. *Mercury Source Control and Reduction Program*:

The Discharger shall implement an aggressive source control and pollution prevention program to identify sources and evaluate options for control and reduction of mercury loadings. Objectives of the program shall include maintaining loadings at or below the mass emission limit specified in this Order, and the feasibility of attaining effluent mercury concentrations at or below the Basin Plan mercury criterion of 0.025 µg/L. This program shall consider reductions in mercury effluent concentrations achieved through source control and economically feasible optimization of treatment plant processes. If necessary, alternative control strategies shall be investigated, through participation with the Regional Board and other dischargers in identifying cross media watershed-wide sources of mercury impacting the receiving water, and potential control measures. This program shall be developed and implemented in accordance with the following time schedule:

**Task:** Mercury Source and Reduction Study Plan.

**Compliance Date:** 60 days after mass emission limit exceedance verification.

Submit a proposed Study Plan for approval by the Executive Officer, to investigate mercury sources and reduction measures. The proposed investigation shall include:

- sampling and characterizing mercury in residential and commercial wastewater at representative locations in the collection system over a reasonable period of time;

- evaluating means for reducing significant sources;
- identifying means of optimizing mercury removal by treatment plant processes; and
- assessing the feasibility of controlling effluent mercury loadings through:
  - improving education and outreach;
  - reducing infiltration and inflow, and
  - increasing reclamation and reuse of treated effluent.

Submit an interim report for approval by the Executive Officer, documenting the initial source reduction options identified, and past and proposed future efforts to encourage minimization of mercury discharges to the collection system and to the lower San Francisco Bay.

**Task:** Final Report

**Compliance Date:** 12 months after Executive Officer approves Interim Report

Submit a final report for approval by the Executive Officer, documenting the source reduction work and efforts made to minimize mercury loading to the collection system and lower San Francisco Bay. This report shall include a feasibility assessment for controlling effluent mercury loadings through, at a minimum:

- identifying and reducing sources,
- optimizing treatment plant performance,
- improving public education and outreach,
- reducing infiltration and inflow, and
- increasing reclamation and reuse of treated effluent.

**Task:** Mercury Loading Control Plan.

**Compliance Date:** 8 months after Executive Officer approves Final Report.

Develop a plan and time schedule for approval by the Executive Officer to implement all reasonable actions to maintain mercury mass loadings at or below the mass emission limit level specified in this Order, based on the results of the Final Report.

#### 8. Optional Copper Translator Study and Schedule:

Development of a copper WQBEL based on dissolved copper requires a dissolved-to-total translator for copper. Translators are provided by the CTR. Alternatively, the Discharger may conduct a copper translator study aimed at providing the Regional Board with sufficient data to develop a site-specific copper translator. If the Discharger decides to conduct such a study, it may utilize RMP data from stations nearest the Discharger's outfall and/or implement a sampling plan to collect data for development of a dissolved to total copper translator. If the Discharger chooses to proceed with the study, it will conduct the study according to the following elements:

##### a. Translator Study Plan.

The Discharger shall submit a study plan for approval by the Executive Officer, for collection of data that can be used for establishment of a dissolved to total copper translator. The study plan shall provide for development of translators in accordance with U.S. EPA guidelines and any relevant portions of the Basin Plan, as amended.

##### b. Translator Study

After Executive Officer approval, or within 60 days of submittal of the Study Plan, the Discharger shall begin implementing the study plan. The Discharger shall utilize field sampling data from the vicinity of the discharge point for the study.

c. **Translator Final Report**

The Discharger shall submit a final report of the Translator Study for approval by the Executive Officer, by no later than two (2) years from the date of this Order. The Final Report shall document the results of the copper translator study and may include other site-specific information the Discharger wishes the Regional Board to consider in developing a copper WQBEL.

**9. Pretreatment Program**

The Discharger shall implement and enforce its approved pretreatment program in accordance with federal pretreatment regulations contained in 40 CFR 403, and the requirements specified in Attachment F, "Pretreatment Program Provisions". Attachment F is made part of this Order and is incorporated by reference.

**10. Pollutant Minimization Program.**

- a. The Discharger shall improve its existing Pollution Prevention Program in order to reduce pollutant loadings to the treatment plant and the receiving waters.
- b. The Discharger shall submit an annual report for approval by the Executive Officer, no later than February 28. The Annual report shall include at least the following elements:
  - i. A brief description of its treatment plant, treatment plant processes and service area.
  - ii. A discussion of the current pollutants of concern. The Discharger shall periodically analyze its operations to determine which pollutants are currently a problems or may be potential future problems. This discussion shall include the rationale used to identify the pollutants.
  - iii. Sources identification for the pollutants of concern including a discussion of how the Discharger intends to estimate and identify sources of the pollutants. The Discharger should also identify sources or potential sources not directly within the Discharger's ability or authority to control (e.g., pollutants in the potable water supply and atmospheric deposition).
  - iv. Tasks identification to reduce the sources of the pollutants of concern. This discussion shall identify and prioritize tasks addressing the identified pollutants of concern. A time line shall be included for the implementation of each task. Tasks may target the Discharger's industrial, commercial, or residential sectors. The Discharger may implement tasks itself or may participate in group, regional, or national tasks that will address the identified pollutants of concern. The Regional Board strongly encourages the Discharger to participate in such common efforts whenever it is efficient and appropriate.
  - v. Outreach to City employees. The Discharger shall maintain an outreach program to City employees. This element is intended to inform City employees about the pollutants of concern, the potential pollutant sources, and available actions to reduce the discharge of pollutants of concerns into the treatment plant. The Discharger may provide a forum for City employees to provide input to the Program.
  - vi. Public outreach program. The Discharger shall maintain a public outreach program to communicate the need for pollution prevention to its service area. Public outreach may include:

- participating in existing community events or developing new community events;
  - implementing a school outreach program;
  - conducting plant tours; and
  - providing public information through print and broadcast media, newsletters, utility bill inserts, and the Internet, targeting specific audiences. The Discharger should coordinate with other agencies as appropriate.
- vii. Documentation of efforts and progress. This discussion shall detail all of the discharger's activities in the Pollution Prevention Program during the reporting year.
- viii. Effectiveness measures and discussion. The Discharger shall establish criteria to evaluate the effectiveness of its Pollution Prevention Program, including a discussion of the specific criteria used to measure the effectiveness of the task identification, city employee outreach, and public outreach elements described above.
- ix. Overall effectiveness. The Discharger shall utilize the effectiveness measures developed in element viii to evaluate the effectiveness of the individual elements and the overall Program.
- x. Specific elements and schedules for future efforts. Based on the effectiveness evaluation, the Discharger shall discuss how it intends to continue, augment or change its PMP to more effectively reduce the loading of identified pollutants to the treatment plant.
- c. Section 2.4.5 of the SIP requires the Discharger to expand its existing Pollution Prevention Program to include a reportable priority pollutant when there is evidence that the reportable priority pollutant is present in the subject discharge above an effluent limitation and either:
- i. A sample result is reported as detected, but not quantified (less than the Minimum Level) and the effluent limit is less than the reported Minimum Level; or
  - ii. A sample result is reported as not detected (less than the Method Detection Limit) and the effluent limit is less than the Method Detection Limit.
- A priority pollutant becomes a reportable priority pollutant when:
- there is evidence that it is present in the effluent above an effluent limit and either (c)(i) or (c) (ii) is triggered, or
  - the concentration of the priority pollutant in the monitoring sample is greater than the effluent limit and greater than or equal to the reported Minimum Level.
- d. The Discharger's shall, within 6 months of being notified by the Executive Officer that the provisions of 10c, above, have been triggered, augment its Pollution Prevention Program to include:
- i. Semiannual and annual reviews of potential sources of the reportable priority pollutant(s). This may include fish tissue monitoring and other bio-uptake sampling, or alternative measures approved by the Executive Officer, if the Discharger demonstrates that source monitoring is unlikely to produce useful analytical data;
  - ii. Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system, or alternative measures approved by the Executive Officer when it is demonstrated that influent monitoring is unlikely to produce useful analytical data;

- iii. Submittal of a control strategy designed to attain or move toward attaining the effluent limitations for the reportable priority pollutant(s);
- iv. Discussion of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and
- v. An annual status report submitted to the Executive Officer, and including:
  - All Pollution Prevention monitoring results for the previous year;
  - A list of potential sources of the reportable priority pollutant(s);
  - A summary of all actions undertaken pursuant to the control strategy; and
  - A description of actions to be taken in the following year.
- e. To the extent that the requirements of the Pollution Prevention Program and the Pollutant Minimization Program overlap, the Discharger is allowed to continue/modify/expand its existing Pollution Prevention Program to satisfy the Pollutant Minimization Program requirements.
- f. These Pollution Prevention/Pollutant Minimization Program requirements are not intended to fulfill the requirements in The Clean Water Enforcement and Pollution Prevention Act of 1999 (Senate Bill 709).

#### 11. Special Study - Effluent Characterization for Selected Constituents

The Discharger shall monitor and evaluate effluent discharged to lower San Francisco Bay for the constituents listed in Table 2 of the SMP of this Order. Compliance with this requirement includes:

- a. This effluent monitoring shall include a minimum of six effluent sampling and analysis events, with at least three sampling events conducted in the wet weather season and at least three sampling events conducted in the dry weather season, and with the first sampling event no later than August 12, 2002.
- b. This report shall include analytical procedures used and detection levels achieved for each constituent, including the minimum level (ML) and method detection limit (MDL). For each constituent, the applicable analytical measurement levels should be adequate to evaluate observed effluent concentrations with respect to the water quality objective given in SMP Table 2, where technically and reasonably feasible.
- c. The report shall compare the observed effluent concentrations to the water quality objectives given in SMP Table 2, and an cost estimate for effluent monitoring for these constituents.
- d. The SMP of this Order may be revised subsequent to the Order's adoption to include routine monitoring for all or some of the SMP Table 2 Constituents.
- e. The Discharger shall submit technical reports acceptable to the Executive Officer documenting status and results of the study in accordance with the following:
  - Interim Report: Submit report no later than March 30, 2003.
  - Final Report: Submit report no later than October 30, 2005.

#### 12. Special Study – Dioxin Study

- a. *Target congeners.* The SIP requires major dischargers to conduct effluent monitoring for the seventeen 2, 3, 7, 8-TCDD congeners listed below. The monitoring is intended to assess the presence and amounts of the congeners being discharged to inland surface waters, enclosed bays,

and estuaries, and to facilitate development of a strategy to control them using a multi-media approach. This Order requires major dischargers to monitor their effluent once during the dry season and once during the wet season for a period of three (3) consecutive years.

<u>Isomer Group,</u>	<u>Toxicity Equivalence Factor</u>
2,3,7,8-tetra CDD	1.0
1, 2,3,7,8-penta CDD	1.0
1, 2, 3, 4, 7, 8-HexaCDD	0.1
1, 2, 3, 6, 7, 8-HexaCDD	0.1
1, 2, 3, 7, 8,9-HexaCDD	0.1
1, 2, 3, 4, 6, 7, 8-HeptaCDD	0.01
octa CDD	0.0001
2,3,7,8-Tetra CDF	0.1
1,2,3,7,8-Penta CDF	0.05
2,3,4,7,8-Penta CDF	0.5
1, 2, 3, 4, 7, 8-HexaCDF	0.1
1, 2, 3, 6, 7, 8-HexaCDF	0.1
1, 2, 3, 7, 8, 9-HexaCDF	0.1
2, 3, 4, 6, 7, 8-HexaCDF	0.1
1, 2, 3, 4, 6, 7, 8-HeptaCDF	0.01
1, 2, 3, 4, 7, 8,9-HeptaCDF	0.01
octa CDF	0.0001

b. *Time schedule for study completion.*

**Task:** Sampling Plan

**Compliance Date:** 1 year after permit adoption

Submit a proposed sampling plan, acceptable to the Executive Officer, to sample the effluent for the seventeen (17) listed congeners. This proposed plan shall include a time schedule for performing the work.

**Task:** Implement Plan

**Compliance Date:** 30 days after approval of study

Following approval by the Executive Officer, commence work in a timely fashion in accordance with the sampling plan.

**Task:** Submit Annual Report

**Compliance Date:** Annually, for three (3) years year after permit adoption

Submit a report to the Regional Board documenting the work performed in the sampling plan for the seventeen congeners.

**13. Site-Specific Objective for Cyanide**

The Discharger shall submit the following proposals and reports acceptable to the Executive Officer within the specified time periods. Each proposal shall include detailed description of the scope of the study for cyanide, along with an implementation schedule that is based on the shortest practicable time required to perform each task.

a) A proposal for ambient background water quality characterization for cyanide shall be submitted within 90 days of the effective date of this Order. It shall include, but is not limited to, the description of the location(s) for water quality sampling, analytical method(s) to be used, monitoring frequency, and reporting requirements.

b) A proposal for site-specific objective study for cyanide shall be submitted within 120 days of the effective date of this Order. It shall include, but is not limited to, the information specified in section 5.2 (1), (2), and (3) of the SIP.

Upon approval by the Executive Officer, the Discharger shall implement the proposals. Annual reports shall be submitted by January 31 of each year documenting the progress of the ambient background characterization for cyanide, and site-specific objective studies for cyanide. Annual report shall summarize the findings and progress to date, and include a realistic assessment of the shortest practicable time required to perform the remaining tasks of the studies.

By May 18, 2003, the Discharger shall complete the ambient background water quality characterization study for cyanide, and submit a report of the results.

By June 30, 2003, the Discharger shall submit a report of completion for the site-specific objective study for cyanide. This study shall be adequate to allow the Regional Board to initiate the development and adoption of the site-specific objective for cyanide. This permit may be reopened based on the site-specific objective developed.

#### **14. Interim Requirements for Tributyltin and Bis (2-ethylhexyl) phthalate**

The Discharger shall submit the following proposals and reports acceptable to the Executive Officer within the specified time periods. Each proposal shall include detailed description of the scope of the study for tributyltin, along with an implementation schedule that is based on the shortest practicable time required to perform each task.

A proposal for ambient background water quality characterization for tributyltin shall be submitted within 45 days of the effective date of this Order. It shall include, but is not limited to, the description of the location(s) for water quality sampling, analytical method(s) to be used, monitoring frequency, and reporting requirements.

Upon approval by the Executive Officer, the Discharger shall implement the proposal. A progress report shall be submitted as part of the annual self-monitoring report but no later than May 31, 2002 documenting the progress of the ambient background characterization. By May 18, 2003, the Discharger shall complete the ambient background water quality characterization study, and submit a report of the results.

The Discharger shall include Tributyltin and Bis (2-ethylhexyl) phthalate in its Pollutant Minimization Program, according to Provision 10 a) and b).

#### **15. Regional Monitoring Program:**

The Discharger shall continue to participate in the RMP in lieu of receiving water self-monitoring requirements that may be imposed.

#### **16. Ambient Background Receiving Water Study**

The Discharger shall collect or participate in collecting background ambient receiving water data with other dischargers and/or through the RMP. This information is required to perform RPAs and to calculate effluent limitations. The sampling shall be carried out according to the time schedule given below:

**Task:** Sampling Plan  
**Compliance Date:** 1 year after permit adoption

Submit a proposed sampling plan, acceptable to the Executive Officer, to sample receiving waters as defined in this Order. This proposed plan shall include a time schedule for performing the work.

**Task:** Implement Plan  
**Compliance Date:** According to schedule in the Sampling Plan

Commence work in accordance with the sampling plan.

**Task:** Interim and final reports  
**Compliance Date:** Interim Report - March 30, 2003  
Final Report - October 30, 2005

Submit a report, to the Regional Board, documenting the work performed in the sampling plan. Report information shall include the following information at a minimum:

- constituent sampled for,
- sampling results,
- sampling locations, including a scaled map showing sampling locations in relation to the discharge location,
- time the samples were collected,
- laboratory analysis methodology,
- QA/QC data.

#### 17. Optional Mass Offset

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

#### 18. Whole Effluent Chronic Toxicity Requirements:

The Discharger shall demonstrate compliance with the Basin Plan narrative toxicity objective by monitoring and evaluating the subject effluent for chronic toxicity in accordance with the following provisions.

- a. The Discharger shall conduct routine chronic toxicity monitoring in accordance with the SMP of this Order.
- b. If data from routine monitoring exceed either of the following evaluation parameters, the Discharger shall conduct accelerated chronic toxicity monitoring, consisting of monitoring at one half the routine monitoring interval contained in the SMP of this Order.
- c. Chronic toxicity evaluation parameters:
  - xi. a three sample median value of 10 TU<sub>c</sub>; and

- xii. a single sample maximum value of 20  $TU_c$ .

These parameters are defined as follows:

- (a) Three-sample median: A test sample showing chronic toxicity greater than 10  $TU_c$  represents an exceedance of this parameter, if one of the past two or fewer tests also show chronic toxicity greater than 10  $TU_c$ .
- (b)  $TU_c$  (chronic toxicity unit): A  $TU_c$  equals 100/NOEL (e.g., If NOEL = 100, then toxicity = 1  $TU_c$ ). NOEL is the no observed effect level determined from IC, EC, or NOEC values <sup>(6)</sup>.
- (c) The terms IC, EC, NOEL and NOEC and their use are defined in Attachment C of this Order.
- d. If data from accelerated monitoring tests are found to be in compliance with the evaluation parameters, then routine monitoring shall be resumed.
- e. If accelerated monitoring tests continue to exceed either evaluation parameter, then the Discharger shall initiate a chronic toxicity reduction evaluation (TRE) in accordance with the following provisions:
- i. The Discharger shall prepare and submit for the Executive Officer's approval a TRE work plan. A general workplan shall be submitted within 120 days of this Order's adoption. The workplan shall be reviewed and updated as necessary to remain current and applicable to the subject discharge and the Discharger's facilities.
  - ii. The TRE shall be initiated within 30 days of the date of completion of the accelerated monitoring test observed to exceed either evaluation parameter.
  - iii. The TRE shall be conducted in accordance with an approved work plan.
  - iv. The TRE shall be specific to the discharge and discharger facility, and shall be conducted in accordance with the most current technical guidance and reference materials, including U.S. EPA guidance materials. The TRE shall be conducted as a tiered evaluation, as shown below:
    - Tier 1: basic data collection - routine and accelerated monitoring.
    - Tier 2: evaluate optimization of the treatment process including operation practices, and in-plant process chemicals.
    - Tier 3: conduct a toxicity identification evaluation (TIE)
    - Tier 4: evaluate options for additional effluent treatment processes.
    - Tier 5: evaluate options for in-plant treatment process modifications.
    - Tier 6: implement selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.
  - v. The TRE may be ended at any stage if monitoring results indicate there is no longer an exceedance of the chronic toxicity evaluation parameter(s).
  - vi. The TIE is intended to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using the most current TIE methodologies shall be employed.
  - vii. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the source(s) and evaluating alternative strategies for reducing or eliminating the

substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.

- viii. TRE efforts should be coordinated with any required or recommended source control, pollution prevention, and stormwater control programs. The Executive Officer may, in the interests of efficiency, accept proof of compliance with requirements or recommendations of such programs as proof of compliance with TRE requirements.
- ix. The Regional Board recognizes that chronic toxicity may be episodic and source identification and reduction may not be fully successful in all cases. The Regional Board will consider the Discharger's efforts to identify and control sources of consistent toxicity when considering chronic-toxicity-related enforcement actions against the Discharger.
- x. Attachment C of this Order, Chronic Toxicity Monitoring Screening Phase Requirements, Critical Life Stage Toxicity Tests and definitions of terms used in the chronic toxicity monitoring are identified in. The Discharger shall comply with these requirements as applicable to the discharge.
- xi. The Regional Board may revise these chronic toxicity requirements based on the results of a review data from previous ETCP chronic toxicity testing.

#### **19. Wastewater Facilities - Review, 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 submit an annual report to the Regional Board describing the current status of its wastewater facility review and evaluation. This report shall include a summary of review and evaluation procedures, and applicable wastewater facility programs or capital improvement projects. This report shall be submitted in accordance with Provision 22, below.

#### **20. Operations and Maintenance Manual, Review and Status Reports.**

- a. The Discharger shall maintain an O&M Manual for its wastewater facilities as described in Finding 45 of this Order. The O&M Manual shall be maintained in useable condition, and shall be available for reference and use by all applicable personnel.
- b. The Discharger shall annually review, and update as necessary, the O&M Manual(s) so that it will remain useful and relevant to current equipment and operation practices. Applicable revisions for any significant changes in treatment facility equipment or operations practices, shall be completed within ninety (90) days of such changes' completion.
- c. The Discharger shall submit an annual report to the Regional Board describing the current status of its O&M Manual review and updating. This report shall include an estimated time schedule for completion of any revisions determined necessary, a description of any completed revisions, or a statement that no revisions are needed. This report shall be submitted in accordance with Provision 22 below.

#### **21. Contingency Plan, Review and Status Reports.**

- a. The Discharger shall maintain a Contingency Plan as required by Board Resolution 74-10 (attached), and as prudent in accordance with current municipal facility emergency planning. The Regional Board may consider a discharge of pollutants in violation of this Order a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code if the Discharger has not develop or adequately implemented an appropriate contingency plan.
- b. The Discharger shall annually review, and update as necessary, the Contingency Plan so that it remain useful and relevant to current equipment and operations practices.
- c. The Discharger shall submit to an annual report to the Regional Board describing the current status of its Contingency Plan review and update. This annual report shall include a description or copy of any completed revisions, or a statement that no changes are needed. This annual report shall be submitted in accordance with Provision 22 below.

## **22. Annual Status Reports.**

The reports identified in Provisions 19.c., 20.c. and 21.c. above shall be submitted to the Regional Board annually, by June 30 of each year. Modification of report submittal dates may be authorized, in writing, by the Executive Officer.

## **23. Copper, Nickel, Mercury, 4,4-DDE, and Dieldrin Site-Specific Objective (SSO), and TMDL Status Review:**

The Discharger shall participate in the the development of a TMDL or SSO for copper, nickel, mercury, 4,4-DDE, and Dieldrin. By January 31 of each year, the Discharger shall submit an update to the Board to document efforts made on participation in development of TMDL or SSO. Regional 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.

## **24. New Water Quality Objectives.**

As new or revised water quality objectives come into effect for the Bay and contiguous water bodies (whether statewide, regional or site-specific), effluent limitations in this Order will be modified as necessary to reflect updated water quality objectives. Adoption of effluent limitations contained in this Order are not intended to restrict in any way future modifications based on legally adopted water quality objectives.

## **25. 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 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.

## **26. Permit Reopener**

The Regional Board may modify, or revoke and reissue, this Order if present or future investigations demonstrate that the discharge(s) governed by this Order will, or have the potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters.

**27. 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 10 days after the date of its adoption provided the U.S. EPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the Order shall not become effective until such objection is withdrawn.

**28. Order Expiration and Reapplication.**

- a. This Order expires, on May 31, 2006.
- 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 Order and waste discharge requirements.

I, Loretta K. Barsamian, 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 20, 2001.



LORETTA K. BARSAMIAN

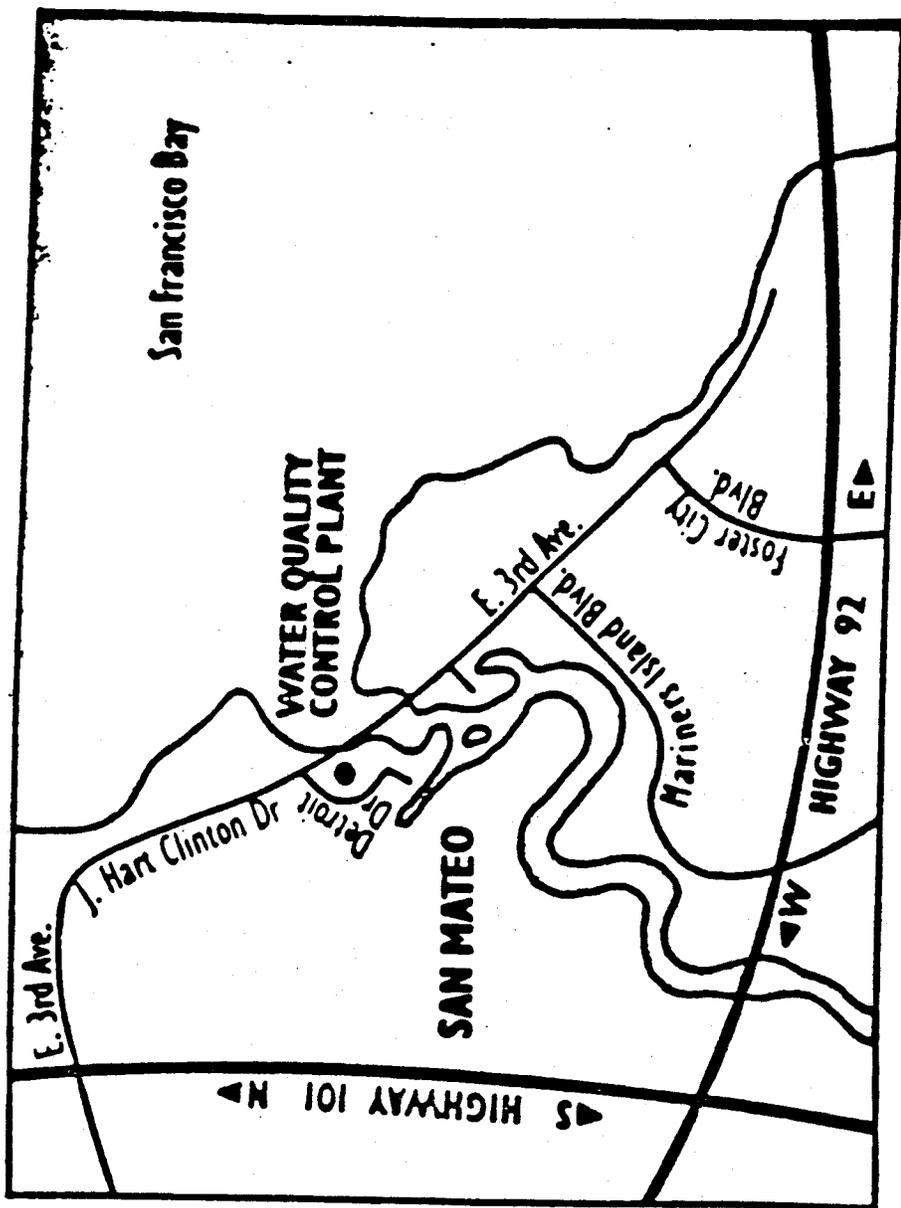
Executive Officer

**Attachments:**

- A. Discharge Facility Location Map
- B. Discharge Facility Treatment Process Diagram
- C. Chronic Toxicity - Definition of Terms and Screening Phase Requirements
- D. Self-Monitoring Program (Part A and Part B)
- E. Standard Provisions, Adopted August 1993
- F. Pretreatment Program Provisions

**ATTACHMENT A**

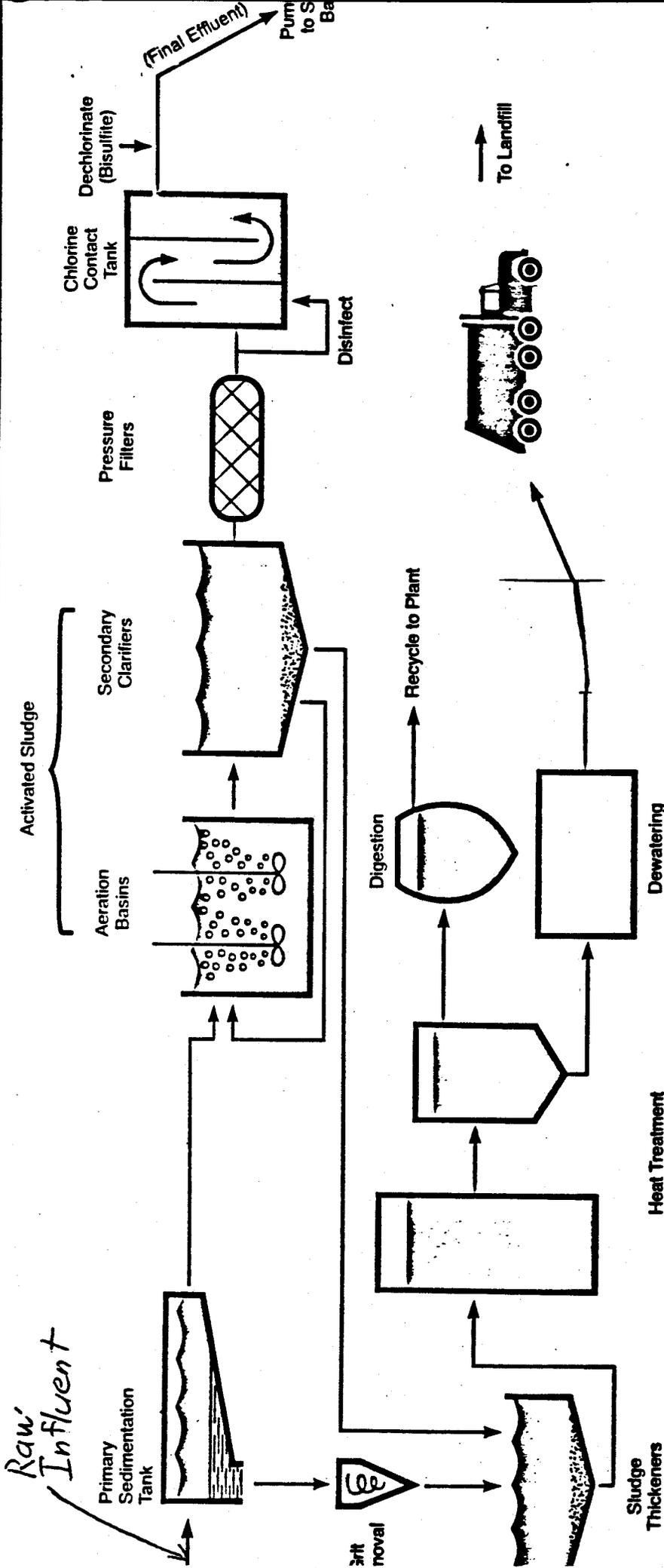
***Discharge Facility Location Map***



Attachment A – Discharge Facility Location Map

**ATTACHMENT B**

***Discharge Facility Treatment Process Diagram***



Attachment B – Discharge Facility Treatment Process Diagram

## **ATTACHMENT C**

### ***Chronic Toxicity - Definition of Terms and Screening Phase Requirements***

## CHRONIC TOXICITY - DEFINITION OF TERMS & SCREENING PHASE REQUIREMENTS

### **I. Definition of Terms**

- A. No observed effect level (NOEL) for compliance determination is equal to  $IC_{25}$  or  $EC_{25}$ . If the  $IC_{25}$  or  $EC_{25}$  cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.
- B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Kärber.  $EC_{25}$  is the concentration of toxicant (in percent effluent) that causes a response in 25% of the test organisms.
- C. Inhibition Concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal, non-quantal biological measurement, such as growth. For example, an  $IC_{25}$  is the estimated concentration of toxicant that would cause a 25% reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as EPA's Bootstrap Procedure.
- D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

### **II. Chronic Toxicity Screening Phase Requirements**

- A. The discharger shall perform screening phase monitoring:
  - 1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to pretreatment, source control, and waste minimization efforts, or
  - 2. Prior to Permit reissuance. Screening phase monitoring data shall be included in the NPDES Permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.
- B. Design of the screening phase shall, at a minimum, consist of the following elements:
  - 1. Use of test species specified in Tables 1 and 2 (attached), and use of the protocols referenced in those tables, or as approved by the Executive Officer;
  - 2. Two stages:
    - a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Table 3 (attached); and
    - b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.
  - 3. Appropriate controls; and
  - 4. Concurrent reference toxicant tests.
- C. The discharger shall submit a screening phase proposal to the Executive Officer for approval. The proposal shall address each of the elements listed above.

TABLE C 1

## CRITICAL LIFE STAGE TOXICITY TESTS FOR ESTUARINE WATERS

SPECIES	(Scientific name) DURATION	EFFECT ENCE	TEST	REFER-
alga	( <u>Skeletonema costatum</u> ) ( <u>Thalassiosira pseudonana</u> )	growth rate	4 days	1
red alga	( <u>Champia parvula</u> )	number of cystocarps	7-9 days	5
Giant kelp	( <u>Macrocystis pyrifera</u> )	percent germination; germ tube length	48 hours	3
abalone	( <u>Haliotis rufescens</u> )	abnormal shell development	48 hours	3
oyster mussel	( <u>Crassostrea gigas</u> ) ( <u>Mytilus edulis</u> )	{abnormal shell development; {percent survival	48 hours	2
Echinoderms (urchins - (sand dollar -	<u>Strongylocentrotus purpuratus</u> , <u>S. franciscanus</u> ); <u>Dendraster excentricus</u> )	percent fertilization	1 hour	4
shrimp	( <u>Mysidopsis bahia</u> )	percent survival; growth; fecundity	7 days	5
silversides	( <u>Menidia beryllina</u> )	larval growth rate; percent survival	7 days	5

**Toxicity Test References:**

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for conducting static 96-hour toxicity tests with microalgae. Procedure E 1218-90. ASTM Philadelphia, PA.
2. American Society for Testing Materials (ASTM). 1989. Standard Practice for conducting static acute toxicity tests with larvae of four species of bivalve molluscs. Procedure E 724-89. ASTM, Philadelphia, PA.
3. Anderson, B.B. J.W. Hunt, S.L. Turpen, A.R. Coulon, M. Martin, D.L. McKeown, and F.H. Palmer. 1990. Procedures manual for conducting toxicity tests developed by the marine bioassay project. California State Water Resources Control Board, Sacramento.
4. Dinnel, P.J., J. Link, and Q. Stober. 1987. Improved methodology for sea urchin sperm cell bioassay for marine waters. Archives of Environmental Contamination and Toxicology 16:23-32. and S.L. Anderson. September 1, 1989. Technical Memorandum. San Francisco Bay Regional Water Quality Control Board, Oakland, CA.
5. Weber, C.I., W.B. Horning, II, D.J. Klem, T.W. Neihsel, P.A. Lewis, E.L. Robinson, J. Menkedick, and F. Kessler (eds.). 1988. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to marine and estuarine organisms. EPA-600/4-87/028. National Technical Information Service, Springfield, VA.

TABLE C 2  
**CRITICAL LIFE STAGE TOXICITY TESTS FOR FRESH WATERS**

SPECIES	(Scientific name)	EFFECT	TEST DURATION	REFERENCE
fathead minnow	( <u>Pimephales promelas</u> )	survival; growth rate	7 day	6
water flea	( <u>Ceriodaphnia dubia</u> )	survival; number of young	7 days	6
alga	( <u>Selenastrum capricornutum</u> )	cell division rate	4 days	6

**Toxicity Test Reference:**

6. Horning, W.B. and C.I. Weber (eds.). 1989. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms. Second edition. U.S. EPA Environmental Monitoring Systems Laboratory, Cincinnati, Ohio. EPA/600/4-89/001.

TABLE C 3  
**TOXICITY TEST REQUIREMENTS FOR STAGE ONE SCREENING PHASE**

REQUIREMENTS	RECEIVING WATER CHARACTERISTICS		
	Discharges to Coast	Discharges to San Francisco Bay ‡	
	Ocean	Marine	Freshwater
Taxonomic Diversity:	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater (†): Marine:	0 4	1 or 2 3 or 4	3 0
Total number of tests:	4	5	3

† The fresh water species may be substituted with marine species if:

- 1) The salinity of the effluent is above 5 parts per thousand (ppt) greater than 75% of the time, or
- 2) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

‡ Marine refers to receiving water salinities greater than 5 ppt at least 75% of the time during a normal water year.

Fresh refers to receiving water with salinities less than 5 ppt at least 75% of the time during a normal water year.

**ATTACHMENT D**

***Self-Monitoring Program***

August 1993

**SELF-MONITORING PROGRAM  
PART A**

**NPDES PERMITS**

**A. BASIS AND PURPOSE**

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383 and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

The principal purposes of a monitoring program by a waste discharger, also referred to as self-monitoring program, are: (1) to document compliance with waste discharge requirements and prohibitions established by this Regional Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and wastewater quality inventories.

**B. SAMPLING AND ANALYTICAL METHODS**

Sample collection, storage, and analyses shall be performed in accordance with the 40 CFR S136 or other methods approved and specified by the Executive Officer of this Regional Board (See Part B).

Water and waste analyses shall be performed by a laboratory approved for these analyses by the State Department of Health Services (DOHS) or a laboratory waived by the Executive Officer from obtaining a certification for these analyses by the DOHS. The director of the laboratory whose name appears on the certification or his/her laboratory supervisor who is directly responsible for analytical work performed shall supervise all analytical work including appropriate quality assurance/quality control procedures in his or her laboratory and shall sign all reports of such work submitted to the Regional Board.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

**C. SPECIFICATIONS FOR SAMPLING AND ANALYSES**

The discharger is required to perform sampling and analyses according to the schedule in Part B in accordance with the following conditions:

**1. Influent**

Composite samples of influent shall be collected on varying days selected at random and shall not include any plant recirculation or other side stream wastes. Deviation from this must be approved by the Executive Officer.

**2. Effluent**

a. Composite samples of effluent shall be collected on days coincident with influent composite sampling unless otherwise stipulated. At least one sampling day in each seven shall reflect one day of weekend discharge, one day of peak loading and during major unit operation shutdown or startup. The Executive Officer may approve an alternative sampling plan if it is demonstrated to the EO's satisfaction that expected operating conditions for the facility warrant a deviation from the standard sampling plan.

b. Grab samples of effluent shall be collected during periods of maximum peak flows and shall coincide with effluent composite sample days.

- c. Fish bioassay samples shall be collected on days coincident with effluent composite sampling.
  - 1) Bioassay tests should be performed on effluent samples after chlorination-dechlorination.
  - 2) Total ammonia nitrogen shall be analyzed and un-ionized ammonia calculated whenever fish bioassay test results fail to meet the specified percent survival.
- d. If two consecutive samples of a constituent monitored on a weekly or monthly basis in a 30 day period exceed the monthly average effluent limit for any parameter, (or if the required sampling frequency is once per month and the monthly sample exceeds the monthly average limit), the sampling frequency shall be increased to daily until the additional sampling shows that the most recent 30-day moving average is in compliance with the monthly average limit.
- e. If any maximum daily limit is exceeded, the sampling frequency shall be increased to daily until two samples collected on consecutive days show compliance with the maximum daily limit.
- f. If the final or intermediate results of any single bioassay test indicate a threatened violation (i.e. the percentage of surviving test organisms is less than the required survival percentage), a new test will begin and the discharger shall investigate the cause of the mortalities and report the finding in the next self-monitoring report.
- g. Chlorine residual analyzers shall be calibrated against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, grab samples shall be collected at least every 30 minutes until compliance is achieved.
- h. When any type of bypass occurs, composite samples shall be collected on a daily basis for all constituents at all affected discharge points which have effluent limits for the duration of the bypass.

### 3. Storm Water

If all storm water is not directed back to the headworks during the wet season (October 1 to April 30) the discharger shall:

- a. Conduct visual observations of the storm water discharge locations on at least one storm event per month that produces significant storm water discharge to observe the presence of floating and suspended materials, oil and grease, discoloration, turbidity, and odor, etc.
- b. Measure (or estimate) the total volume of storm water discharge and collect and analyze grab samples of storm water discharge from at least two storm events that produce significant storm water discharge for: oil and grease, pH, total suspended solids (TSS), specific conductance, and toxic chemicals and other pollutants that have a reasonable potential to be present in storm water discharge in significant quantities.

The grab sample(s) shall be taken during the first thirty minutes of the discharge. If the collection of the grab sample(s) during the first 30 minutes is impracticable, grab sample(s) can be taken during the first hour of the discharge, and the discharger shall explain in the annual monitoring report why the grab sample(s) could not be taken in the first 30 minutes.

- c. Testing for the presence of non-storm water discharges shall be conducted no less than twice during the dry season (May to September) at all storm water discharge locations. Tests may include visual observations of flows, stains, sludges, odors, and other abnormal conditions; dye tests; TV line surveys; and/or analysis and validation of accurate piping schematics. Records shall be maintained of the description of the method used, date of testing, locations observed, and test results.

- d. Samples shall be collected from all locations where storm water is discharged. Samples must represent the quality and quantity of storm water discharged from the facility. If a facility discharges storm water at multiple locations, the discharger may sample a reduced number of locations if it is established and documented in the monitoring program that storm water discharges from different locations are substantially identical.
- e. Records of all storm water monitoring information and copies of all reports required by this permit shall be retained for a period of at least three years from the date of sample, observation, or report.

**4. Receiving Waters:**

- a. Receiving water samples shall be collected on days coincident with composite sampling of effluent.
- b. Receiving water samples shall be collected at each sampling station on each sampling day during the period within 1 hour following low slack water. Where sampling at lower slack water period is not practical, sampling shall be performed during higher slack water period. Samples shall be collected within the discharge plume and down current of the discharge point so as to be representative, unless otherwise stipulated.
- c. Samples shall be collected within one foot below the surface of the receiving water body, unless otherwise stipulated.

**5. Bottom Sediment Samples and Sampling and Reporting Guidelines**

- a. Bottom sediment sample means: (1) a separate grab sample taken at each sampling station for the determination of selected physical-chemical parameters, or (2) four grab samples collected from different locations in the immediate vicinity of a sampling station while the boat is anchored and analyzed separately for macroinvertebrates. Physical-chemical sample analyses include as a minimum:

- 1) pH
- 2) TOC (Total Organic Carbon)
- 3) Grease analysis:
  - (a) Mg grease per kg sediment
  - (b) Percent fraction of hydrocarbon in grease
- 4) Selected metals (depending on industrial input) mg/kg dry wt (and soluble metals in mg/l).
- 5) Particle size distribution, i.e. , % sand, % silt-clay
- 6) Depth of water at sampling station in meters
- 7) Water salinity and temperature in the water column within one meter of the bottom.

**D. STANDARD OBSERVATIONS**

**1. Receiving Water**

- a. Floating and suspended materials of waste origin (to include oil, grease, algae, and other macroscopic particulate matter, presence or absence, source, and size of affected area.
- b. Discoloration and turbidity: description of color, source, and size of affected area.
- c. Odor: presence or absence, characterization, source, distance of travel, and wind direction.
- d. Evidence of beneficial water use: presence of water-associated waterfowl or wildlife, fishermen, and other recreational activities in the vicinity of the sampling stations.
- e. Hydrographic condition:
  - 1) Time and height of corrected high and low tides (corrected to nearest NOAA location for the sampling date and time of sample and collection).
  - 2) Depth of water columns and sampling depths.
- f. Weather conditions:
  - 1) Air temperatures.
  - 2) Wind – direction and estimated velocity.
  - 3) Total precipitation during the previous five days and on the day of observation.

**2. Wastewater Effluent**

- a. Floating and suspended material of waste origin (to include oil, grease, algae, and other macroscopic particulate matter): presence or absence
- b. Odor: presence or absence, characterization, source, distance of travel.

**3. Beach and Shoreline**

- a. Material of waste origin: presence or absence, description of material, estimated size of affected area, and source.
- b. beneficial use: estimate number of people sunbathing, swimming, water-skiing, surfing, etc.

**4. Land Retention or Disposal Area**

This applies both to liquid and solid wastes confined or unconfined.

- a. For each impoundment determine amount of the freeboard at lowest point of dikes confining liquid wastes.
- b. Evidence of leaching liquid from area of confinement and estimated size of affected area. Show affected area on a sketch and volume of flow (gpm, etc.)
- c. Odor: presence or absence, characterization, source, and distance of travel.
- d. Estimated number of waterfowl and other water-associated birds in the disposal area and vicinity.

**5. Periphery of Waste Treatment and/or Disposal Facilities**

- a. Odor: presence or absence, characterization, source, and distance of travel.
- b. Weather condition: wind direction and estimated velocity

**E. RECORDS TO BE MAINTAINED**

1. Written reports, strip charts, calibration and maintenance records, and other records shall be maintained by the discharger and accessible (at the waste treatment plant), and retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board or Regional Administrator of the USEPA, Region IX. Such records shall show the following for each sample:
  - a. Identity of sampling and observation stations by number.
  - b. Date and time of sampling and/or observations.
  - c. Method of composite sampling (See Section G -Definition of Terms)
  - d. Type of fish bioassay test (96 hour static or flow-through bioassay)
  - e. Date and time that analyses are started and completed, and name of personnel performing the analyses.
  - f. Complete procedure used, including method of preserving sample and identity and volumes of reagents used. A reference to specific section of Standard Methods is satisfactory.
  - g. Calculations of results.
  - h. Results of analyses and/or observations.
2. A tabulation shall be maintained showing the following flow data for influent and effluent stations and disposal areas:
  - a. Total waste flow or volume, for each day.
  - b. Maximum and minimum daily flows for each month.
3. A tabulation shall be maintained showing the following information for all other plant wastes and disposal areas:
  - a. Total monthly volume of grit, skimming, and undigested sludge (in cubic yards or cubic feet) from each treatment unit and the disposal site location
  - b. Total monthly volume and solids content of dewatered sludge from each treatment unit (in cubic yards or cubic feet) and the disposal site location.
4. A tabulation reflecting bypassing and accidental waste spills shall be maintained showing information items listed in Sections E -1 and E-2 for each occurrence.
5. A chronological log for each month shall be maintained of the effluent disinfection and bacterial analyses, showing the following:
  - a. Date and time each sample is collected and waste flow rate at time of collection.
  - b. Chlorine residual, contact time, and dosage (in kilograms per day and parts per million).

- c Coliform count for each sample
- d Moving median coliform of the number of samples specified by waste discharge requirements.

**F. REPORTS TO BE FILED WITH THE REGIONAL BOARD**

**1. Spill Reports**

A report shall be made of any spill of oil or other hazardous material. Spills shall be reported to this Regional Board, at (510) 286-1255 on weekdays during office hours from 8 AM to 5 PM, and to the Office of Emergency Services at (800) 852-7550 during non office hours, and the U.S. Coast Guard at (415) 437-3091 (if the spill is into navigable waters) by telephone immediately after occurrence. A written report shall be filed with the Regional Board within five (5) working days and shall contain information relative to:

- a nature of waste or pollutant,
- b quantity involved,
- c duration of incident,
- d cause of spill,
- e SPCC Spill Prevention and Containment Plan in effect, if any,
- f estimated size of affected area,
- g nature of effects (i.e., fishkill, discoloration of receiving water, etc.),
- h corrective measures that have been taken or planned, and a schedule of these activities, and
- i persons notified.

**2. Reports of Plant Bypass, Treatment Unit Bypass and Permit Violation**

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:

- a Maintenance work, power failures, or breakdown of waste treatment equipment, or
- b accidents caused by human error or negligence, or
- c other causes, such as acts of nature,

the discharger shall notify the Regional Board office by telephone as soon as he or his agents have knowledge of the incident and confirm this notification in writing within 7 working days of the telephone notification. The written report shall include time and date, duration and estimated volume of waste bypassed, method used in estimating volume and person notified of the incident. The report shall include pertinent information explaining reasons for the noncompliance and shall indicate what steps were taken to prevent the problem from recurring.

In addition, the waste discharger shall promptly accelerate his monitoring program to analyze the discharge at least once every day (Section C.2.h). Such daily analyses shall continue until such time as the effluent limits have been attained, until bypassing stops or until such time as the Executive Officer determines to be appropriate. The results of such monitoring shall be included in the regular Self-Monitoring Report.

3. The discharger shall file a written technical report to be received at least 30 days prior to advertising for bid (60 days prior to construction) on any construction project which would cause or aggravate the discharge of waste in violation of requirements; said reports shall describe the nature, cost, and scheduling of all actions necessary to preclude such discharge. In no case will any discharge of wastes in violation of permit and order be permitted unless notification is made to the Executive Officer and approval obtained from the Regional Board.

**4. Self-Monitoring Reports**

Written reports shall be filed regularly for each calendar month (unless specified otherwise) and filed no later than the fifteenth day of the following month. The reports shall be comprised of the following:

a. Letter of Transmittal:

A letter transmitting self-monitoring reports should accompany each report. Such a letter shall include:

- 1) Identification of all violations of waste discharge requirements found during the reporting period,
- 2) Details of the magnitude, frequency, and dates of all violations,
- 3) The cause of the violations, and
- 4) Discussion of the corrective actions taken or planned and the time schedule for completion. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory.

Monitoring reports and the letter transmitting reports shall be signed by a principal executive officer or ranking elected official of the discharger, or by a duly authorized representative of that person.

The letter shall contain the following certification:

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

b. Compliance Evaluation Summary

Each report shall be accompanied by a compliance evaluation summary sheet prepared by the discharger. The report format will be prepared using the example shown in Part B. The discharger will prepare the format using those parameters and requirement limits for receiving water and effluent constituents specified in his permit.

c. Map or Aerial Photograph

A map or aerial photograph shall accompany the report showing sampling and observation station locations.

d. Results of Analyses and Observations

Tabulations of the results from each required analysis specified in **Part B** by date, time, type of sample, detection limit and station, signed by the laboratory director. The report format will be prepared using the examples shown in Part B.

- 1) If the discharger monitors any pollutant more frequently than required by this permit using test procedures approved under 40 CFR Part 136 or as specified in this Permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Self-Monitoring Report.
- 2) Calculations for all limitations that require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

e. Effluent Data Summary

Summary tabulations of the data shall include for each constituent total number of analyses, maximum, minimum, and average values for each period. The report format will be the NPDES Discharge Monitoring Report., EPA Form 3320-1. Flow data shall be included. The original is to be submitted to:

Executive Officer  
California Regional Water Quality Control Board  
San Francisco Bay Region  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

f. Flow Data

The tabulation pursuant to Section F-2.

**5. Annual Reporting**

By January 30 of each year, the discharger shall submit an annual report to the Regional Board covering the previous calendar year. The report shall contain :

- a. Both tabular and graphical summaries of the monitoring data during the previous year.
- b. A comprehensive discussion of the compliance record and the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the waste discharge requirements.
- c. List of Approved Analyses
  - 1) Listing of analyses for which the discharger is approved by the State Department of Health Services.
  - 2) List of analyses performed for the discharger by another approved laboratory (and copies of reports signed by the laboratory director of that laboratory shall also be submitted as part of the report).
  - 3) List of "waived" analyses, as approved.  
The report format shall be prepared by using the examples shown in Part B.

## G. DEFINITION OF TERMS

1. A grab sample is defined as an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may or may not be during hydraulic peaks. It is used primarily in determining compliance with daily maximum limits and instantaneous maximum limits. Grab samples represent only the condition that exists at the time the wastewater is collected.
2. A composite sample is defined as a sample composed of individual grab samples mixed in proportions varying not more than plus or minus five percent from the instantaneous rate (or highest concentration) of waste flow corresponding to each grab sample collected at regular intervals not greater than one hour, or collected by the use of continuous automatic sampling devices capable of attaining the proportional accuracy stipulated above throughout the period of discharge for 8 consecutive or of 24 consecutive hours, whichever is specified in Table 1 of Part B
3. A flow sample is defined as the accurate measurement of the average daily flow volume using a properly calibrated and maintained flow measuring device.
4. Duly authorized representative is one whose:
  - a. Authorization is made in writing by a principal executive officer or ranking elected official;
  - b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as general partner in a partnership, sole proprietor in a sole proprietorship, the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)
5. Average values for daily and monthly values is obtained by taking the sum of all daily values divided by the number of all daily values measured during the specified period.
6. Median of an ordered set of values is that value below and above which there is an equal number of values, or which is the arithmetic mean of the two middle values, if there is no one middle value.
  - a. A 5-day median value for coliform bacteria is the third highest count of 5 daily counts obtained from 5 consecutive sampling days. A 7-day median value is the fourth highest of 7 daily counts obtained from 7 consecutive sampling days.
  - b. A 5-day moving median value for coliform bacteria is the median value calculated for each consecutive sampling day based upon the period from the sample day and the previous 4 sampling days.
  - c. A 7-day moving median is calculated for each consecutive sampling day based upon the period from the sample day and the previous 6 sampling days. Moving median values for the beginning of the month shall be calculated using the previous month's counts (i.e. the last four counts for a 5-day moving median and the last seven counts for a 7-day moving median from the previous month).
7. A 6-month median means a moving median of daily values for any 180 day period in which daily values represent flow-weighted average concentrations within a daily or 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.

8. The geometric mean is anti log of log mean. Used for determining compliance with bacteriological standards, the lcg mean is calculated with the following equation:

$$\text{Log Mean} = \frac{1}{N} \sum_{i=1}^N \text{Log } C_i$$

in which "N" is the number of days samples that were analyze during the period and "C<sub>i</sub>" is the concentration of bacteria (MPN/100 ml) found on each day of sampling.

9. Daily Maximum limit is the total discharge in a calendar day for pollutants measured by mass or the average measurement obtained for other pollutants.
10. Instantaneous Maximum is defined as the highest measurement obtained for the calendar day, as determined by a grab sample.
11. A depth-integrated sample is defined as a water or waste sample collected by allowing a sampling device to fill during a vertical traverse in the waste or receiving water body being sampled and shall be collected in such a manner that the collected sample will be representative of the waste or water body at that sampling point.
12. Bottom sediment sampling and reporting guidelines mean those guidelines developed by the Regional Board staff to provide for standard bottom sampling, laboratory, and reporting procedures.

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

**SELF-MONITORING PROGRAM**

**FOR**

**CITY OF SAN MATEO  
WASTEWATER TREATMENT PLANT**

**SAN MATEO, SAN MATEO COUNTY**

**NPDES PERMIT NO. CA0037541**

**ORDER NO. 01-071**

CONSISTS OF PART A (Adopted August 1993)

and

PART B (attached)

## **I. BASIS and PURPOSE**

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268 and 13387 (b) of the California Water Code and this Board's Resolution No. 73-16.

The principal purposes of a monitoring program by a waste discharger, also referred to as self-monitoring, are to:

- (1) document compliance with waste discharge requirements established by the Board,
- (2) facilitate self-policing by the discharger in prevention and abatement of pollution arising from waste discharges,
- (3) develop or assist in development of effluent limitations or other waste discharge requirements, pretreatment standards, whole effluent toxicity standards and other regional, state or national standards of performance, and
- (4) prepare water and wastewater quality inventories.

## **II. SAMPLING and ANALYTICAL METHODS**

Sample collection, handling, storage and analyses shall be performed in accordance with regulations given in Code of Federal Regulations Title 40, Part 136 (40 CFR 136) or other methods approved and specified by the Board's Executive Officer.

Water and waste analyses shall be performed by a laboratory approved for these analyses by the State Department of Health Services (DOHS) through the DOHS laboratory certification program or by a laboratory for which waiver from such certification has been provided by the Executive Officer.

The director of the laboratory whose name appears on the DOHS laboratory certification, or the director's authorized designee who is directly responsible for analytical work performed shall supervise all analytical work including appropriate quality assurance and quality control procedures, and shall sign all reports of such work conducted as part of this Self-Monitoring Program.

All monitoring instruments and equipment shall be properly calibrated and maintained in order to ensure accuracy of monitoring sampling and measurements.

## **III. DEFINITION of TERMS**

### A. Types of Samples

1. *Grab Sample.* A grab sample is defined as an individual sample collected in a short period of time not exceeding fifteen minutes. A grab sample represents only the conditions that exist at the time the sample is collected. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may not necessarily correspond with periods of peak hydraulic conditions. Grab samples are used primarily in determining compliance with daily and instantaneous maximum or minimum limits.
2. *Composite Sample.* A composite sample is defined as a sample composed of multiple individual grab samples collected at regular intervals throughout a given period of time, with the individual grab samples mixed in proportion to the instantaneous waste flow rate at the time of each grab sample. For standard composite sampling required by this SMP, grab sample intervals shall not exceed one hour, and sample proportioning shall not vary by more than five percent of the flow rate.
3. *Flow Sample.* A flow sample is defined as the accurate measurement of either a volumetric flow rate or flow volume using a properly calibrated and maintained flow measuring device. Flows are typically reported as Average Daily Flow which is the average flow rate during a 24-hour calendar day, and typically reported in units of million gallons per day (mgd).

### B. Statistical Parameters

1. *Average.* Average is the arithmetic mean; i.e., the sum all values in a given data set, divided by the total number of values. A monthly average applies to samples collected in a calendar month.
2. *Median.* The median is the middle value of an ordered set of values; i.e., the value in the ordered set for which there is an equal number of values both greater than and less than this middle value. If the data set is an even number of values, the median is the arithmetic mean of the two middle values.
3. *Log mean.* The log mean is the summation of the log values of each data set value, divided by the number of values in the set. The log mean is given by the following equation:

$$\text{Log mean} = \frac{\sum_{i=1}^n (3 \text{ Log } (C_i))}{n}$$

where: n is the number of data set values; and  
C<sub>i</sub> is the individual datum value.

4. *Geometric Mean.* The geometric mean is the anti-log of the log mean of a given data set.

C. Standard Observations

1. Wastewater Effluent:
  - a. Floating or suspended material of waste origin (e.g., oil, grease, algae, and other macroscopic particulate matter): Presence or absence; description of any materials observed.
  - b. Nuisance Odors: Presence or absence; characterization description if present; apparent source(s); and distance of travel.
  
2. Perimeter of wastewater treatment facility:
  - a. Nuisance Odors: same as 1.b. above.
  - b. Weather conditions:
    - (1) General characterization (e.g., sunny, cloudy, rainy);
    - (2) Air temperature
    - (3) Wind: Direction and estimated velocity.
    - (4) Precipitation: Total precipitation since previous observation.

IV. **DESCRIPTION of SAMPLING and OBSERVATION STATIONS**

NOTE: A sketch showing the locations of all sampling and observation stations shall be included in the Annual Report, and in the monthly report if stations change.

<u>Station</u> _____	<u>Description</u>
----------------------	--------------------

A. INFLUENT

A-001      At any point in the treatment facilities headworks at which all waste tributary to the treatment system is present, and preceding any phase of treatment.

B. EFFLUENT

E-001      Lower San Francisco Bay Discharge  
 At a point in the treatment facility following all treatment processes at which all effluent to be discharged through the outfall to Lower San Francisco Bay is present, prior to the point of discharge.

E-001-D Disinfected Effluent

At a point in the treatment facility at which all effluent to be discharged to the outfall is present, and at which point adequate contact with the disinfectant has been achieved. (May be the same as E-001).

C. OVRFLOWS AND BYPASSES

Station

Description

OV-1 Bypass or overflows from manholes, pump stations, or collection systems.

**V. SCHEDULE of SAMPLING, ANALYSES and OBSERVATIONS**

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

TABLE 1 – SCHEDULE OF SAMPLING, ANALYSES AND OBSERVATIONS [1]

Sampling Station:			A-001	E-001		OV
			Influent	Effluent to Central San Francisco Bay		O
Type of Sample:			C-24	G	C-24	
Parameter	Units	Notes	[1]			
Flow Rate	mgd	[2]	Cont/D		Cont/D	Est Volume
pH	pH units			D		
Temperature	°C			D		
Dissolved Oxygen	mg/L			D		
BOD <sub>5</sub> 20°C/CBOD	mg/L		3/W		3/W	
TSS	mg/L		3/W		D	
Settleable Matter	ml/l-hr	[3]		2/W		
Turbidity	NTU				2/W	
Fecal Coliform	MPN / 100 ml			3/W		
Chlorine Residual	mg/L	[4]			Cont./2h	
Acute Toxicity	% Surv'l	[5]			M	
Chronic Toxicity		[6]			2/Y	
Cyanide	ug/L	[7]	M	M		
Mercury	ug/L & kg/mo				M (kg/mo measurements)	
Metals	ug/L	[8]			M (dry and wet weather)	
Tributyltin	ug/L				2/Y	

Dioxin	ug/L			2/Y for three years		
Table 2 Selected Constituents except those listed above	ug/L	[9]		2/Y		
Dieldrin, 4,4-DDE	ug/L				Once every Five Years	
Standard Observations						

**Pretreatment Requirements**

Constituents/EPA Method	Influent	Effluent	Sludge
VOC/ 624	2/Y	2/Y	
BNA/ 625	2/Y	2/Y	
Metals [10]	M	M	
Sludge [11]			2/Y

**LEGEND FOR TABLE 1**

Sampling Stations:

- A = treatment facility influent
- E = treatment facility effluent
- OV = overflow and bypass points

Types of Samples:

- C-24 = composite sample, 24 hours  
(includes continuous sampling, such as for flows)
- G = grab sample
- O = observation

Frequency of Sampling

- Cont. = continuous

Parameter and Unit Abbreviations

- BOD<sub>5</sub> 20°C = Biochemical Oxygen Demand, 5-day, at 20 °C

Cont/D = continuous monitoring & daily reporting	D.O. = Dissolved Oxygen
D = once each day	Est V = Estimated Volume (gallons)
E = each occurrence	Metals = multiple metals; See SMP Section VI.G.
M = once each month	PAHs = Polynuclear Aromatic Hydrocarbons; See SMP Section VI.H.
W = once each week	TSS = Total Suspended Solids
Y = once each calendar year	mgd = million gallons per day
2/Y = twice each calendar year (at about 6 months intervals)	mg/L = milligrams per liter
3/W = three times each calendar week (on separate days)	ml/L-hr = milliliters per liter, per hour
5/W = five times each calendar week (on separate days)	µg/L = micrograms per liter
	kg/mo = kilograms per month
	MPN/100 ml = Most Probable Number per 100 milliliters

## VI. SPECIFICATIONS for SAMPLING, ANALYSES and OBSERVATIONS – FOOTNOTES FOR TABLE 1

Sampling, analyses and observations, and recording and reporting of results shall be conducted in accordance with the schedule given in Table 1 of this SMP, and in accordance with the following specifications, as well as all other applicable requirements given in this SMP. All analyses shall be conducted using analytical methods that are commercially and reasonably available, and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits.

### 1. Influent Monitoring.

Influent monitoring identified in Table 1 of this SMP is the minimum required monitoring. Additional sampling and analyses may be required in accordance with Pretreatment Program or Pollution Prevention/Source Control Program requirements.

### 2. Flow Monitoring.

Flow monitoring indicated as continuous monitoring in Table 1 shall be conducted by continuous measurement of flows, and reporting of the following measurements:

*Influent (A-001),*

- a. Daily: (1) Maximum Instantaneous Flow (mgd)  
(2) Minimum Instantaneous Flow (mgd).
- b. Monthly: The same values as given in a. above, for the calendar month.

*Effluent (E-001):*

- a. Daily: Total daily flow (mg)
- b. Monthly: The same values as given in Influent (a), above, for the calendar month

3. Settleable Matter

Option of either grab or composite sampling protocol

4. Disinfection Process Monitoring.

During all times when chlorination is used for disinfection of the effluent, effluent chlorine residual concentrations shall be monitored continuously, or by grab samples taken once every 2 hours. Chlorine residual concentrations shall be monitored and reported for sampling points both prior to and following dechlorination. Total chlorine dosage (kg/day) shall be recorded on a daily basis.

5. Acute Toxicity Monitoring (Flow-through bioassay tests).

The following parameters shall be monitored on the sample stream used for the acute toxicity bioassays, at the start of the bioassay test and daily for the duration of the bioassay test, and the results reported: pH, Temperature, Dissolved Oxygen, and Ammonia Nitrogen.

6. Chronic Toxicity Monitoring: See also, Provision E.17. and Attachment C of this Order.

- a. Sampling. The discharger shall collect 24-hour composite samples of treatment plant effluent at Sampling Station E-001, for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.
- b. Test Species: Chronic toxicity shall be monitored by using critical life stage test(s) and the most sensitive test specie(s) identified by screening phase testing or previous testing conducted under the ETCF. Test specie(s) shall be approved by the Executive Officer. Two test species may be required if test data indicate that there is alternating sensitivity between the two species.

- c. Frequency:
- (1) Routine Monitoring: Twice per year (Screening Phase Monitoring may be substituted for 1<sup>st</sup> year routine monitoring)
  - (2) Accelerated Monitoring: Quarterly, or as otherwise specified by the Executive Officer.
  - (3) Screening will take place in accordance with the Chronic Toxicity Attachment.
- d. Conditions for Accelerated Monitoring: The discharger shall conduct accelerated monitoring when either of the following conditions are exceeded:
- (1) three sample median value of 10 TUc, or
  - (2) single sample maximum value of 20 TUc.
- e. Methodology: Sample collection, handling and preservation shall be in accordance with USEPA protocols. The test methodology used shall be in accordance with the references cited in this Permit, or as approved by the Executive Officer. A concurrent reference toxicant test shall be performed for each test.
- f. Dilution Series: The discharger shall conduct tests at 100%, 50%, and 25%, 10%, 5%, and 2.5%. The "%" represents percent effluent as discharged.
- g. Routine Reporting: Toxicity test results for the current reporting period shall include, at a minimum, for each test:
1. sample date(s)
  2. test initiation date
  3. test species
  4. end point values for each dilution (e.g. number of young, growth rate, percent survival)
  5. NOEC value(s) in percent effluent
  6. IC<sub>15</sub>, IC<sub>25</sub>, IC<sub>40</sub>, and IC<sub>50</sub> values (or EC<sub>15</sub>, EC<sub>25</sub> ... etc.) in percent effluent
  7. TUc values (100/NOEC, 100/IC<sub>25</sub>, and 100/EC<sub>25</sub>)
  8. Mean percent mortality ( $\pm$ s.d.) after 96 hours in 100% effluent (if applicable)
  9. NOEC and LOEC values for reference toxicant test(s)
  10. IC<sub>50</sub> or EC<sub>50</sub> value(s) for reference toxicant test(s)
  11. Available water quality measurements for each test (ex. pH, D.O., temperature, conductivity, hardness, salinity, ammonia)

- e. Compliance Summary: The results of the chronic toxicity testing shall be provided in the most recent self-monitoring report and shall include a summary table of chronic toxicity data from at least eleven of the most recent samples. The information in the table shall include the items listed above under Section 6.2.a, item numbers 1, 3, 5, 6(IC<sub>25</sub> or EC<sub>25</sub>), 7, and 8.
- 7. Cyanide: Grab samples required for cyanide. The discharger shall take four grab samples over a 24-hour period.
- 8. Metals: The parameter 'Metals' in this SMP means all of the following constituents:
  - 1. Arsenic,
  - 2. Cadmium,
  - 3. Chromium VI,
  - 4. Copper,
  - 5. Lead,
  - 6. Mercury,
  - 7. Nickel,
  - 8. Selenium,
  - 9. Silver, and
  - 10. Zinc.

The Discharger may analyze for total Chromium instead of Chromium VI.  
 Influent monthly sampling for metals is required by the facility's Pretreatment Program permit.

9. Selected Constituents Monitoring

- A. Effluent monitoring shall include evaluation for all constituents listed in Table 2 below by sampling and analysis of final effluent.
- B. Analyses shall be conducted using the lowest commercially available and reasonably achievable detection levels. The objective is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to respective water quality objectives.

**Table 2 - Selected Constituents (j)**

CTR #	Constituent (a)	Minimum Level (µg/L) (b)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGF AA	HYD RIDE	CVAA	DCP
1.	Antimony					10	5	50	0.5	5	0.5		1000
2.	Arsenic				20		2	10	2	2	1		1000
3.	Beryllium					20	0.5	2	0.5	1			1000
4.	Cadmium				10	0.5	10	0.25	0.5				1000
5a.	Chromium (III) (c)												

CTR #	Constituent (a)	Minimum Level (µg/L) (b)												
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGF AA	HYD RIDE	CVAA	DCP	
5b.	Chromium (VI)				10	5								1000
6.	Copper (d)					25	5	10	0.5	2				1000
7.	Lead					20	5	5	0.5	2				10,000
8.	Mercury (e)								0.5				0.2	
9.	Nickel					50	5	20	1	5				1000
10.	Selenium						5	10	2	5	1			1000
11.	Silver					10	1	10	0.25	2				1000
12.	Thallium					10	2	10	1	5				1000
13.	Zinc					20		20	1	10				
14.	Cyanide				5									
15.	Asbestos (c, f)													
16.	2, 3, 7, 8-TCDD (Dioxin) (c, k)													
17.	Acrolein	2.0	5											
18.	Acrylonitrile	2.0	2											
19.	Benzene	0.5	2											
20.	Bromoform	0.5	2											
21.	Carbon Tetrachloride	0.5	2											
22.	Chlorobenzene	0.5	2											
23.	Chlorodibromomethane	0.5	2											
24.	Chloroethane	0.5	2											
25.	2-Chloroethylvinyl Ether	1	1											
26.	Chloroform	0.5	2											
27.	Dichlorobromomethane	0.5	2											
28.	1,1-Dichloroethane	0.5	1											
29.	1,2-Dichloroethane	0.5	2											
30.	1, 1-Dichloroethylene or 1,1 Dichloroethene	0.5	2											
31.	1, 2-Dichloropropane	0.5	1											
32.	1, 3 -Dichloropropylene or 1,3-Dichloropropene	0.5	2											
33.	Ethylbenzene	0.5	2											
34.	Methyl Bromide	1.0	2											
35.	Methyl Chloride or Chloromethane	0.5	2											

CTR #	Constituent (a)	Minimum Level (µg/L) (b)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGF AA	HYD RIDE	CVAA	DCP
36.	Methylene Chloride or Dichlorormethane	0.5	2										
37.	1,1, 2,2-Tetrachloroethane	0.5	1										
38.	Tetrachloroethylene	0.5	2										
39.	Toluene	0.5	2										
40.	1,2-Trans-Dichloroethylene	0.5	1										
41.	1,1,1-Trichloroethane	0.5	2										
42.	1,1,2-Trichloroethane	0.5	2										
43.	Trichloroethylene or Trichloroethene	0.5	2										
44.	Vinyl Chloride	0.5	2										
45.	2-Chlorophenol	2	5										
46.	2, 4 Dichlorophenol	1	5										
47.	2,4-Dimethylphenol	1	2										
48.	2-Methyl-4,6-Dinitrophenol or Dinitro-2-methylphenol	10	5										
49.	2,4-Dinitrophenol	5	5										
50.	2-Nitrophenol		10										
51.	4-Nitrophenol	5	10										
52.	4-chloro-3-methylphenol	5	1										
53.	Pentachlorophenol	1	5										
54.	Phenol (g)	1	1		50								
55.	2, 4, 6 Trichlorophenol	10	10										
56.	Acenaphthene	1	1	0.5									
57.	Acenaphthylene		10	0.2									
58.	Anthracene		10	2									
59.	Benzidine		5										
60.	Benzo(a)Anthracene or 1,2 Benzanthracene	10	5										
61.	Benzo(a)Pyrene		10	2									
62.	Benzo(b)Fluoranthene or 3,4 Benzofluoranthene		10	10									
63.	Benzo(ghi)Perylene		5	0.1									
64.	Benzo(k)Fluoranthene		10	2									

CTR #	Constituent (a)	Minimum Level (µg/L) (b)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGF AA	HYD RIDE	CVAA	DCP
65.	Bis(2-Chloroethoxy) Methane		5										
66.	Bis(2-Chloroethyl) Ether	10	1										
67.	Bis(2-Chloroisopropyl) Ether	10	2										
68.	Bis(2-Ethylhexyl) Phthalate	10	5										
69.	4-Bromophenyl Phenyl Ether	10	5										
70.	Butylbenzyl Phthalate	10	10										
71.	2-Chloronaphthalene		10										
72.	4-Chlorophenyl Phenyl Ether		5										
73.	Chrysene		10	5									
74.	Dibenzo(a,h) Anthracene		10	0.1									
75.	1, 2 Dichlorobenzene (volatile)	0.5	2										
	1, 2 Dichlorobenzene (semi-volatile)	2	2										
76.	1, 3 Dichlorobenzene (volatile)	0.5	2										
	1, 3 Dichlorobenzene (semi-volatile)	2	1										
77.	1, 4 Dichlorobenzene (volatile)	0.5	2										
	1, 4 Dichlorobenzene (semi-volatile)	2	1										
78.	3,3'-Dichlorobenzidine		5										
79.	Diethyl Phthalate	10	2										
80.	Dimethyl Phthalate	10	2										
81.	Di-n-Butyl Phthalate		10										
82.	2,4-Dinitrotoluene	10	5										
83.	2,6-Dinitrotoluene		5										
84.	Di-n-Octyl Phthalate		10										
85.	1,2-Diphenylhydrazine		1										
86.	Fluoranthene	10	1	0.05									
87.	Fluorene		10	0.1									
88.	Hexachlorobenzene	5	1										

CTR #	Constituent (a)	Minimum Level (µg/L) (b)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGF AA	HYD RIDE	CVAA	DCP
89.	Hexachlorobutadiene	5	1										
90.	Hexachlorocyclopentadiene	5	5										
91.	Hexachloroethane	5	1										
92.	Indeno(1,2,3-cd)Pyrene		10	0.05									
93.	Isophorone	10	1										
94.	Naphthalene	10	1	0.2									
95.	Nitrobenzene	10	1										
96.	N-Nitrosodimethylamine	10	5										
97.	N-Nitrosodi-n-Propylamine	10	5										
98.	N-Nitrosodiphenylamine	10	1										
99.	Phenanthrene		5	0.05									
100.	Pyrene		10	0.05									
101.	1,2,4-Trichlorobenzene	1	5										
102.	Aldrin	0.005											
103.	α-BHC	0.01											
104.	β-BHC	0.005											
105.	γ-BHC (Lindane)	0.02											
106.	δ-BHC	0.005											
107.	Chlordane	0.1											
108.	4,4'-DDT	0.01											
109.	4,4'-DDE	0.05											
110.	4,4'-DDD	0.05											
111.	Dieldrin	0.01											
112.	Endosulfan (alpha)	0.02											
113.	Endosulfan (beta)	0.01											
114.	Endosulfan Sulfate	0.05											
115.	Endrin	0.01											
116.	Endrin Aldehyde	0.01											
117.	Heptachlor	0.01											
118.	Heptachlor Epoxide	0.01											
119-125	PCBs (h)	0.5											
126.	Toxaphene	0.5											
127	Tributyltin (c)												

CTR #	Constituent (a)	Minimum Level (µg/L) (b)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGF AA	HYD RIDE	CVAA	DCP
128	Chlorpyrifos (c, i)												
129	Diazinon (c, i)												

Notes:

- a.) According to the SIP, method-specific factors (MSFs) can be applied. In such cases, this additional factor must be applied in the computation of the reporting limit. Application of such factors will alter the reported ML (as described in section 2.4.1) Dischargers are to instruct laboratories to establish calibration standards so that the ML value is the lowest calibration standard. At no time is the discharger to use analytical data derived from the extrapolation beyond the lowest point of the calibration curve.
  - b.) Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e. EPA 200.9); DCP = Direct Current Plasma.
  - c.) The SIP does not contain an ML for this constituent.
  - d.) For copper, the discharger may also use the following laboratory techniques with the relevant minimum level: GFAA with a minimum level of 5 µg/L and SPGFAA with a minimum level of 2 µg/L.
  - e.) Use ultra-clean sampling and analytical methods for mercury monitoring per 13267 letter issued to Discharger. ML for compliance purposes is as listed in table above until the SWRCB adopts alternative minimum level. (see 2000 SIP Appendix 4)
  - f.) The discharger does not need to sample for this constituent because sampling is not required for receiving waters with a municipal beneficial use designation.
  - g.) Phenol by colorimetric technique has a factor of 1.
  - h.) PCBs refers to PCB 1016, 1221, 1232, 1242, 1248, 1254 and 1260.
  - i.) The detection limit goals for these constituents are 0.03 µg/L.
  - j.) Dischargers shall be deemed out of compliance with an effluent limitation if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported ML.
10. Dischargers shall be deemed out of compliance with an effluent limitation if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported ML. Metals Pretreatment Requirements

Same EPA method used to determine compliance with the respective NPDES permit. The parameters are arsenic, cadmium, copper, lead, mercury, nickel, silver, zinc, selenium, and cyanide.

11. Sludge Pretreatment Requirements

EPA Approved Methods.

## VII. REPORTING REQUIREMENTS

A. General Reporting Requirements are described in Section E of the Board's "*Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits*", dated August 1993.

B. Monthly Self-Monitoring Report (SMR).

For each calendar month, a self-monitoring report (SMR) shall be submitted to the Board in accordance with the following:

1. 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.
2. The report shall be submitted to the Board by the last day of the following month.

3. *Letter of Transmittal*

Each report shall be submitted with a letter of transmittal. This letter shall include the following:

- (a) Identification of all violations of effluent limits or other discharge requirements found during the monitoring period;
- (b) Details of the violations: parameters, magnitude, test results, frequency, and dates;
- (c) The cause of the violations;
- (d) 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.
- (e) 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."

4. *Compliance Evaluation Summary*

Each report shall include a compliance evaluation summary. This summary shall include, for each parameter for which effluent limits are specified in the Permit, the number of samples taken during the monitoring period, and the number of samples in violation of applicable effluent limits.

5. *Results of Analyses and Observations.*

(a) Tabulations of all required analyses and observations, including parameter, sample date and time, sample station, and test result.

(b) 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.

(c) Calculations for all effluent limits that require averaging of measurements shall utilize an arithmetic mean, unless specified otherwise in this permit or SMP.

6. *Data Reporting for Results Not Yet Available.* The discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in timely manner. The Board recognizes that certain analyses require additional time in order to complete analytical processes and result reporting. For cases where required monitoring parameters require additional time to complete analytical processes and reporting, and results are not available in time to be included in the SMR for the subject monitoring period, such cases shall be described in the SMR. Data for these parameters, and relevant discussions of any observed violations, shall be included in the next following SMR.

7. 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:

1. *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).

2. *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 Board intends to modify Part A to reflect these changes.

a. Monthly Report Requirements:

Monthly Reporting Requirements: For each calendar month, a self-monitoring report (SMR) shall be submitted to the Board in accordance with the following:

(1) The report shall be submitted to the Board no later than 30 days from the last day of the reporting month.

(2) *Letter of Transmittal*

Each report shall be submitted with a letter of transmittal. This letter shall include the following:

(i) Identification of all violations of effluent limits or other discharge requirements found during the monitoring period;

(ii) Details of the violations: parameters, magnitude, test results, frequency, and dates;

(iii) The cause of the violations;

(iv) 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.

(v) 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."

(3) *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.

(4) *Results of Analyses and Observations.*

(i) Tabulations of all required analyses and observations, including parameter, sample date, sample station, and test result.

(ii) 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.

(iii) Calculations for all effluent limits that require averaging of measurements shall utilize an arithmetic mean, unless specified otherwise in this permit or SMP.

(5) *Data Reporting for Results Not Yet Available.*

The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in timely manner. The Board recognizes that certain analyses require additional time in order to complete analytical processes and result reporting. For cases where required monitoring parameters require additional time to complete analytical processes and reporting, and results are not available in time to be included in the SMR for the subject monitoring period, such cases shall be described in the SMR. Data for these parameters, and relevant discussions of any observed violations, shall be included in the next following SMR.

b. Annual Report Requirements:

An Annual Report shall be submitted for each calendar year. The report shall be submitted to the Board by February 15 of the following year. This report shall include the following:

- (1) Summaries of monitoring data collected during the calendar year that characterizes treatment plant performance and compliance with waste discharge requirements.
- (2) A comprehensive discussion of treatment plant performance and compliance with waste discharge requirements. This discussion should include any corrective actions taken or planned such as changes to facility equipment or operation practices which may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment or disposal practices.

C. Self-Monitoring Program Annual Report (Annual Report).

An Annual Report shall be submitted for each calendar year. The report shall be submitted to the Board by February 15 of the following year. This report shall include the following:

1. Both tabular and graphical summaries of monitoring data collected during the calendar year that characterizes treatment plant performance and compliance with waste discharge requirements.
2. A comprehensive discussion of treatment plant performance and compliance with waste discharge requirements. This discussion should include any corrective actions taken or planned such as changes to facility equipment or operation practices which may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the discharger's wastewater collection, treatment or disposal practices.
3. A plan view drawing or map showing the dischargers' facility, flow routing and sampling and observation station locations.

D. Spill Reports.

1. A report shall be made of any spill of oil or other hazardous material.
2. 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 as described in a

Board staff Memorandum dated May 3, 1999, Notification and Cleanup Procedures for Sewage Spills.

3. A written report shall be submitted to the Regional Board within five (5) working days following telephone notification, unless directed otherwise by Board staff. A report submitted by facsimile transmission is acceptable for this reporting. The written report shall include the following:
  - a. Date and time of spill, and duration if known.
  - b. Location of spill (street address or description of location).
  - c. Nature of material spilled.
  - d. Quantity of material involved.
  - e. Receiving water body affected.
  - f. Cause of spill.
  - g. Observed impacts to receiving waters (e.g., discoloration, oil sheen, fishkill).
  - h. Corrective actions that were taken to contain, minimize or cleanup the spill.
  - i. Future corrective actions planned to be taken in order to prevent recurrence, and time schedule of implementation.
  - j. Persons or agencies contacted.

E. Reports of Collection System 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 Board in accordance with the following:

1. *Overflows in excess of 1,000 gallons.*

Overflows in excess of 1,000 gallons shall be reported by telephone and written report, as follows:

- a. Overflows shall be reported by telephone as soon as possible and no later than 24 hours following occurrence or discharger's knowledge of occurrence. Notification shall be made as follows:

(1) Notify the current Board staff case handler, by phone call or message, or by facsimile:

[current staff case handler: Ray Balcom, phone number (510) 622 - 2312]

[current Regional Board Fax number: (510) 622 - 2460];

and (2) Notify the State Office of Emergency Services at phone number: (800) 852 - 7550.

- b. Submit a written report of the incident in follow-up to telephone notification.

- c. The written report shall be submitted along with the regular self-monitoring report for the reporting period of the incident, unless directed otherwise by Board staff.
- d. The written report for collection system overflow shall include the following:
  - (1) Estimated date and time of overflow start and end.
  - (2) Location of overflow (street address or description of location).
  - (3) Estimated volume of overflow.
  - (4) Final disposition of overflowed wastewater (to land, storm drain, surface water body).  
Include the name of any receiving water body affected.
  - (5) Cause of overflow.
  - (6) Observed impacts to receiving waters if any (e.g., discoloration, fish kill).
  - (7) Corrective actions that were taken to contain, minimize or cleanup the overflow.
  - (8) Future corrective actions planned to be taken to prevent recurrence and time schedule of implementation.
  - (9) Persons or agencies contacted.

2. *Overflows less than 1,000 gallons.*

Overflows less than 1,000 gallons shall be reported by written report, as follows:

- a. The discharge shall prepare and retain records of such overflows, with records available for review by Board staff upon request.
- b. The records for these overflows shall include the information as listed in 1.d. above.
- c. A summary of these overflows shall be submitted to the Board annually, as part of the discharger's Self-Monitoring Program Annual Report.

F. Reports of Treatment Plant Process Bypass or Significant Non-Compliance.

- 1. A report shall be made of any incident where the discharger:
  - a. experiences or intends to experience a bypass of any treatment process, or

- b. experiences violation or threatened violation of any daily maximum effluent limit contained in this Permit or other incident of significant non-compliance,

due to:

- (1) maintenance work, power failures or breakdown of waste treatment equipment, or
- (2) accidents caused by human error or negligence, or
- (3) other causes such as acts of nature.

- 2. Such incidents shall be reported to the Regional Board in accordance with the following:

- a. Notify Regional Board staff by telephone:

- (1) within 24 hours of the time the discharger becomes aware of the incident, for incidents that have occurred, and
- (2) as soon as possible in advance of incidents that have not yet occurred.

- b. Submit a written report of the incident in follow-up to telephone notification.

- c. The written report shall be submitted along with regular self-monitoring report for the reporting period of the incident, unless directed otherwise by Board staff.

- d. The written report for a treatment process bypass shall include the following:

- (1) Identification of treatment process bypassed;
- (2) Date and time of bypass start and end;
- (3) Total duration time;
- (4) Estimated total volume;
- (5) Description of, or reference to other report(s) describing, bypass event, cause, corrective actions taken, and any additional monitoring conducted.

- e. The written report for violations of daily maximum effluent limits or similar significant non-compliance shall include information as described in section VIII.B. of this SMP.

## **VIII. 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 self-monitoring program 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 Board

staff. These records shall be retained by the discharger for a minimum of three 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 Board or by the Regional Administrator of the US EPA, Region IX.

Records to be maintained shall include the following:

A. Parameter Sampling and Analyses, and Observations.

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

1. Parameter
2. Identity of sampling or observation station, consistent with the station descriptions given in this SMP.
3. Date and time of sampling or observation.
4. Method of sampling (grab, composite, other method)
5. Date and time analysis started and completed, and name of personnel or contract laboratory performing the analysis.
6. Reference or description of procedure(s) used for sample preservation and handling, and analytical method(s) used.
7. Calculations of results.
8. Analytical method detection limits and related quantitation parameters.
9. Results of analyses or observations.

B. Flow Monitoring Data.

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

1. Total flow or volume, for each day.
2. Maximum, minimum and average daily flows for each calendar month.

C. Wastewater Treatment Process Solids.

1. For biosolids removed from the plant site, records shall include the following:
  - a. Total volume and/or mass quantification of dewatered sludge, for each calendar month;
  - b. Solids content of the dewatered sludge; and
  - c. Final disposition of dewatered sludge (point of disposal location and disposal method).

D. Disinfection Process.

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

1. For bacteriological analyses:
  - a. Date and time of each sample collected
  - b. Wastewater flow rate at the time of sample collection
  - c. Results of sample analyses (coliform count)
  - d. Required statistical parameters of cumulative coliform values (e.g., moving median or log mean for number of samples or sampling period identified in waste discharge requirements).
  
2. For chlorination process, at least daily average values for the following:
  - a. Chlorine residual in contact basin (mg/L)
  - b. Contact time (minutes)
  - c. Chlorine dosage (kg/day)

E. Treatment Process Bypasses.

A chronological log of all treatment process bypasses, including the following:

1. Identification of treatment process bypassed;
2. Date and time of bypass start and end;
3. Total duration time;
4. Estimated total volume;
5. Description of, or reference to other report(s) describing, bypass event, cause, corrective actions taken, and any additional monitoring conducted.

F. Collection System Overflows

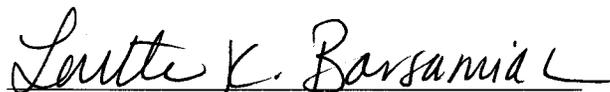
A chronological log of all collection system overflows, including the following:

1. Location of overflow;
2. Date and time of overflow start and end;
3. Total duration time;
4. Estimated total volume;
5. Description of, or reference to other report(s) describing, overflow event, cause, corrective actions taken, and any additional monitoring conducted.

**IX. SELF-MONITORING PROGRAM CERTIFICATION**

I, Loretta K. Barsamian, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Board Order No. 01-071.
2. 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.
3. Is effective as of July 1, 2001.



LORETTA K. BARSAMIAN

Executive Officer

**ATTACHMENT E**

***Standard Provisions***

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

August 1993

**STANDARD PROVISIONS AND REPORTING REQUIREMENTS**

For

**NPDES SURFACE WATER DISCHARGE PERMITS**

**A. GENERAL PROVISIONS**

1. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Section 13050 of the California Water Code.
2. All discharges authorized by this Order shall be consistent with the terms and conditions of this Order.
3. Duty to Comply
  - a. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Clean Water Act, or amendments thereto, for a toxic pollutant which is present in the discharge authorized herein and such standard or prohibition is more stringent than any limitation upon such pollutant in a Board adopted Order, discharger must comply with the new standard or prohibition. The Board will revise or modify the Order in accordance with such toxic effluent standard or prohibition and so notify the discharger.
  - b. If more stringent applicable water quality standards are approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the discharger must comply with the new standard. The Board will revise and modify this Order in accordance with such more stringent standards.
  - c. The filing of a request by the discharger for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. [40 CFR 122.41(f)]

4. Duty to Mitigate

The discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this order and permit which has a reasonable likelihood

of adversely affecting public health or the environment, including such accelerated or additional monitoring as requested by the Board or Executive Officer to determine the nature and impact of the violation. [40 CFR 122.41(d)]

5. Pursuant to U.S. Environmental Protection Agency regulations the discharger must notify the Regional Board as soon as it knows or has reason to believe (1) that they have begun or expect to begin, use or manufacture of a pollutant not reported in the permit application, or (2) a discharge of toxic pollutants not limited by this permit has occurred, or will occur, in concentrations that exceed the limits specified in 40 CFR 122.42(a).
6. The discharge of any radiological, chemical, or biological warfare agent waste is prohibited.
7. All facilities used for transport, treatment, or disposal of wastes shall be adequately protected against overflow or washout as the result of a 100-year frequency flood.
8. Collection, treatment, storage and disposal systems shall be operated in a manner that precludes public contact with wastewater, except where excluding the public is inappropriate, warning signs shall be posted.
9. Property Rights

This Order and Permit does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, nor protect the discharger from liabilities under federal, state or local laws, nor create a vested right for the discharge to continue the waste discharge or guarantee the discharger a capacity right in the receiving water. [40 CFR 122.41(g)]

#### 10. Inspection and Entry

The Board or its authorized representatives shall be allowed:

- a. Entry upon premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of the order and permit;
- b. Access to and copy at, reasonable times, any records that must be kept under the conditions of the order and permit;
- c. To inspect at reasonable times any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under the order and permit; and

- d. To photograph, sample, and monitor, at reasonable times for the purpose of assuring compliance with the order and permit or as otherwise authorized by the Clean Water Act, any substances or parameters at any locations. [40 CFR 122.41(i)]

#### 11. Permit Actions

This Order and Permit may be modified, revoked and reissued, or terminated in accordance with applicable State and/or Federal regulations. Cause for taking such action includes, but is not limited to any of the following:

- a. Violation of any term or condition contained in the Order and Permit;
- b. Obtaining the Order and Permit by misrepresentation, or by failure to disclose fully all relevant facts;
- c. Endangerment to public health or environment that can only be regulated to acceptable levels by order and permit modification or termination; and
- d. Any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

#### 12. Duty to Provide Information

The discharger shall furnish, within a reasonable time, any information the Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit. The discharger shall also furnish to the Board, upon request, copies of records required to be kept by its permit. [40 CFR 122.41(h)]

#### 13. **Bypass** (the intentional diversion of waste streams from any portion of a treatment facility) is prohibited. The Board may take enforcement action against the discharger for plant bypass unless:

- a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.);
- b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of

reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

- c. The discharger submitted advance notice of the need for a bypass to the Board. If the discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass. The discharger shall submit notice of an unanticipated bypass as required by 40 CFR 122.41(l)(6) (24 hour notice), as required in paragraph E.6.d.

The discharger may allow a bypass to occur that does not cause effluent limitations to be exceeded, but only if it is for essential maintenance to assure efficient operation.

#### 14. Availability

A copy of this permit shall be maintained at the discharge facility and be available at all times to operating personnel.

#### 15. Continuation of Expired Permit

This permit continues in force and effect until a new permit is issued or the Board rescinds the permit. Only those dischargers authorized to discharge under the expiring permit are covered by the continued permit.

### **B. STANDARD STORM WATER PROVISIONS**

These provisions apply to facilities which do not direct all storm water flows to the wastewater treatment plant headworks.

1. The Storm Water Pollution Prevention Plan (SWPP Plan) shall be designed in accordance with good engineering practices and shall address the following objectives:
  - a. to identify pollutant sources that may affect the quality of storm water discharges; and
  - b. to identify, assign, and implement control measures and management practices to reduce pollutants in storm water discharges.

The SWPP Plan may be combined with the existing spill prevention plan as required in accordance with Provision E.5. The SWPP Plan shall be retained on-site and made available upon request of a representative of the Board.

#### 2. Source Identification

The SWPP Plan shall provide a description of potential sources which may be expected to add significant quantities of pollutants to storm water discharges, or

which may result in non-storm water discharges from the facility. The SWPP Plan shall include, at a minimum, the following items:

- a. A topographical map (or other acceptable map if a topographical map is unavailable), extending one-quarter mile beyond the property boundaries of the facility, showing: the wastewater treatment facility process areas, surface water bodies (including springs and wells), and the discharge point(s) where the facility's storm water discharges to a municipal storm drain system or other points to waters of the State. The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.
  - b. A site map showing:
    - i. Storm water conveyance, drainage, and discharge structures;
    - ii. An outline of the storm water drainage areas for each storm water discharge point;
    - iii. Paved areas and buildings;
    - iv. Areas of pollutant contact with storm water or release to storm water, actual or potential, including but not limited to outdoor storage, and process areas, material loading, unloading, and access areas, and waste treatment, storage, and disposal areas;
    - v. Location of existing storm water structural control measures (i.e., berms, coverings, etc.);
    - vi. Surface water locations, including springs and wetlands;
    - vii. Vehicle service areas.
  - c. A narrative description of the following:
    - i. Wastewater treatment process activity areas;
    - ii. Materials, equipment, and vehicle management practices employed to minimize contact of significant materials of concern with storm water discharges;
    - iii. Material storage, loading, unloading, and access areas;
    - iv. Existing structural and non-structural control measures (if any) to reduce pollutants in storm water discharge;
    - v. Methods of on-site storage and disposal of significant materials.
  - d. A list of pollutants that have a reasonable potential to be present in storm water discharge in significant quantities.
3. Storm Water Management Controls

The SWPP Plan shall describe the storm water management controls appropriate for the facility and a time schedule for fully implementing such controls. The appropriateness and priorities of controls in the SWPP Plan shall reflect identified potential sources of pollutants. The description of storm water management controls to be implemented shall include, as appropriate:

a. Storm Water Pollution Prevention Personnel

Identify specific individuals (and job titles) who are responsible for developing, implementing, and reviewing the SWPP Plan.

b. Good Housekeeping

Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce potential for pollutants to enter the storm drain conveyance system.

c. Spill Prevention and Response

Identify areas where significant materials can spill into or otherwise enter the storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, cleanup equipment and procedures should be identified, as appropriate. The necessary equipment to implement a clean up shall be available and personnel trained in proper response, containment and cleanup of spills. Internal reporting procedures for spills of significant materials shall be established.

d. Source Control

Source controls, such as elimination or reduction of the use of toxic pollutants, covering of pollutant source areas, sweeping of paved areas, containment of potential pollutants, labeling all storm drain inlets with "No Dumping" signs, isolation/separation of industrial from non-industrial pollutant sources so that runoff from these areas does not mix, etc.

e. Storm Water Management Practices

Storm water management practices are practices other than those which control the sources of pollutants. They include treatment/conveyance structures such as drop inlets, channels, retention/detention basins, treatment vaults, infiltration galleries, filters, oil/water separators, etc. Based on assessment of the potential of various sources to contribute pollutants to storm water discharges in significant quantities, additional storm water management practices to remove pollutants from storm water discharges shall be implemented and design criteria shall be described.

f. Sediment and Erosion Control

Measures to minimize erosion around the storm water drainage and discharge points such as riprap, revegetation, slope stabilization, etc. shall be described and implemented.

g. Employee Training

Employee training programs shall inform all personnel responsible for implementing the SWPP Plan. Training should address spill response, good housekeeping, and material management practices. New employee and refresher training schedules should be identified.

h. Inspections

All inspections shall be done by trained personnel. Material handling areas shall be inspected for evidence of, or the potential for, pollutants entering storm water discharges. A tracking or follow up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded. Inspection records shall be retained for five years.

i. Records

A tracking and follow-up procedure shall be described to ensure that adequate response and corrective actions have been taken in response to inspections.

4. An annual facility inspection shall be conducted to verify that all elements of the SWPP Plan are accurate and up to date. This results of this review shall be reported in the annual report to the Board on October 1 of each year.

**C. SLUDGE MONITORING AND REPORTING**

1. When sewage sludge is either sent to a landfill or applied to land as a soil amendment it should be monitored as follows:

- a. Sewage sludge disposal shall be monitored at the following frequency:

<b>Metric tons sludge/365 days</b>	<b>Frequency</b>
0-290	Once per year
290-1500	Quarterly
1500-15,000	Six times per year
Over 15,000	Once per month

(Metric tons are on a dry weight basis)

- b. Sludge shall be monitored for the following constituents:

Land Application: As, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Se, Zn  
Municipal Landfill: Paint filter test (pursuant 40 CFR 258)

Sludge-only Landfill: As, Cd, Ni, (if no liner and leachate system)

2. The sludge must meet the following requirements prior to land application. The discharger must either demonstrate compliance or, if it sends the sludge to another party for further treatment and/or distribution, must give the recipient the information necessary to assure compliance.
  - a. Exceptional quality sludge: Sludge that meets the pollutant concentration limits in Table III of 40 CFR Part 503.13, Class A pathogen limits, and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8) is exceptional quality sludge and does not have to be tracked further for compliance with general requirements (503.12) and management practices (503.14).
  - b. Sludge used for agricultural land, forest, or reclamation shall meet the pollutant limits in Table I (ceiling concentrations) and Table II or Table III (cumulative loadings or pollutant concentration limits) of 503.13. It shall also meet the general requirements (503.12) and management practices (503.14) (if not exceptional quality), Class A or Class B pathogen levels with associated access restrictions (503.32) and one of the 10 vector attraction reduction requirements in 503.33(b)(1)-(b)(10).
  - c. Sludge used for lawn or home gardens must meet exceptional quality sludge limits.
  - d. Sludge that is sold or given away in a bag or other container shall meet the pollutant limits in either Table III or Table IV (pollutant concentration limits or annual pollutant loading rate limits) of 503.13. If Table IV is used, a label or information sheet must be attached that explains Table IV (see 503.14). The sludge must also meet the Class A pathogen limits and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8).

**D. TREATMENT RELIABILITY**

1. The discharger shall, at all times, properly operate and maintain all facilities and systems of treatment disposal and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with this order and permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. All of these procedures shall be described in an Operation and Maintenance Manual. The discharger shall keep in a state of readiness all systems necessary to achieve compliance with the conditions of this order and permit. All systems, both those in service and reserve, shall be inspected and maintained on a regular basis. Records shall be kept of the tests and made available to the Board. [40 CFR 122.41(e)]
2. Safeguard to electric power failure:

- a. The discharger shall, within ninety (90) days of the effective date of this permit, submit to the Board for approval a description of the existing safeguards provided to assure that, should there be reduction, loss, or failure of electric power, the discharger shall comply with the terms and conditions of its Order. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past five years on effluent quality and on the capability of the discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Board.
  - b. Should the Board not approve the existing safeguards, the discharger shall, within ninety (90) days of having been advised by the Board that the existing safeguards are inadequate, provide to the Board and the U.S. Environmental Protection Agency a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the permittee shall comply with the terms and conditions of this permit. The schedule of compliance shall, upon approval of the Board Executive Officer, become a condition of the Order.
  - c. If the discharger already has approved plan(s), the plan shall be revised and updated as specified in the plan or whenever there has been a material change in design or operation. A revised plan shall be submitted to the Board within ninety (90) days of the material change.
3. POTW facilities subject to this order and permit shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Division 4, Chapter 14, Title 23 of the California Code of Regulations.

## **E. GENERAL REPORTING REQUIREMENTS**

1. Signatory Requirements
  - a. All reports required by the order and permit and other information requested by the Board or USEPA Region 9 shall be signed by a principal executive officer or ranking elected official of the discharger, or by a duly authorized representative of that person. [40 CFR 122.22(b)]
  - b. Certification

All reports signed by a duly authorized representative under Provision E.1.a. shall contain the following certification:

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

2. Should the discharger discover that it failed to submit any relevant facts or that it submitted incorrect information in any report, it shall promptly submit the missing or correct information. [40 CFR 122.41(1)(8)]

3. False Reporting

Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall be subject to enforcement procedures as identified in Section F of these Provisions.

4. Transfers

- a. This permit is not transferable to any person except after notice to the Board. The Board may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Clean Water Act.
- b. Transfer of control or ownership of a waste discharge facility under an National Pollutant Discharge Elimination System permit must be preceded by a notice to the Board at least 30 days in advance of the proposed transfer date. The notice must include a written agreement between the existing discharger and proposed discharger containing specific dates for transfer of responsibility, coverage, and liability between them. Whether an order and permit may be transferred without modification or revocation and reissuance is at the discretion of the Board. If order and permit modification or revocation and reissuance is necessary, transfer may be delayed 180 days after the Board's receipt of a complete application for waste discharge requirements and an NPDES permit.

5. Spill Prevention and Contingency Plans

The discharger shall file with the Board, for Executive Officer review and approval within ninety (90) days after the effective date of this Order, a technical report or a statement that the existing plan(s) was reviewed and updated, as

appropriate, on preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. The technical report or updated revisions should:

- a. Identify the possible sources of accidental loss, untreated or partially treated waste bypass, and polluted drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.
- b. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
- c. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

This Board, after review of the technical report or updated revisions, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions may be incorporated as part of this Order, upon notice to the discharger. If the discharger already has an approved plan(s) he shall update them as specified in the plan(s).

## 6. Compliance Reporting

### a. Planned Changes

The discharger shall file with the Board a report of waste discharge at least 120 days before making any material change or proposed change in the character, location or volume of the discharge.

### b. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final compliance dates contained in any compliance schedule shall be submitted within 10 working days following each scheduled date unless otherwise specified within this order and permit. If reporting noncompliance, the report shall include a description of the reason for failure to comply, a description and schedule of tasks necessary to achieve compliance and an estimated date for achieving full compliance. A final report shall be submitted within 10 working days of achieving full compliance, documenting full compliance

### c. Anticipated Non-compliance

All POTWs must provide adequate notice to the Board of:

- i. Any introduction of new pollutants into the POTW from an indirect discharger that would be subject to Sections 301 or 306 of the Clean Water Act if it were directly discharging those pollutants.
- ii. Any substantial or material change in the volume or character of pollutants being introduced into that POTW by an input source at the time of issuance of the permit.

Adequate notice shall include information on the quality and quantity of influent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

- d. Non-compliance Reporting (Twenty-four hour reporting:)
  - i. The discharger shall report any noncompliance that may endanger health or the environment. All pertinent information shall be provided orally within 24 hours from the time the discharger becomes aware of the circumstances. A written submission shall also be provided within five working days of the time the discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
  - ii. The following shall be included as information that must be reported within 24 hours under this paragraph:
    - (1) Any unanticipated bypass that exceeds any effluent limitation in the permit.
    - (2) Any upset that exceeds any effluent limitation in the permit.
    - (3) Violation of a maximum daily discharge limitation for any of the pollutants listed in this permit to be reported within 24 hours.
    - (4) The Board may waive the above-required written report on a case-by-case basis.

## **F. ENFORCEMENT**

1. The provision contained in this enforcement section shall not act as a limitation on the statutory or regulatory authority of the Board.

2. Any violation of the permit constitutes violation of the California Water Code and regulations adopted hereunder and the provisions of the Clean Water Act, and is the basis for enforcement action, permit termination, permit revocation and reissuance, denial of an application for permit reissuance; or a combination thereof.
3. The Board may impose administrative civil liability, may refer a discharger to the State Attorney General to seek civil monetary penalties, may seek injunctive relief or take other appropriate enforcement action as provided in the California Water Code or federal law for violation of Board orders.
4. It shall not be a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this order and permit.
5. A discharger seeking to establish the occurrence of any upset (See Definitions, G. 24) has the burden of proof. A discharger who wishes to establish the affirmative defense of any upset in an action brought for noncompliance shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:
  - a. an upset occurred and that the permittee can identify the cause(s) or the upset;
  - b. the permitted facility was being properly operated at the time of the upset;
  - c. the discharger submitted notice of the upset as required in paragraph E.6.d.; and
  - d. the discharger complied with any remedial measures required under A.4.

No determination made before an action for noncompliance, such as during administrative review of claims that noncompliance was caused by an upset, is final administrative action subject to judicial review.

In any enforcement proceeding, the discharger seeking to establish the occurrence of any upset has the burden of proof. [40 CFR 122.41(n)]

## **G. DEFINITIONS**

1. Bypass means the intentional diversion of waste streams from any portion of treatment facility.
2. Daily discharge means:

- a. For flow rate measurements, the average flow rate measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.
  - b. For pollutant measurements, the concentration or mass emission rate measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.
3. Daily Maximum Limit means the maximum acceptable daily discharge. For pollutant measurements, unless otherwise specified, the results to be compared to the daily maximum limit are based on composite samples.
  4. DDT and Derivatives shall mean the sum of the p,p' and o,p' isomers of DDT, DDD (TDE), and DDE.
  5. Duly authorized representative is one whose:
    - a. Authorization is made in writing by a principal executive officer or ranking elected official;
    - b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as general manager in a partnership, manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and
    - c. Written authorization is submitted to the USEPA Region 9. If an authorization becomes no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements above must be submitted to the Board and USEPA Region 9 prior to or together with any reports, information, or applications to be signed by an authorized representative.
  6. Hazardous substance means any substance designated under 40 CFR 116 pursuant to Section 311 of the Clean Water Act.
  7. HCH shall mean the sum of the alpha, beta, gamma (Lindane), and delta isomers of hexachlorocyclohexane.
  8. Inadequately Treated Waste is wastewater receiving partial treatment but failing to meet discharge requirements.
  9. Incompatible pollutants are:

- a. Pollutants which create a fire or explosion hazard in the POTW;
  - b. Pollutants which will cause corrosive structural damage to the POTW, or wastewaters with pH lower than 5.0 pH units, unless the facilities are specifically designed to accommodate such wastewater;
  - c. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference;
  - d. Any pollutant, including oxygen-demanding pollutants (e.g., BOD) released into the wastewater system at a flow rate and/or pollutant concentration which will cause interference with the POTW.
  - e. Heat in amounts which will inhibit biological activity in the POTW and result in interference, or heat in such quantities that the temperature at the POTW treatment plant exceeds 40°C (104°F) unless the works is designed to accommodate such heat or the Board approves alternate temperature limits.
10. Indirect discharger means a non-domestic discharger introducing pollutants into a publicly owned treatment and disposal system.
  11. Initial dilution is the process which results in the rapid and irreversible turbulent mixing of wastewater with receiving water around the point of discharge.
  12. Mass emission rate is obtained from the following calculation for any calendar day:

$$\text{Mass emission rate (lb/day)} = \frac{8.345}{N} \left( \sum_{i=1}^N Q_i C_i \right)$$

$$\text{Mass emission rate (kg/day)} = \frac{3.785}{N} \left( \sum_{i=1}^N Q_i C_i \right)$$

In which 'N' is the number of samples analyzed in any calendar day. 'Q<sub>i</sub>' and 'C<sub>i</sub>' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' grab samples which may be taken in any calendar day. If a composite sample is taken, 'C<sub>i</sub>' is the concentration measured in the composite sample and 'Q<sub>i</sub>' is the average flow rate occurring during the period over which samples are composited. The daily concentration measured over any calendar day of all constituents shall be determined from the flow-weighted average of the same constituents in the combined waste streams as follows:

$$C_d = \text{Average daily concentration} = \frac{1}{Q_t} (\sum_{i=1}^N Q_i C_i)$$

In which 'N' is the number of component waste streams. 'Q' and 'C' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' waste streams. 'Q<sub>t</sub>' is the total flow rate of the combined waste streams.

13. Maximum allowable mass emission rate, whether for a 24-hour, weekly 7-day, monthly 30-day, or 6-month period, is a limitation expressed as a daily rate determined with the formulas in paragraph above, using the effluent concentration limit specified in the order and permit for the period and the specified allowable flow. (Refer to Section C of Part A of Self-Monitoring Program for definitions of limitation period)
14. Overflow is defined as the intentional or unintentional spilling or forcing out of untreated or partially treated wastes from a transport system (e.g. through manholes, at pump stations, and at collection points) upstream from the plant headworks or from any treatment plant facilities.
15. POTW means Publicly Owned Treatment Works.
16. POTW Removal efficiency is expressed as the percentage of the ratio of pollutants removed by the treatment facilities to pollutants entering the treatment facilities. Removal efficiencies of a treatment plant shall be determined using monthly averages of pollutant concentration of influent and effluent samples collected at about the same time and using the following equation (or its equivalent):
 
$$\text{Removal Efficiency (\%)} = 100 \times [1 - (\text{Effluent Conc.} / \text{Influent Conc.})]$$

When preferred, the discharger may substitute mass loadings and mass emissions for the concentrations.
17. Priority pollutants are those constituents referred to in 40 CFR S122, Appendix D and listed in the USEPA NPDES Application Form 2C, (dated 6/80) Items V-3 through V-9.
18. Sludge means the solids, semi-liquid suspensions of solids, residues, screenings, grit, scum, and precipitates separated from, or created in wastewater by the unit processes of a treatment system. It also includes but is not limited to, all supernatant, filtrate, centrate, decantate, and thickener overflow/underflow in the solids handling parts of the wastewater treatment system.
19. Storm Water means storm water runoff, snow melt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

20. Toxic pollutant means any pollutant listed as toxic under Section 307(a)(1) of the Clean Water Act or under 40 CFR S401.15.
21. Total Identifiable Chlorinated hydrocarbons (TICH) shall be measured by summing the individual concentrations of DDT, DDD, DDE, aldrin, BHC, chlordane, endrin, heptachlor, lindane, dieldrin, PCBs and other identifiable chlorinated hydrocarbons.
22. Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass or overflow. It does not mean economic loss caused by delays in production.
23. Untreated waste is defined as raw wastewater.
24. Upset means an exceptional incident in which there is unintentional temporary noncompliance with effluent technology based permit limitations in the order and permit because of factors beyond the reasonable control of the discharger. It does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
25. Waste, waste discharge, discharge of waste, and discharge are used interchangeably in this order and permit. The requirements of this order and permit are applicable to the entire volume of water, and the material therein, which is disposed of to surface and ground waters of the State of California.

**ATTACHMENT F**

***Pretreatment Program Provisions***

## Pretreatment Program Provisions

- a. The Discharger shall implement all pretreatment requirements contained in 40 CFR 403, as amended. The Discharger shall be subject to enforcement actions, penalties, and fines as provided in the Clean Water Act (33 USC 1351 *et seq.*), as amended. The Discharger shall implement and enforce their respective Approved Pretreatment Programs or modified Pretreatment Programs as directed by the Board's Executive Officer or the EPA. The EPA and/or the State may initiate enforcement action against an industrial user for noncompliance with applicable standards and requirements as provided in the Clean Water Act.
- b. The Discharger shall enforce the requirements promulgated under Sections 307(b), 307(c), 307(d) and 402(b) of the Clean Water Act. The Discharger shall cause industrial users subject to Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new industrial user, upon commencement of the discharge.
- c. The Discharger shall perform the pretreatment functions as required in 40 CFR Part 403 and amendments or modifications thereto including, but not limited to:
  - i) Implement the necessary legal authorities to fully implement the pretreatment regulations as provided in 40 CFR 403.8(f)(1);
  - ii) Implement the programmatic functions as provided in 40 CFR 403.8(f)(2);
  - iii) Publish an annual list of industrial users in significant noncompliance as provided per 40 CFR 403.8(f)(2)(vii);
  - iv) Provide for the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3); and
  - v) Enforce the national pretreatment standards for prohibited discharges and categorical standards as provided in 40 CFR 403.5 and 403.6, respectively.
- d. The Discharger shall submit annually a report to the EPA Region 9, the State Board and the Regional Board describing the Discharger's respective pretreatment program activities over the previous twelve months. In the event that the Discharger is not in compliance with any conditions or requirements of this permit, the Discharger shall also include the reasons for noncompliance and a plan and schedule for achieving compliance. The report shall contain, but is not limited to, the information specified in **Appendix A** entitled, "Requirements for Pretreatment Annual Reports," which is made a part of this Order. The annual report is due on the last day of February each year.
- e. The Discharger shall submit semiannual pretreatment reports to the EPA Region 9, the State Board and the Board describing the status of their respective significant industrial users (SIUs). The report shall contain, but not is limited to, the information specified in **Appendix B** entitled, "Requirements for Semiannual Pretreatment Reports," which is made part of this Order. The semiannual reports are due July 31<sup>st</sup> (for the period January through

June) and January 31<sup>st</sup> (for the period July through December) of each year. The Executive Officer may exempt a Discharger from the semiannual reporting requirements on a case by case basis subject to State Board and EPA's comment and approval.

- f. The Discharger may combine the annual pretreatment report with the semiannual pretreatment report (for the July through December reporting period). The combined report shall contain all of the information requested in Appendices A and B and will be due on January 31<sup>st</sup> of each year.
- g. The Discharger shall conduct the monitoring of its treatment plant's influent, effluent, and sludge as described in **Appendix C** entitled, "Requirements for Influent, Effluent and Sludge Monitoring," which is made part of this Order. The results of the sampling and analysis, along with a discussion, shall be submitted in the semiannual reports. A tabulation of the data shall be included in the annual pretreatment report. The Executive Officer may require more or less frequent monitoring on a case by case basis.

## APPENDIX A

### REQUIREMENTS FOR PRETREATMENT ANNUAL REPORTS

The Pretreatment Annual Report is due each year on the last day of February. [If the annual report is combined with the semiannual report (for the July through December period) the submittal deadline is January 31<sup>st</sup> of each year.] The purpose of the Annual Report is 1) to describe the status of the Publicly Owned Treatment Works (POTW) pretreatment program and 2) to report on the effectiveness of the program, as determined by comparing the results of the preceding year's program implementation. The report shall contain at a minimum, but is not limited to, the following information:

#### 1) **Cover Sheet**

The cover sheet must contain the name(s) and National Pollutant Discharge Elimination Discharge System (NPDES) permit number(s) of those POTWs that are part of the Pretreatment Program. Additionally, the cover sheet must include: the name, address and telephone number of a pretreatment contact person; the period covered in the report; a statement of truthfulness; and the dated signature of a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for overall operation of the POTW (40 CFR 403.12(j)).

#### 2) **Introduction**

The Introduction shall include any pertinent background information related to the City, the POTW and/or the Industrial base of the area. Also, this section shall include an update on the status of any Pretreatment Compliance Inspection (PCI) tasks, Pretreatment Performance Evaluation tasks, Pretreatment Compliance Audit (PCA) tasks, Cleanup and Abatement (CAO) tasks, or other pretreatment-related enforcement actions required by the Regional Board or the EPA. A more specific discussion shall be included in the section entitled, "Program Changes."

#### 3) **Definitions**

This section shall contain a list of key terms and their definitions that the POTW uses to describe or characterize elements of its pretreatment program.

#### 4) **Discussion of Upset, Interference and Pass Through**

This section shall include a discussion of Upset, Interference or Pass Through incidents, if any, at the POTW(s) that the Discharger knows of or suspects were caused by industrial discharges. Each incident shall be described, at a minimum, consisting of the following information:

- a) a description of what occurred;
- b) a description of what was done to identify the source;
- c) the name and address of the IU responsible
- d) the reason(s) why the incident occurred;
- e) a description of the corrective actions taken; and
- f) an examination of the local and federal discharge limits and requirements for the purposes of determining whether any additional limits or changes to existing requirements may be necessary to prevent other Upset, Interference or Pass Through Incidents.

5) **Influent, Effluent and Sludge Monitoring Results**

This section shall provide a summary of the analytical results from the "Influent, Effluent and Sludge Monitoring" as specified in Appendix C. The results should be reported in a summary matrix that lists monthly influent and effluent metal results for the reporting year.

A graphical representation of the influent and effluent metal monitoring data for the past five years shall also be provided with a discussion of any trends.

6) **Inspection and Sampling Program**

This section shall contain at a minimum, but is not limited to, the following information:

- a) Inspections: the number of inspections performed for each type of IU; the criteria for determining the frequency of inspections; the inspection format procedures;
- b) Sampling Events: the number of sampling events performed for each type of IU; the criteria for determining the frequency of sampling; the chain of custody procedures.

7) **Enforcement Procedures**

This section shall provide information as to when the approved Enforcement Response Plan (ERP) had been formally adopted or last revised. In addition, the date the finalized ERP was submitted to the Regional Board shall also be given.

8) **Federal Categories**

This section shall contain a list of all of the federal categories that apply to the POTW. The specific category shall be listed including the subpart and 40 CFR section that applies. The maximum and average limits for the each category shall be provided. This list shall indicate the number of Categorical Industrial Users (CIUs) per category and the CIUs that are being regulated pursuant to the category. The information and data used to determine the limits for those CIUs for which a combined waste stream formula is applied shall also be provided.

9) **Local Standards**

This section shall include a table presenting the local limits.

10) **Updated List of Regulated SIUs**

This section shall contain a complete and updated list of the Discharger's Significant Industrial Users (SIUs), including their names, addresses, and the reason why the SIU is classified as "significant." The list shall include all deletions and additions keyed to the list as submitted in the previous annual report. All deletions shall be briefly explained.

11) **Compliance Activities**

- a) **Inspection and Sampling Summary:** This section shall contain a summary of all the inspections and sampling activities conducted by the Discharger over the

past year to gather information and data regarding the SIUs. The summary shall include:

- (1) the number of inspections and sampling events conducted for each SIU;
- (2) the quarters in which these activities were conducted; and
- (3) the compliance status of each SIU, delineated by quarter, and characterized using all applicable descriptions as given below:
  - (a) in consistent compliance;
  - (b) in inconsistent compliance;
  - (c) in significant noncompliance;
  - (d) on a compliance schedule to achieve compliance, (include the date final compliance is required);
  - (e) not in compliance and not on a compliance schedule;
  - (f) compliance status unknown, and why not.

b) **Enforcement Summary:** This section shall contain a summary of the compliance and enforcement activities during the past year. The summary shall include the names of all the SIUs affected by the following actions:

- (1) Warning letters or notices of violations regarding SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
- (2) Administrative Orders regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
- (3) Civil actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
- (4) Criminal actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.

- (5) Assessment of monetary penalties. Identify the amount of penalty in each case and reason for assessing the penalty.
- (6) Order to restrict/suspend discharge to the POTW.
- (7) Order to disconnect the discharge from entering the POTW.

**12) Baseline Monitoring Report Update**

This section shall provide a list of CIUs that have been added to the pretreatment program since the last annual report. This list of new CIUs shall summarize the status of the respective Baseline Monitoring Reports (BMR). The BMR must contain all of the information specified in 40 CFR 403.12(b). For each of the new CIUs, the summary shall indicate when the BMR was due; when the CIU was notified by the POTW of this requirement; when the CIU submitted the report; and/or when the report is due.

**13) Pretreatment Program Changes**

This section shall contain a description of any significant changes in the Pretreatment Program during the past year including, but not limited to: legal authority, local limits, monitoring/inspection program and frequency, enforcement protocol, program's administrative structure, staffing level, resource requirements and funding mechanism. If the manager of the pretreatment program changes, a revised organizational chart shall be included. If any element(s) of the program is in the process of being modified, this intention shall also be indicated.

**14) Pretreatment Program Budget**

This section shall present the budget spent on the Pretreatment Program. The budget, either by the calendar or fiscal year, shall show the amounts spent on personnel, equipment, chemical analyses and any other appropriate categories. A brief discussion of the source(s) of funding shall be provided.

**15) Public Participation Summary**

This section shall include a copy of the public notice as required in 40 CFR 403.8(f)(2)(vii). If a notice was not published, the reason shall be stated.

**16) Sludge Storage and Disposal Practice**

This section shall have a description of how the treated sludge is stored and ultimately disposed. The sludge storage area, if one is used, shall be described in detail. Its location, a description of the containment features and the sludge handling procedures shall be included.

**17) PCS Data Entry Form**

The annual report shall include the PCS Data Entry Form. This form shall summarize the enforcement actions taken against SIUs in the past year. This form shall include the following information: the POTW name, NPDES Permit number, period covered by the report, the number of SIUs in significant noncompliance (SNC) that are on a pretreatment compliance schedule, the number of notices of violation and administrative orders issued against SIUs, the

number of civil and criminal judicial actions against SIUs, the number of SIUs that have been published as a result of being in SNC, and the number of SIUs from which penalties have been collected.

18) **Other Subjects**

Other information related to the Pretreatment Program that does not fit into one of the above categories should be included in this section.

Signed copies of the reports shall be submitted to the Regional Administrator at USEPA, the State Water Resources Control Board and the Regional Board at the following addresses:

Regional Administrator  
United States Environmental Protection Agency  
Region 9, Mail Code: WTR-7  
Clean Water Act Compliance Office  
Water Division  
75 Hawthorne Street  
San Francisco, CA 94105

Pretreatment Program Manager  
Regulatory Unit  
State Water Resources Control Board  
Division of Water Quality  
1001 I Street  
Sacramento, CA 95814

Pretreatment Coordinator  
NPDES Permits Division  
SF Bay Regional Water Quality Control Board  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

## APPENDIX B:

### REQUIREMENTS FOR SEMIANNUAL PRETREATMENT REPORTS

The semiannual pretreatment reports are due on July 31<sup>st</sup> (for pretreatment program activities conducted from January through June) and January 31<sup>st</sup> (for pretreatment activities conducted from July through December) of each year, unless an exception has been granted by the Board's Executive Officer. The semiannual reports shall contain, at a minimum, but is not limited to, the following information:

#### 1) **Influent, Effluent and Sludge Monitoring**

The influent, effluent and sludge monitoring results shall be included in the report. The analytical laboratory report shall also be included, with the QA/QC data validation provided upon request. A description of the sampling procedures and a discussion of the results shall be given. (Please see Appendix C for specific detailed requirements.) The contributing source(s) of the parameters that exceed NPDES limits shall be investigated and discussed. In addition, a brief discussion of the contributing source(s) of all organic compounds identified shall be provided.

The Discharger has the option to submit all monitoring results via an electronic reporting format approved by the Executive Officer. The procedures for submitting the data will be similar to the electronic submittal of the NPDES self-monitoring reports as outlined in the December 17, 1999 Regional Board letter, Official Implementation of Electronic Reporting System (ERS). The Discharger shall contact the Regional Board's ERS Project Manager for specific details in submitting the monitoring data.

If the monitoring results are submitted electronically, the analytical laboratory reports (along with the QA/QC data validation) should be kept at the discharger's facility.

#### 2) **Industrial User Compliance Status**

This section shall contain a list of all Significant Industrial Users (SIUs) that were not in consistent compliance with all pretreatment standards/limits or requirements for the reporting period. The compliance status for the previous reporting period shall also be included. Once the SIU has determined to be out of compliance, the SIU shall be included in the report until consistent compliance has been achieved. A brief description detailing the actions that the SIU undertook to come back into compliance shall be provided.

For each SIU on the list, the following information shall be provided:

- a. Indicate if the SIU is subject to Federal categorical standards; if so, specify the category including the subpart that applies.
- b. For SIUs subject to Federal Categorical Standards, indicate if the violation is of a categorical or local standard.
- c. Indicate the compliance status of the SIU for the two quarters of the reporting period.

- d. For violations/noncompliance occurring in the reporting period, provide (1) the date(s) of violation(s); (2) the parameters and corresponding concentrations exceeding the limits and the discharge limits for these parameters and (3) a brief summary of the noncompliant event(s) and the steps that are being taken to achieve compliance.

### 3) **POTW's Compliance with Pretreatment Program Requirements**

This section shall contain a discussion of the Discharger's compliance status with the Pretreatment Program Requirements as indicated in the latest Pretreatment Compliance Audit (PCA) Report, Pretreatment Compliance Inspection (PCI) Report or Pretreatment Performance Evaluation (PPE) Report. It shall contain a summary of the following information:

- a. Date of latest PCA, PCI or PPE and report.
- b. Date of the Discharger's response.
- c. List of unresolved issues.
- d. Plan and schedule for resolving the remaining issues.

The reports shall be signed by a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for the overall operation of the Publicly Owned Treatment Works (POTW) (40 CFR 403.12(j)). Signed copies of the reports shall be submitted to the Regional Administrator at USEPA, the State Water Resources Control Board and the Regional Board at the following addresses:

Regional Administrator  
United States Environmental Protection Agency  
Region 9, Mail Code: WTR-7  
Clean Water Act Compliance Office  
Water Division  
75 Hawthorne Street  
San Francisco, CA 94105

Pretreatment Program Manager  
Regulatory Unit  
State Water Resources Control Board  
Division of Water Quality  
1001 I Street  
Sacramento, CA 95814

Pretreatment Coordinator  
NPDES Permits Division  
SF Bay Regional Water Quality Control Board  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

## APPENDIX C

### REQUIREMENTS FOR INFLUENT, EFFLUENT AND SLUDGE MONITORING

The Discharger shall conduct sampling of their respective treatment plant's influent, effluent and sludge at the frequency as shown in Table 1 on Page 7 of the SMP.

The monitoring and reporting requirements of the POTW's Pretreatment Program are in addition to those specified in the individual POTW's NPDES permit. Any subsequent modifications of the NPDES requirements shall be adhered to and shall not affect the requirements described in this Appendix unless written notice from the Regional Board is received. When sampling periods coincide, one set of test results, reported separately, may be used for those parameters that are required to be monitored in both the Discharger's NPDES permit and Pretreatment Program. Monitoring reports required by this Order shall be sent to the Pretreatment Coordinator.

#### 1. Influent and Effluent Monitoring

The Discharger shall monitor for the parameters using the required test methods listed in Table 1 (page 7 of the SMP). Any test method substitutions must have received prior written Regional Board approval. In addition, unless instructed otherwise in writing, the Discharger shall continue to monitor for those parameters at the frequency stated in Table 1. Influent and Effluent sampling locations shall be the same as those sites specified in the POTW's Self-Monitoring Program as set forth in its NPDES permit.

The influent and effluent sampled should be taken during the same 24-hour period. All samples must be representative of daily operations. A minimum of four grab samples, one every six hours over a 24-hour period, should be used for volatile organic compounds, cyanide and phenol. For all other pollutants, 24-hour composite samples must be obtained through flow-proportioned composite sampling. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto. The reporting limits for the individual parameters shall be at or below the minimum levels (MLs) as stated in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000) [also known as the State Implementation Policy (SIP)]; any revisions to the MLs shall be adhered to. If a parameter does not have a stated minimum level then the Discharger shall conduct the analyses using the lowest commercially available and reasonably achievable detection levels.

The following standardized report format should be used for submittal of the influent and effluent monitoring report. A similar structured format may be used but will be subject to Regional Board approval. The monitoring reports shall be submitted with the Semiannual Reports.

- A. Sampling Procedures – This section shall include a brief discussion of the sample locations, collection times, how the sample was collected (i.e., direct collection using vials or bottles, or other types of collection using devices such as automatic samplers, buckets, or beakers), types of containers used, storage procedures and holding times. Include description of prechlorination and chlorination/dechlorination practices during the sampling periods.

- B. Method of Sampling Dechlorination – A brief description of the sample dechlorination method prior to analysis shall be provided.
- C. Sample Compositing – The manner in which samples are composited shall be described. If the compositing procedure is different from the test method specifications, a reason for the variation shall be provided.
- D. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Board upon request.
- E. A tabulation of the test results shall be provided.
- F. Discussion of Results – The report shall include a complete discussion of the test results. If any pollutants are detected in sufficient concentration to upset, interfere or pass through plant operations, the type of pollutant(s) and potential source(s) shall be noted, along with a plan of action to control, eliminate, and/or monitor the pollutant(s). Any apparent generation and/or destruction of pollutants attributable to chlorination/dechlorination sampling and analysis practices shall be noted.

## 2. **Sludge Monitoring**

Sludge should be sampled in the same 24-hour period during which the influent and effluent are sampled except as noted in (C) below. The same parameters required for influent and effluent analysis shall be included in the sludge analysis. The sludge analyzed shall be a composite sample of the sludge for final disposal consisting of:

- A. Sludge lagoons – 20 grab samples collected at representative equidistant intervals (grid pattern) and composited as a single grab, or
- B. Dried stockpile – 20 grab samples collected at various representative locations and depths and composited as a single grab, or
- C. Dewatered sludge- daily composite of 4 representative grab samples each day for 5 days taken at equal intervals during the daily operating shift taken from a) the dewatering units or b) from each truckload, and shall be combined into a single 5-day composite.

The U.S. EPA manual, POTW Sludge Sampling and Analysis Guidance Document, August 1989, containing detailed sampling protocols specific to sludge is recommended as a guidance for sampling procedures. The U.S. EPA manual Analytical Methods of the National Sewage Sludge Survey, September 1990, containing detailed analytical protocols specific to sludge, is recommended as a guidance for analytical methods.

In determining if the sludge is a hazardous waste, the Dischargers shall adhere to Article 2, "Criteria for Identifying the Characteristics of Hazardous Waste," and Article 3, "Characteristics of Hazardous Waste," of Title 22, California Code of Regulations, Sections 66261.10 to 66261.24 and all amendments thereto.

Sludge monitoring reports shall be submitted with the appropriate Semiannual Report. The following standardized report format should be used for submittal of the report. A similarly structured form may be used but will be subject to Regional Board approval.

- A. Sampling procedures – Include sample locations, collection procedures, types of containers used, storage/refrigeration methods, compositing techniques and holding times. Enclose a map of sample locations if sludge lagoons or stockpiled sludge is sampled.
- B. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Board upon request.
- C. Test Results – Tabulate the test results and include the percent solids.
- D. Discussion of Results – The report shall include a complete discussion of test results. If the detected pollutant(s) is reasonably deemed to have an adverse effect on sludge disposal, a plan of action to control, eliminate, and/or monitor the pollutant(s) and the known or potential source(s) shall be included. Any apparent generation and/or destruction of pollutants attributable to chlorination/ dechlorination sampling and analysis practices shall be noted.

The Discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants that the permittee believes may be causing or contributing to Interference, Pass Through or adversely impacting sludge quality.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

**FACT SHEET**

ISSUANCE OF WASTE DISCHARGE REQUIREMENTS  
FOR DISCHARGE TO STATE WATERS

FOR  
CITY OF SAN MATEO WASTEWATER TREATMENT PLANT  
SAN MATEO  
SAN MATEO COUNTY

NPDES PERMIT NO. CA 0037541  
ORDER NO. 01-071

**NOTICE:**

**Public Hearing**

- The draft permit will be considered for adoption by the Board at a public hearing during the Board's regular monthly meeting at: Elihu Harris State Building, 1515 Clay Street, Oakland, CA; 1<sup>st</sup> floor auditorium.
- **This meeting will be held on: June 20, 2001, starting at 8:00 a.m.**

**Additional Information**

- For additional information about this matter, interested persons should contact Regional Board staff: Mr. James Nusrala, Phone: (510) 622-2320; email [jn@rb2.swrcb.ca.gov](mailto:jn@rb2.swrcb.ca.gov)

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**I. DISCHARGER AND PERMIT APPLICATION**

- A. Discharger: The City of San Mateo (Discharger) owns and operates the City of San Mateo Wastewater Treatment Plant, located in San Mateo County, California. The plant provides advanced secondary treatment of wastewater from domestic and commercial wastewater from the Cities of San Mateo, Foster City, Hillsborough, and portions of Belmont, and unincorporated area in San Mateo County. The Discharger's service area has a present population of about 133,000.
- B. Permit Application: The Discharger has applied to the California Regional Water Quality Control Board, San Francisco Bay Region (Board) for reissuance of Waste Discharge Requirements (WDR) and a Permit under the National Pollutant Discharge Elimination System (NPDES) for the discharge of treated municipal wastewater into waters of the San Francisco Bay estuary, which are waters of the State and United States.

## II. Discharge Description

### A. Facility Description

1. Location: The Discharger owns and operates the San Mateo Wastewater Treatment Plant, located at 2050 Detroit Drive, San Mateo, San Mateo County, California. A location map of the Discharger facility is included as Attachment A of this Order.
2. Service Area and Population: The plant provides secondary treatment from October 1 until April 30 (the winter months) and advanced-secondary level treatment from May 1 through September 30 (discretionary operation as necessary to meet dry weather discharger requirements during the summer months) of wastewater from domestic and commercial wastewater from the Cities of San Mateo, Foster City, Hillsborough, and portions of Belmont, and unincorporated area in San Mateo County. The Discharger's service area has a present population of about 133,000.
3. Wastewater Treatment Process: Treatment facilities consist of primary clarifiers, aeration tanks, final clarifiers, pressure filters (during the summer months), and chlorination and dechlorination. Sludge is thermally treated, dewatered using vacuum filters, and disposed of at a dedicated landfill. A treatment process schematic diagram is included as Attachment B of this Order.
4. Facility Classification: The U.S. Environmental Protection Agency (U.S. EPA) and the Board have classified this discharge as a major discharge.

### B. Effluent Description

1. Discharge Location: The treated wastewater is discharged into the deep-water channel of lower San Francisco Bay, a Water of The State and United States, at a point approximately 500 feet north of the San Mateo-Haywood Bridge through a submerged diffuser about 3700 feet offshore at a depth of 41 feet below mean lower low water (Latitude 37 deg., 34 min., 50 sec.; longitude 122 deg., 14 min., 45 sec.).
2. Discharge Volume and Plant Capacity: The treatment plant has an average dry weather flow design capacity of 15.7 million gallons per day (MGD). It presently discharges an annual average dry weather flow of 12.6 MGD.
3. Effluent Quality and Reasonable Potential Analysis Summary: The quality of the treated effluent from the City of San Mateo, based on effluent monitoring data from 1998 through 2000 for metals, cyanide and

phenols, and from 1995 and 2000 for volatile organic compounds, semi volatile organic compounds, and toxic organic compounds, is as follows (all units are in ug/L, unless otherwise denoted):

**TABLE 1**

Concentrations: given as micrograms per liter ( $\mu\text{g/L}$ ) unless otherwise specified as picograms per liter ( $\text{pg/L}$ ).

N/A: Concentration not available.

Reasonable Potential Analysis (RPA) Results:

Y: Reasonable Potential exists;

N: Reasonable Potential does not exist;

I<sub>d</sub>: Cannot be determined, detection limit(s) above WQO;

I<sub>b</sub>: Cannot be determined, inadequate ambient background data;

I<sub>o</sub>: Indeterminate objective concentration.

CTR No.	Constituent	MEC	Governing WQO	Back-ground	RPA Results
2	Arsenic	2.1	36	2.46	N
4	Cadmium	0.36	9.3	0.13	N
5	Chromium	11	50	4.4	N
6	Copper	29	3.7	2.45	Y
7	Lead	8.4	5.6	0.8	Y
8	Mercury	0.26	.025	0.006	Y
9	Nickel	27	7.1	3.5	Y
10	Selenium	1.5	5	0.39	N
11	Silver	2	2.24	0.068	N
13	Zinc	180	58	4.6	Y
14	Cyanide	8.4	1	NA	Y
16	2,3,7,8-TCDD (Dioxin) (303(d) listed)	NA	.014 pg/L	NA	
17	Acrolein	NA	780	NA	N, I <sub>d</sub> , I <sub>b</sub>
18	Acrylonitrile	NA	0.66	NA	N, I <sub>d</sub> , I <sub>b</sub>
19	Benzene	0.5	71	NA	N, I <sub>b</sub>
20	Bromoform	.5	360	NA	N, I <sub>b</sub>
21	Carbon Tetrachloride	.5	4.4	NA	N, I <sub>b</sub>
22	Chlorobenzene	.5	21,000	NA	N, I <sub>b</sub>
23	Chlordibromomethane	0.5	34	NA	N, I <sub>b</sub>
24	Chloroethane	.5	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
25	2-Chloroethylvinyl Ether	1	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
26	Chloroform	8.4	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
27	Dichlorobromomethane	0.29	46	NA	N, I <sub>b</sub>
28	1,1-Dichloroethane	0.5	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>

CTR No.	Constituent	MEC	Governing WQO	Back-ground	RPA Results
29	1,2-Dichloroethane	0.5	99	NA	N, I <sub>b</sub>
30	1,1-Dichloroethylene	0.5	3.2	NA	N, I <sub>b</sub>
31	1,2-Dichloropropane	0.5	39	NA	N, I <sub>b</sub>
32	1,3-Dichloropropylene	0.5	1,700	NA	N, I <sub>b</sub>
33	Ethylbenzene	0.5	29,000	NA	N, I <sub>b</sub>
34	Methyl Bromide	0.5	4,000	NA	N, I <sub>d</sub> , I <sub>b</sub>
35	Methyl Chloride	NA	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
36	Methylene Chloride	59	1,600	NA	N, I <sub>b</sub>
37	1,1,2,2-Tetrachloroethane	.5	11	NA	N, I <sub>b</sub>
38	Tetrachloroethylene	.5	8.85	NA	N, I <sub>b</sub>
39	Toluene	2	200,000	NA	N, I <sub>b</sub>
40	1,2-Trans-Dichloroethylene	.21	140,000	NA	N, I <sub>b</sub>
41	1,1,1-Trichloroethane	.2	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
42	1,1,2-Trichloroethane	.2	42	NA	N, I <sub>b</sub>
43	Trichloroethylene	.2	81	NA	N, I <sub>b</sub>
44	Vinyl Chloride	.5	525	NA	N, I <sub>b</sub>
45	Chlorophenol	0.2	400	NA	N, I <sub>b</sub>
46	2,4-Dichlorophenol	0.26	790	NA	N, I <sub>b</sub>
47	2,4-Dimethylphenol	0.2	2,300	NA	N, I <sub>b</sub>
48	2-Methyl-4,6-Dinitrophenol	0.5	765	NA	N, I <sub>b</sub>
49	2,4-Dinitrophenol	.5	14,000	NA	N, I <sub>b</sub>
50	2-Nitrophenol	0.26	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
51	4-Nitrophenol	0.66	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
52	3-Methyl-4-Chlorophenol	0.1	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
53	Pentachlorophenol	0.5	7.9	NA	N, I <sub>b</sub>
54	Phenol	.94	4,600,000	NA	N, I <sub>b</sub>
55	2,4,6-Trichlorophenol	.2	6.5	NA	N, I <sub>b</sub>
56	Acenaphthene	0.1	2,700	0.0015	N
57	Acenaphthylene	0.1	NA	0.00053	N, I <sub>o</sub>
58	Anthracene	0.1	110,000	0.0005	N
59	Benzidine	NA	0.00054	NA	N, I <sub>d</sub> , I <sub>b</sub>
60	Benzo(a)Anthracene	NA	0.049	0.0053	N, I <sub>d</sub>
61	Benzo(a)Pyrene	NA	0.049	0.0025	N, I <sub>d</sub>
62	Benzo(b)Fluoranthene	NA	0.049	0.0046	N, I <sub>d</sub>
63	Benzo(ghi)Perylene	0.4	NA	0.006	N, I <sub>o</sub>
64	Benzo(k)Fluoranthene	NA	0.049	0.0015	N, I <sub>d</sub>
65	Bis(2-Chloroethoxy)Methane	1	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
66	Bis(2-Chloroethyl)Ether	1	1.4	NA	N, I <sub>b</sub>
67	Bis(2-Chloroisopropyl)Ether	0.2	170,000	NA	N, I <sub>b</sub>
68	Bis(2-Ethylhexyl)Phthalate	8.3	5.9	NA	Y
69	4-Bromophenyl Phenyl Ether	0.1	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
70	Butylbenzyl Phthalate	0.27	5,200	NA	N, I <sub>b</sub>
71	2-Chloronaphthalene	0.1	4,300	NA	N, I <sub>b</sub>

CTR No.	Constituent	MEC	Governing WQO	Back-ground	RPA Results
72	4-Chlorophenyl Phenyl Ether	0.1	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
73	Chrysene	NA	0.049	0.0041	N, I <sub>d</sub>
74	Dibenzo(a,h)Anthracene	NA	0.049	0.0006	N, I <sub>d</sub>
75	1,2 Dichlorobenzene	.29	17,000	NA	N, I <sub>b</sub>
76	1,3 Dichlorobenzene	0.57	2,600	NA	N, I <sub>b</sub>
77	1,4 Dichlorobenzene	0.46	2,600	NA	N, I <sub>b</sub>
78	3,3-Dichlorobenzidine	NA	0.077	NA	N, I <sub>b</sub> , I <sub>d</sub>
79	Diethyl Phthalate	0.34	120,000	NA	N, I <sub>b</sub>
80	Dimethyl Phthalate	0.1	2,900,000	NA	N, I <sub>b</sub>
81	Di-n-Butyl Phthalate	16	12,000	NA	N, I <sub>b</sub>
82	2,4-Dinitrotoluene	0.1	9.1	NA	N, I <sub>b</sub>
83	2,6-Dinitrotoluene	1.8	NA	NA	N, I <sub>o</sub>
84	Di-n-Octyl Phthalate	.29	NA	NA	N, I <sub>o</sub>
85	1,2-Diphenylhydrazine	NA	0.54	NA	N, I <sub>d</sub> , I <sub>b</sub>
86	Fluoranthene	0.1	370	0.007	N
87	Fluorene	0.1	14,000	0.002078	N
88	Hexachlorobenzene	NA	0.00077	NA	N, I <sub>d</sub> , I <sub>b</sub>
89	Hexachlorobutadiene	0.2	50	NA	N, I <sub>b</sub>
90	Hexachlorocyclopentadiene	0.2	17,000	NA	N, I <sub>b</sub>
91	Hexachloroethane	0.2	8.9	NA	N, I <sub>b</sub>
92	Indeno(1,2,3-cd) Pyrene	NA	0.049	0.004	N, I <sub>d</sub>
93	Isophorone	0.5	600	NA	N, I <sub>b</sub>
94	naphthalene	0.1	NA	0.00229	N, I <sub>o</sub>
95	Nitrobenzene	0.5	1,900	NA	N, I <sub>b</sub>
96	N-Nitrosodimethylamine	5	8.1	NA	N, I <sub>b</sub>
97	N-Nitrosodi-n-Propylamine	1.0	1.4	NA	N, I <sub>d</sub> , I <sub>b</sub>
98	N-Nitrosodiphenylamine	0.2	16	NA	N, I <sub>b</sub>
99	Phenanthrene	0.1	NA	0.0061	N, I <sub>o</sub>
100	Pyrene	0.1	11,000	0.0051	N
101	1,2,4-Trichlorobenzene	0.1	NA	NA	N, I <sub>o</sub> , I <sub>b</sub>
102	Aldrin	NA	0.00014	ND	N, I <sub>b</sub> , I <sub>d</sub>
103	alpha-BHC	0.002	0.013	0.0005	N
104	beta-BHC	0.004	0.046	0.0004	N
105	gamma-BHC	0.043	0.063	0.0007	N
106	delta-BHC	0.004	NA	0.0005	N, I <sub>o</sub>
107	Chlordane	NA	0.00059	0.00018	N, I <sub>d</sub>
108	4,4-DDT	NA	0.00059	0.000066	N, I <sub>d</sub>
109	4,4-DDE	NA	0.00059	0.00069	Y
110	4,4-DDD	NA	0.00084	0.000313	N, I <sub>d</sub>
111	Dieldrin (303(d) listed )	NA	0.00014	0.000264	Y
112	alpha-Endosulfan	0.002	0.0087	0.000031	N
113	beta-Endosulfan	0.004	0.0087	0.000069	N
114	Endosulfan Sulfate	0.006	240	0.000011	N

CTR No.	Constituent	MEC	Governing WQO	Back-ground	RPA Results
115	Endrin	NA	0.0023	0.000016	N, I <sub>d</sub>
116	Endrin Aldehyde	0.01	0.81	NA	N, I <sub>b</sub>
117	Heptachlor	NA	0.00021	0.000019	N, I <sub>d</sub>
118	Heptchlor Epoxide	0.015	0.00011	0.000094	N, I <sub>d</sub>
119-125	PCBs	NA	0.00017	NA	N, I <sub>d</sub>
126	Toxaphene	NA	0.0002	NA	N, I <sub>b</sub> , I <sub>d</sub>
	Tributyltin	0.016	0.010	NA	Y

1. *Effluent Limits Proposed to be Included in the Permit:* Based on RPA, copper, lead, mercury, nickel, cyanide, tributyltin, dieldrin, 4,4-DDE, Bis 2(Ethylhexyl) Phthalate, and zinc have been found to have reasonable potential to cause or contribute to exceedance of water quality objectives. Please see Attachments for the detailed RPA for both metals and organics. Based on the RPA, effluent limits are proposed to be included in the permit for the pollutants listed above.
  2. *Effluent Limits Proposed to be Deleted from the Permit.* Based on RPA, arsenic, cadmium, hexavalent chromium, selenium, and silver have been found to not have reasonable potential to cause or contribute to exceedance of water quality objectives. The existing permit included effluent limits for the constituents identified above. Based on the RPA, effluent limits are proposed to be deleted from the permit for these pollutants. Continued effluent monitoring for these constituents will be conducted, as identified in the self-monitoring program of the permit.
4. Stormwater Discharge Description:
- a. Federal regulations for stormwater discharges were promulgated by U.S. EPA on November 19, 1990. The regulations [40 Code of Federal regulations (CFR) Parts 122, 1243, and 124] requires specific categories of industrial activities including Publicly Owned Treatment Works (POTWs) which discharge stormwater associated with industrial activity (industrial stormwater) to obtain an NPDES permit and to implement Best Available Technology Economically Available (BAT) and Best Conventional Pollutant Control Technology (BCT) to control pollutants in industrial stormwater discharges.
  - b. The majority of the stormwater flows from the wastewater treatment facility process areas are directed to the wastewater treatment plant head works and are treated along with the wastewater discharged to

the treatment plant. A portion of the stormwater from the facility flows offsite to the Seal Slough. The discharger samples this creek regularly under the requirements of the General Stormwater Permit.

- c. Solids Disposal: Sludge is thermally treated, dewatered using vacuum filters, and disposed of at a dedicated landfill.

### III. General Rationale

The following is a summary of the general rationale with a brief description of each of the major references used in preparing the Tentative Order. Various references are generally used as a basis for supporting effluent limits contained in NPDES permits. In addition, this fact sheet contains specific rationale for each effluent and receiving water limitation, prohibition, and provision, with reference to each item as it appears in the tentative order.

- *Federal Water Pollution Control Act*, as amended (hereinafter referred to as the Clean Water Act)
- *Code of Federal Regulations*, Title 40 – Protection of the Environment, Chapter 1, Environmental Protection Agency, Subchapter D, Water Programs, Part 122-129 (hereinafter referred to as 40 CFR Specific Part Number)
- *Water Quality Control Plan*, San Francisco Bay Basin, June 21, 1995 (Basin Plan). The California Regional Water Quality Control Board, San Francisco Bay Region, adopted the Basin Plan on June 21, 1995. The Basin Plan was approved by the State Water Resources Control Board (State Board) and the Office of Administrative Law on July 20 and November 13, respectively, of 1995. A summary of regulatory provisions is contained in Title 23 of the California Code of Regulations at Section 3912. Basin Plan identifies beneficial uses and water quality objectives for waters of the State, including surface and ground waters
- *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California*, Federal Register, Volume 65, Number 97, 16 May 2000, Pages 31681-31719 (hereinafter referred to as the California Toxics Rule)
- *Quality Criteria for Water*, U.S. EPA 440/5-86-001 (hereinafter referred to as the Gold Book)
- *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, dated May 18, 2000 (hereinafter referred to as State Implementation Policy)

- Technical Support Document for Water Quality-Based Toxics Control, U.S. EPA/505/2-90-001, March 1991 (hereinafter referred to as the TSD)
- National Toxics Rule, 57 FR 60848, December 22, 1992, as amended (NTR)

#### IV. Specific Rationale

Section 402(o) of Clean Water Act and 40 CFR 122.44(l) require that water-quality based effluent limits (WQBELs) in re-issued permits are at least as stringent as in the previous permit. Therefore, some of the requirements in the proposed Order are based on limits specified in Orders #95-055 and #98-089.

There are several other factors affecting the development of limitations and requirements in the Tentative Order. These are discussed as follows:

##### Impaired Water Bodies in 303(d) List

The U.S. EPA Region 9 approved the State's 303(d) list of impaired water bodies on May 12, 1999. The list was prepared 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. Lower San Francisco Bay is listed as impaired for the following pollutants: copper, mercury, nickel, exotic species, PCBs total, dioxin and furan compounds, chlordane, DDT, Dieldrin, Diazinon, and dioxin-like PCBs.

The following section provides a specific rationale for the proposed permit requirements in the Tentative Order:

##### A. Discharge Prohibitions:

1. **Prohibition A.1** (no discharges other than as described in the Permit): This condition prohibits discharging treated wastewater in a manner different from that described in the findings of this Order. It is based on the previous permit and BPJ. (no discharge receiving less than 10:1 dilution): This condition prohibits discharges not receiving 10:1 dilution. It is based on the Basin Plan (Chapter 4, Table 4-1, Discharge Prohibition No. 1).
2. **Prohibition A.2** (no bypass or overflow of untreated or partially treated wastewater): This condition prohibits the discharge of partially treated and untreated wastes. This prohibition does not apply to the conditions as stated in 40 CFR 122.41 (m) (4) nor when bypassing portions of process units provided that the combined discharge of fully and partially treated wastewater complies with the effluent and receiving water requirements.

This condition is based on the Basin Plan (Chapter 4, Table 4-1, Discharge Prohibition No. 15).

3. **Prohibition A.3** (average dry weather flow cap): This condition prohibits discharges exceeding 15.7 MGD (average dry weather flow). This prohibition is derived from the reliable treatment capacity of the plant. Exceedance of the treatment plant's average dry weather flow design capacity of 15.7 MGD may result in lowering the reliability of achieving compliance with water quality requirements. This prohibition is based on 40 CFR 122.41(l).
4. **Prohibition A.4** (no discharges other than stormwater to storm drains): This condition prohibits the discharge of wastes other than stormwater into a storm drain system. It is based on BPJ.

B. Effluent Limitations:

1. **Effluent Limitations B.1 (Conventional Pollutant Limits):** These are effluent limits for carbonaceous biochemical oxygen demand (CBOD) and total suspended solids (TSS). These limits are based on the Basin Plan, Chapter 4, (Table 4-2), 40 CFR, Section 133.102-Secondary Treatment, and the existing permit as amended.
2. **Effluent Limitations B.1 (Conventional Pollutant Limits):** These are effluent limits for turbidity, oil and grease, settleable matter, and chlorine residual. These limits are based on the Basin Plan Chapter 4, (Table 4-2) and the existing permit as amended.
3. **Effluent Limitations B.2 (85% removal, CBOD and TSS):** This effluent limit requires that the Discharger's treatment system shall remove at least 85% of the BOD and TSS presented in the influent. It is based on the existing permit and the Basin Plan (Chapter 4, Table 4-2), and 40 CFR, Section 133.102-Secondary Treatment.
4. **Effluent Limitations B.3 (Fecal Coliform Bacteria):** This effluent limit requires the following:
  - The five day log mean density for Most Probable Number (MPN) shall not exceed 200 MPN/100ml; and
  - The 90<sup>th</sup> percentile value shall not exceed 400 MPN/100

It is based on the existing permit, as amended.

5. **Effluent Limitations B.4 (Whole Effluent Acute Toxicity):** This effluent limit requires the survival of bioassay test organisms in a 96-hour bioassays of undiluted effluent shall comply with the following:

- An 11-sample median value of not less than 90 percent survival; and
- An 11-sample 90<sup>th</sup> percentile value of not less than 70 percent survival.

It is based on the Basin Plan (Chapter 4, Table 4-4).

- 6. Effluent Limitation B.5 (Chronic Toxicity):** The narrative chronic toxicity requirements are based on U.S. EPA and SWRCB TASK Force guidance, as well as BPJ. The chronic toxicity limit is a narrative toxicity objective, implemented via monitoring. Numeric test values will be used as toxicity “triggers” to initiate accelerated monitoring and perform a chronic toxicity reduction evaluation (TRE). The narrative limit for accelerated monitoring and triggering a toxicity reduction evaluation (TRE) is based on the Basin Plan.
- 7. Effluent Limitations B.6 (Mercury Mass Emission Limit):** This effluent limit requires that the total mercury mass load from the discharge shall not exceed 0.15 kilograms per month (kg/month). See discussion at Fact Sheet Item B.11 (Mercury), below.
- 8. Effluent Limitations B.7 (pH):** This effluent limit requires that the pH of the treated effluent shall not be less than 6.0 nor greater than 9.0. It is based on the Basin Plan (Chapter 4, Table 4-2). If the discharger monitors the pH continuously, certain excursions outside the range will not be considered violations as provided by 40 CFR 401.17.
- 9. Effluent Limitations B.8 (Toxic Substances Effluent Limitations):** Effluent limitations are included in this permit for selected toxic substances in order to protect the beneficial uses of the receiving waters. Effluent limitations for selected substances are necessary because they were detected in the plant effluent and/or, based on a Reasonable Potential Analysis (RPA) as discussed below, have been found to have reasonable potential to cause or contribute to exceedance of water quality objectives for the receiving waters. 40 CFR 122.44(d)(1)(I) requires the permit to include limits 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.”

*Reasonable Potential Analysis:*

- (1) **Water Quality Objectives:** The RPA is calculated using the applicable Water quality objectives given in the National Toxics Rule, California Toxics Rule and the Basin Plan.

- (2) Method: Reasonable potential Analysis is conducted using the method prescribed in the State Implementation Policy.
- (3) Effluent Data: The RPA was based on effluent monitoring data for 1998 through 2000 for metallic compounds, phenol, and cyanide. RPA for volatile organic compounds, semivolatile organic compounds, and toxic organic compounds was based on data collected from 1995-2000.
- (4) Background concentration: The RPA was based on monitoring data from the 1992 to 1998 Regional Monitoring Program for metals and from the 1993 to 1998 RMP for organics for Yerba Buena Island and Richardson Bay stations (BC10 and BC30). The higher of the two station concentration results is used as the maximum observed background concentration.
- (5) Summaries of the RPA: Please see Attachments 1 through 4.
- (6) Organic Constituents with Limited Data: Reasonable Potential cannot be determined for various organic constituents (e.g., PCBs, semi-volatile organic compounds) because accurate estimations are not possible for these constituents due to water quality objectives that are lower than current analytical techniques can measure. The Discharger will continue to monitor for these constituents using analytical methods that provide the best detection limits reasonably feasible. If detection limits improve to the point where it is feasible to evaluate reasonable potential with regard to applicable water quality criteria, a reasonable potential analysis will be conducted to determine whether there is need to add numeric effluent limits to the permit or to continue monitoring.
- (7) Monitoring: For constituents that do not show a reasonable potential to cause or contribute to exceedance of applicable water quality objectives, effluent limits are not included in the permit. If significant increases occur in the concentrations of these constituents, the Discharger will be required to investigate the source of the increases and establish remedial measures if the increases result in reasonable potential for the constituent to cause or contribute to an excursion of an applicable water quality standard.
- (8) Permit Reopener: The permit includes a reopener provision to allow numeric effluent limits to be added for any constituent that in the future exhibits reasonable potential to cause or contribute to exceedance of a water quality objective. This determination, based on monitoring results, will be made by the Board.

Constituent	Water Quality Objective (WQO)	Daily Maximum	Monthly Average	Interim Daily Maximum	Interim Monthly Average	Basis for WQO/ Limit
a. Copper (µg/L)	3.7			33.1		CTR/ SIP Section 2.2
b. Lead (µg/L)	5.6	53	30.7			Basin Plan Table 3-3/ SIP Sec 1.4
c. Mercury (µg/L)	0.025				87: Oct-April; 23: May-Sept.	Basin Plan Table 3-3/ Attachment 6
d. Nickel (µg/L)	7.1	71.1	29.5			Basin Plan Table 3-3/ SIP Sec 1.4
e. Cyanide (µg/L)	1			10		CTR/ SIP Sec. 2.2
f. Tributyltin (µg/L)	0.010			0.064		Best Professional Judgment as defined in Basin Plan p. 4-7 / SIP Sec. 2.2
g. Zinc (µg/L)	58	580	398			Basin Plan Table 3-3/ SIP Sec. 1.4
h. Dieldrin (µg/L)	0.00014	0.00028	0.00014			CTR/ SIP Sec. 2.2
i. 4,4-DDE (µg/L)	0.00059	0.00118	0.00059			CTR/ SIP Sec. 2.2
j. Bis 2(Ethyl-hexyl) Phthalate (µg/L)	5.9				21.0	CTR/ SIP Sec. 2.2

### 10. Compliance Schedule

Board staff compared the maximum effluent concentration to the lowest WQBEL to determine if the discharger can achieve immediate compliance with these limits (see table below). If not, the discharger is required to demonstrate it is infeasible to comply with these limits immediately to be eligible for compliance schedule and interim limits.

On May 23, 2001, the discharger submitted a feasibility study which demonstrated according to the Basin Plan (page 4-14, Compliance

Schedule) and SIP (Section 2.1, Compliance Schedule), it is infeasible to immediately comply with the WQBELs, therefore, this permit establishes a five-year compliance schedule of June 30, 2006 for final limits based on CTR or NTR criteria (e.g., copper), a compliance schedule of May 18, 2010 for final limits based on the Basin Plan objectives (e.g., mercury), and a compliance schedule of June 30, 2005 for final limits based on the Basin Plan's objectives for pollution prevention and source control (e.g. TBT). The June 30, 2006 and May 18, 2010 compliance schedules both exceed the length of the permit, therefore, these calculated final limits are intended for point of reference for the feasibility demonstration and are only included in the findings by reference. Additionally, the actual final WQBELs for copper and mercury will very likely be based on either the SSO or TMDL/WLA as described in other findings specific to each of the pollutants.

Pursuant to SIP (Section 2.2.2, Interim Requirements for Providing Data), in the case where available data are insufficient (e.g., cyanide), a compliance schedule of May 18, 2003 is established. This Order contains a provision requiring the Discharger to conduct a study for data collection. The Discharger is required to fully implement the study and submit a final report to the Board by May 18, 2003. The Board intends to include, in a subsequent permit revision, a revised final limit based on the study required as an enforceable limit. However, if the discharger requests and demonstrates that it is infeasible to comply with the revised final limit, the permit revision will establish a maximum five-year compliance schedule. During the compliance schedules, interim limits are included based on current treatment facility performance or on existing permit limits, whichever is more stringent to maintain existing water quality. The Board may take appropriate enforcement actions if interim limits and requirements are not met.

**Table 2: Summary of Feasibility Analysis**

<b>CONSTITUENT</b>	<b>AMEL (ug/L)</b>	<b>MEC (ug/L)</b>	<b>IS MEC &gt; AMEL</b>	<b>IS MEC &gt; ML</b>	<b>FEASIBILITY TO COMPLY (Y/N)</b>
<b>Copper</b>	11.9	29.0	Y		N
<b>Mercury</b>	0.017	0.26	Y		N
<b>Cyanide</b>	1	8	Y		N
<b>Tributyltin</b>	0.008	0.016	Y		N
<b>Bis 2(Ethyl- hexyl) Phthalate</b>	5.9	8.3		Y	N <sup>1</sup>

Note 1: Discharger cannot comply with the final effluent limits listed here, as compliance is determined by comparing the MEC value for this constituent with the reported Minimum Level in Appendix 4 of the SIP.

**11. Copper – Further Discussion and Rationale for Interim Effluent Limit:**

The salt water objective for copper in the adopted CTR is 3.1 ug/L dissolved copper. Included in the CTR are default translator values to convert the dissolved objectives to total objectives. The discharger may perform a translator study to determine a more site-specific translator. The SIP, Section 1.4.1 and the June 1996 EPA guidance document entitled, The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a dissolved criterion describes this process. Due to the current impairment status regarding copper in Central San Francisco Bay, the TMDL process will determine the final WQBEL for copper. In the interim, the Board is required under the SIP to set an interim concentration limit which is based on current performance or the existing limit, whichever is more stringent. The Regional Board will consider site-specific water quality objectives as long as the Discharger can demonstrate that the site-specific objective will protect existing beneficial uses, is scientifically defensible, and is consistent with the Antidegradation policy.

As copper has been determined to be an impairing pollutant on the 303(d) list, and since a RPA has determined there is reasonable potential for the discharge to contribute to a water quality exceedance, a WQBEL is required in this permit. As discussed above, the discharger cannot meet the calculated WQBELs, so a compliance schedule has been granted until June 30, 2006. There is a provision requiring the Discharger to take part in the TMDL process, and to maintain their current pollution prevention measures, along with compliance with interim performance-based effluent limits. In addition, San Mateo is participating in impairment studies with other dischargers from north of the Dumbarton Bridge to collect additional technical information for the Regional Board to consider in its 303(d) listing decision in 2002 as well as developing a copper site-specific objective (SSO). The SSO will include a Copper Action Plan outlining measures for pollution prevention and source reduction. The final WQBEL for copper may be revised based on the TMDL/WLA or SSO and translator. The proposed schedule allows time to implement and evaluate effectiveness of additional source control measures as well as for completing TMDL/WLA or developing SSO. Considering the unpredictable and often times contentious nature of setting new standards, the compliance schedule is as short as possible.

Section 2.2 of the SIP requires an interim effluent limit to be calculated for copper. Staff calculated an interim performance-based effluent limit (IPBL) of 33.1 µg/L, based on the natural log-transformed effluent copper data set from January 1998 through December 2000 for the plant. The log-transformed data set is used rather than the original data, as the three-year period of data fit a lognormal distribution pattern better, than a

normal distribution pattern. This IPBL of 33.1  $\mu\text{g/L}$  is lower than the existing permit limit for copper of 37  $\mu\text{g/L}$ , so it is applied in the permit. The final WQBEL will be based on the WLA derived from the TMDL for copper.

## 12. Mercury - Further Discussion and Rationale for Interim Effluent Limits:

- a. *Mercury Water Quality Objectives:* For mercury, the national chronic criterion is based on the protection of human health. The criterion is intended to limit the bioaccumulation of methyl-mercury in fish and shellfish to levels that are safe for human consumption. As described in the Basin Plan, the saltwater chronic objective is 0.025  $\mu\text{g/L}$  (4-day average), while the saltwater acute objective is 2.1  $\mu\text{g/L}$  (1-hr. average).
- b. *Mercury Strategy.* Board staff is in the process of developing a plan to address control of mercury levels in San Francisco Bay including development of a TMDL, appropriate water quality based effluent limits (WQBELs) for point-source discharges and compliance with effluent limits. For 303(d)-listed pollutants, including mercury, no dilution credit is given in the final effluent limit calculation. Based on the SIP, Section 1.4, the resultant 'deep water' WQBELs for mercury are 0.017  $\mu\text{g/L}$  (average monthly limit), and 0.046  $\mu\text{g/L}$  (maximum daily limit). There is uncertainty about the ability of the discharger to achieve consistent compliance with these WQBELs. This is in part due to limited effluent monitoring data since until recently many analyses have been conducted using analytical detection limits that are numerically greater than the applicable WQBELs.

At present, it appears that the appropriate course of action is to apply interim concentration and mass loading limits to these discharges, and focus mercury reduction efforts on more significant and controllable sources.

- c. *Interim Effluent Concentration Limit.* In May 2001, Regional Board staff performed a statistical analysis of pooled low-detection-limit (ultraclean) mercury data from selected municipal dischargers, to evaluate the feasibility of establishing regionwide interim performance-based mercury effluent limits for municipal dischargers based on the pooled data. The statistical analysis used pooled data because dischargers began using ultraclean mercury sampling techniques in January 2000. As a result, only about one year's ultraclean data were available for this statistical analysis, and individual dischargers' data sets were too small for reliable statistical analysis. Additionally, using pooled data should result in a more

consistent set of interim mercury effluent limits that can be applied uniformly regionwide.

Staff gathered data from the Region's Electronic Reporting System database, verified it, and analyzed it using established statistical methods. It is concluded that the mercury concentration data should first be grouped by type of treatment – secondary or advanced secondary before taking statistical approach. Separate interim limits were then statistically established for each of the treatment type. Based on the Regional Board's 1995 Water Quality Control Plan, San Francisco Bay Region (Region 2) (Basin Plan) as amended [Table 4-9, pg. 4-74], the treatment plant is classified as advanced secondary. Therefore, because of the seasonal variation in treatment described in Finding 2, San Mateo receives the secondary value of 87 ng/L from October through April, and the advanced secondary value of 23 ng/L from May through September, taken as the monthly average concentration. For further information, see attached staff report entitled "Statistical Analysis of Pooled Data from Regionwide Ultraclean Mercury Sampling".

- d. *Interim Mass Emission Limit.* The permit includes a mass-based loading limit (mass emission limit) for mercury of 0.15 kilograms per month. This limit is the interim performance-based, moving-average value of mass loading from discharges to Lower San Francisco Bay, based on effluent data from 1998 through 2000. Please see the attachments for calculations.
- e. *Feasibility to Comply with the Final Limit and Compliance Schedule.* Basin Plan conditions are satisfied by a provision requiring a mercury reduction study, along with interim performance-based concentration and mass effluent limits. Board staff is in the process of developing a plan to address control of mercury levels in San Francisco Bay including development of a TMDL. While the Total Maximum Daily Load (TMDLs) is being developed, the discharger will be held accountable for maintaining ambient conditions to the receiving water by complying with performance-based mass emission limits for mercury. This permit includes interim concentration and mass emission loading limits. The discharger is required to maximize control over influent mercury sources and pollution prevention, with consideration of relative costs and benefits. The discharger will continue working with other municipal dischargers to optimize both source control and pollution prevention efforts and to assess alternatives for reducing mercury loading to, and protecting beneficial uses of, receiving waters. Based on Board staff's report titled: "Watershed Management of Mercury in the San Francisco Bay Estuary: Total Maximum Daily Load Report to U.S. EPA," dated

June 30, 2000, municipal sources are a very small contributor of the mercury load to the Bay. Because of this it is unlikely that the TMDL will require reduction efforts beyond the source controls required by the is permit or by a separate 13267 letter. The proposed schedule allows time to implement and evaluate effectiveness of additional source control measures as well as for completing TMDL/WLA . Considering the unpredictable and often times contentious nature of setting new standards, the compliance schedule is as short as possible.

### 13. Nickel – Further Discussion and Rationale for Effluent Limits:

- a. *Water Quality Objectives.* The Basin Plan contains a numeric water quality objective for total nickel of 7.1 µg/L. No translator value is needed.
- b. *Effluent Limitations.* Based on the comparison of MEC and the AMEL calculated based on Section 1.4 of the SIP, the discharger can comply with the final WQBEL of 29.5 µg/L average monthly. The final WQBEL may be revised based on TMDL/WLA or SSO and translator. The current 303(d) list includes Lower San Francisco Bay as impaired by nickel. As noted in Finding 24, above, The Discharger is participating in impairment assessment studies aimed at gathering additional data on nickel concentration in Lower San Francisco Bay . The Regional Board will consider these studies in its 303(d) listing decision in 2002, and when considering any SSO proposed for nickel. Existing RMP dissolved nickel results show most of the Bay north of the Dumbarton Bridge is in compliance with the CTR's dissolved nickel WQO of 8.2 µg/L.
- c. *Treatment Plant Performance and Compliance Attainability.* Effluent concentrations during the past three years (1998 - 2000) range from 0.5 to 27 µg/L (36 samples). The average monthly value was 5.3 µg/L. The subject discharge to lower San Francisco Bay has consistently complied with the previous Order limit of 65 µg/L.

### 14. Cyanide - Further Discussion and Rationale for Effluent Limits:

- a. The background data set was very limited as there was only six total and six dissolved data points which were all non detects (<1 ug/L) collected in 1993 at Richardson Bay and Yerba Buena Island stations. The non-detect value (<1 ug/L) is equivalent to the WQO (1 ug/L) and causes the dilution portion of the final effluent limit equation to be eliminated, thereby giving no dilution. The final WQBELs for cyanide, presented in the fact sheet attachments, are a point of reference to conduct a feasibility study for immediate compliance. Cyanide is a regional problem associated with the analytical protocol for cyanide analysis due to matrix inferences. A body of evidence exists to show that cyanide measurements in effluent may be an

artifact of the analytical method. This question is being explored in a national research study sponsored by the Water Environment Research Foundation (WERF).

- b. This Order contains a provision requiring the Discharger to conduct a study for data collection. The Discharger is required to fully implement the study and submit a final report to the Board by May 18, 2003. The Board intends to include, in a subsequent permit revision, a revised final limit based on the study required as an enforceable limit. However, if the discharger requests and demonstrates that it is infeasible to comply with the revised final limit, the permit revision will establish a maximum five-year compliance schedule. In the meantime, an interim limit is established based on the previous permit limit of 10 ug/L.

#### **15. Tributyltin - Further Discussion and Rationale for Effluent Limits:**

Although no ambient background data are available for calculating the WQBELs for tributyltin, Board staff still derived an estimate of the WQBELs assuming no dilution. Such estimated WQBELs are only a point of reference for the Discharger to conduct a feasibility study of immediate compliance. The Discharger has performed a feasibility study to demonstrate that compliance is not feasible with the final WQBELs for TBT provided in the Appendix to this Fact Sheet. The Discharger has performed some source control and pollution prevention work for this substance. San Mateo inventoried and inspected 62 cooling towers in the service area in 1997. Environmental Compliance staff will be surveying these facilities during 2001 and 2002 to verify that TBT is not in use at these locations. The results of tributyltin source identification are encouraging, and are documented in the San Mateo County Stormwater Pollution Prevention Program.

Board staff believes that additional ambient data is needed before WQBELs can be calculated, and so the collection of TBT background data is required in this permit. After these data are provided to the Regional Board, Board staff will re-calculate WQBELs for this constituent. Should the Discharger be able to comply with the calculated WQBELs at that time, a compliance schedule will not be needed. Should the Discharger demonstrate that it is infeasible to comply with the re-calculated WQBELs, the permit revision may establish a maximum 10 year compliance schedule.

Considering that (i) That TBT usage was banned by the Department of Pesticide Regulation in December 1995; (ii) the Discharger's commitment to conduct additional source studies; (iii) the time needed for the Discharger to gather sufficient ambient background data to develop an exact WQBEL; Board staff believes a compliance schedule to collect ambient background data for TBT is appropriate. The compliance schedule will expire by May 18,

2003, for the Discharger to gather ambient background data for TBT and recalculate an exact WQBEL. Board staff believes the compliance schedule is practicably the shortest. In the meantime, an interim limit based on past performance is applied.

Section 2.2 of the SIP requires an interim effluent limit to be calculated for tributyltin. Staff calculated an interim performance-based effluent limit (IPBL) of 0.064  $\mu\text{g/L}$ , based on the natural log-transformed effluent tributyltin data set from January 1995 through December 2000 for the plant. The log-transformed data set is used rather than the original data, as the data fit a lognormal distribution pattern better, than a normal distribution pattern.

**16. Dieldrin - Further Discussion and Rationale for Effluent Limits:**

Based on the comparison of MEC and the AMEL calculated based on Section 1.4 of the SIP, using the ML from the SIP to determine compliance the discharger can comply with the final WQBEL for Dieldrin. The Order contains a final effluent limit for Dieldrin.

**17. 4,4-DDE - Further Discussion and Rationale for Effluent Limits:**

Based on the comparison of MEC and the AMEL calculated based on Section 1.4 of the SIP, using the ML from the SIP to determine compliance the discharger can comply with the final WQBEL for 4,4-DDE. The Order contains a final effluent limit for 4,4-DDE.

**18. Bis (2-ethylhexyl) Phthalate - Further Discussion and Rationale for Effluent Limits:** Bis (2-ethylhexyl) phthalate is bioaccumulative. Therefore, even though there is no background value, Board staff calculated a final WQBEL assuming no dilution credit. Based on comparison of the MEC, Minimum Level (ML) and calculated AMEL for bis(2-ethylhexyl)phthalate, the Discharger cannot comply with the water quality based effluent limit based on compliance with commercially available analytical MLs specified in the SIP. Therefore, the Order contains an interim effluent limit for bis(2-ethylhexyl)phthalate, based on past performance.

Section 2.2 of the SIP requires an interim effluent limit to be calculated for Bis (2-ethylhexyl) phthalate. Staff calculated an interim performance-based effluent limit (IPBL) of 21.0  $\mu\text{g/L}$ , based on the natural log-transformed effluent data set from January 1995 through December 2000 for the plant. The log-transformed data set is used rather than the original data, as the data fit a lognormal distribution pattern better, than a normal distribution pattern.

C. Receiving Water Limitations

1. **Receiving Water Limitations C.1 and C.2:** These limits are in the existing permit and are based on water quality objectives for physical, chemical, and biological characteristics from Chapter 3 of the Basin Plan
2. **Receiving Water Limitation C.3 and C.4 (Compliance with Federal and State Law):** This limit is self explanatory.

D. Sludge Management Practices

1. **Provision D.1 to D.5:** These requirements comes from Chapter 4 of the Basin Plan, 40 CFR 257, and 40 CFR 503.

E. Provisions

1. **Provision E.1 (Permit Compliance):** This provision requires the Discharger to comply with the permit by July 1, 2001.
2. **Provision E.2 (Permit Rescission):** This provision rescinds the existing permit order and subsequent amendments. It is based on 40 CFR 122.46.
3. **Provision E.3 (Self-Monitoring Program):** This provision requires the Discharger to conduct effluent monitoring location, method, and schedule as specified in the Self Monitoring Program. It is based on 40 CFR 122.62, 122.63, and 124.5.
4. **Provision E.4 (Standard Provisions and Reporting Requirements):** This provision requires the Discharger to comply with the *Standard Provisions and Reporting Requirement for NPDES surface Water Discharge Permits*, August 1993 given in the permit. It is based on various state and federal regulations with specific references cited therein.
5. **Provision E.6 (Acute Toxicity Compliance):** This provision establishes conditions by which compliance with permit effluent limits for acute toxicity will be demonstrated. Conditions include the use of fathead minnows and rainbow trout and/or three-spine sticklebacks. It also allows the Discharger approximately one year to switch from the current third edition protocol to fourth edition protocol and give the Discharger the options to use either 96 hour continuous flow-through or static renewal bioassay with justification. It is based on the Basin Plan, Chapter 4, and BPJ.
6. **Provision E.8 (Copper Translator Study and Schedule):** This provision allows the discharger to conduct an optional copper translator study. It is based on the SIP and BPJ.

7. **Provision E.9, E.10 and E.20, E.21, and E.22 (Pretreatment Program, Pollution Prevention Program, Operations and Maintenance Manual, Contingency Plan, and Annual Status Reports):** These provisions require continued implementation of programs and procedures intended to ensure optimal operation and maintenance of wastewater facilities and to reduce and control pollutants in the discharge. Provisions include submittal to the Board of progress status reports. These provisions are based on the Basin Plan, 40 CFR 122, 40 CFR 403, and BPJ.
8. **Provision E.12 (Dioxin Study):** The SIP requires major dischargers to monitor the effluent for seventeen dioxin congeners, once during the dry season and once during the wet season over a period of three consecutive years – this is a total of 6 sampling rounds over a 3 year period. The purpose of this monitoring is to assess the presence and amounts of the congeners being discharged to inland surface waters, enclosed bays, and estuaries for the development of a strategy to control these chemicals in a future multi-media approach.
9. **Provision E.13 (Special Study – Cyanide Site-Specific Objective)**  
This provision requires the Discharger to conduct a study for data collection for cyanide. The Discharger is required to fully implement the study and submit a final report to the Board by May 18, 2003. The Board intends to include, in a subsequent permit revision, a revised final limit based on the study required as an enforceable limit. However, if the discharger requests and demonstrates that it is infeasible to comply with the revised final limit, the permit revision may establish a maximum five-year compliance schedule.
10. **Provision E.14 (Interim Requirements for Tributyltin)**  
This provision requires the Discharger to conduct a study for data collection for tributyltin. The Discharger is required to fully implement the study and submit a final report to the Board by May 18, 2003. The Board intends to include, in a subsequent permit revision, a revised final limit based on the study required as an enforceable limit. However, if the discharger requests and demonstrates that it is infeasible to comply with the revised final limit, the permit revision may establish a maximum ten-year compliance schedule.
11. **Provision E.15 (Regional Monitoring Program):** This provision requires the discharger to continue to participate in the Regional Monitoring Program. It is based on the Basin Plan.
12. **Provision E. 16 (Ambient Background Receiving Water Study):** The SIP requires the discharger to take background, ambient water concentrations if they are not available. This information is required for the RPA and to determine final effluent limits. The data can be derived

through the RMP or through participation in programs with other dischargers.

13. **Provision E.17 (Optional Mass Offset):** This optional provision is provided to encourage the Discharger to develop and implement means by which mass loads of mercury to Lower San Francisco Bay could be more effectively reduced. It is based on BPJ.
14. **Provision E.18 (Whole Effluent Chronic Toxicity Requirements and Chronic Toxicity Screen Phase Study):** This provision establishes conditions by which compliance with the Basin Plan narrative water quality objective for toxicity will be demonstrated. Conditions include required monitoring and evaluation of the effluent for chronic toxicity and numerical values for chronic toxicity evaluation to be used as 'triggers' for initiating accelerated monitoring and toxicity reduction evaluation(s). These conditions apply to the discharges to Lower San Francisco Bay. The discharge is classified as a deep water discharge, and the numerical values for chronic toxicity evaluation are based on a minimum initial dilution ratio of 10:1.

The proposed conditions in the draft permit for chronic toxicity are based on the Basin Plan narrative water quality objective for toxicity, Basin Plan effluent limits for chronic toxicity (Basin Plan, Chapter 4), U.S. EPA and SWRCB Task Force guidance, applicable federal regulations [40 CFR 122.44(d)(1)(v)], and BPJ.
15. **Provision E.23 (Copper, Nickel, Mercury, 4,4-DDE, and Dieldrin Site-Specific Objective (SSO), and TMDL Status Review).** This provision requires participation in the development of a TMDL or SSO for copper, nickel, mercury, 4,4-DDE, and Dieldrin. By January 31 of each year, the Discharger shall submit an update to the Board to document progress made on source control and pollutant minimization measures and development of TMDL or SSO. Regional 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. **Provision E.24 (New Water Quality Objectives):** This provision allows future modification of the permit and permit effluent limits as necessary in response to updated water quality objectives that may be established in the future. This provision is based on 40 CFR 123.
17. **Provision E.25 (Change in Control or Ownership):** This provision is self-explanatory. It is based on 40 CFR 122.61.

18. **Provision E.26 (Permit Reopener):** This provision is self-explanatory. It is based on 40 CFR 123.
19. **Provision E.27 (NPDES Permit):** This provision is self-explanatory. It is based on 40 CFR 123.
20. **Provision E.28 (Permit Expiration):** This provision specifies that this permit expires on May 31, 2006 and that the Discharger shall file a report of waste discharge no later than 180 days before the expiration date. It is based on 30 CFR 122.46(a).

### **SELF MONITORING PROGRAM REQUIREMENTS**

Part A of the monitoring program is a standard requirement in almost all NPDES permits issued by the Board. Most of the requirements are also prior requirements for the Discharger. Part A contains definitions, specifies general sampling and analytical protocols, and specifies reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Board policy. Part B of the monitoring program is specific for the Discharger. It defines the stations, constituents, and frequency of monitoring, and additional reporting requirements. The constituents required to be monitored include all parameters for which permit limits are specified. This is to allow determination of compliance with each of the limited constituents in accordance with 40 CFR 122.44(i).

#### **11. Written Comments**

Interested persons are invited to submit written comments concerning this Tentative Order.

- All comments must be received by June 4, 2001, **5:00 p.m.**,
- Comments received after this date will not be considered in the formulation of final determinations of permit conditions.
- Comments shall be submitted to the Board at the address given on the first page of this Fact Sheet and addressed to the attention of **Mr. James Nusrala**.

#### **12. Public Hearing**

The Tentative Order will be considered for adoption by the Regional Board at a public hearing to be held at the Elihu Harris State Building, 1515 Clay Street, Auditorium, Oakland, California, on **June 20, 2001, starting at 8:00 a.m.**

#### **13. Additional Information**

For additional information on this matter, interested persons should contact **James Nusrala** of the Board Staff at (510) 622-2320 or E-mail him at [jn@rb2.swrcb.ca.gov](mailto:jn@rb2.swrcb.ca.gov)

Attachments:

1. Reasonable Potential Analysis for Metals
2. Reasonable Potential Analysis for Toxic Organics, Volatile Organics, and Semi-volatile Organics
3. Effluent Limit Calculation for Metals
4. Interim Mass Limit Calculation for Mercury
5. Salinity Values-Receiving Water
6. Staff Report- Statistical Analysis of Pooled Data From Regionwide Ultraclean Mercury Sampling for Municipal Dischargers

**ATTACHMENT 1**

***Reasonable Potential Analysis - Metals***

CITY OF SAN MATEO  
 REASONABLE POTENTIAL ANALYSIS  
 METALS/CYANIDE/ PHENOL  
 JUNE 2001

1998-2000 DATA

(all values in ug/L unless otherwise specified)

year	month	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn	Phenol	Cyanide
1998	JAN	0.71	< 0.10	0.78	5.10	8.40	0.075	12.00	< 0.20	0.26	61.0		< 5.0
	FEB	2.10	0.36	5.60	29.00	5.90	0.096	13.00	1.30	2.00	90.0		< 5.0
	MAR	1.50	0.12	1.20	5.20	< 0.50	0.260	4.30	< 0.40	0.44	180.0	< 95.0	< 5.0
	APR	< 0.50	< 0.10	1.10	4.60	< 0.50	0.056	5.50	< 0.20	0.31	130.0		6.4
1999	MAY	< 1.00	< 0.20	0.60	3.20	< 0.60	0.043	2.90	< 0.40	0.60	30.0		< 5.0
	JUNE	1.10	< 0.10	1.10	3.10	0.50	0.130	4.00	< 0.40	0.20	66.0		< 6.8
	JULY	1.00	< 0.10	2.20	15.00	0.50	0.019	4.90	< 0.50	0.10	16.0		< 5.0
	AUG	0.68	0.16	2.10	4.20	< 0.50	0.016	3.70	< 0.50	0.19	39.0		< 5.0
2000	SEPT	1.10	< 0.10	0.66	2.10	< 0.50	0.021	3.00	< 0.50	0.10	25.0	< 3.7	5.6
	OCT	0.88	0.15	0.52	6.10	0.60	0.018	< 0.70	< 0.50	0.26	22.0		< 5.0
	NOV	0.80	< 0.10	0.91	7.00	0.75	0.060	4.40	< 0.50	0.36	26.0		< 5.0
	DEC	0.58	< 0.10	1.30	4.90	0.63	0.016	27.00	< 0.50	0.35	16.0		< 5.0
1999	JAN	0.92	< 0.10	1.70	7.10	0.72	0.140	3.10	< 0.50	0.19	26.0		< 5.0
	FEB	0.92	0.18	1.90	6.30	0.78	0.072	7.10	< 0.50	0.17	25.0		< 5.0
	MAR	< 0.50	< 0.10	2.70	8.10	0.92	0.056	4.70	< 0.50	0.22	21.0	< 3.8	< 5.0
	APR	1.50	< 0.10	0.71	11.00	0.61	0.011	4.60	< 0.50	0.26	17.0		< 5.0
2000	MAY	0.82	< 0.10	2.50	12.00	0.81	0.035	7.70	< 0.50	0.10	29.0		< 5.0
	JUNE	1.30	0.10	1.60	6.50	< 0.50	0.008	2.70	< 0.50	0.45	22.0		< 5.0
	JULY	0.62	< 0.10	2.60	5.70	< 0.50	0.015	4.10	< 0.50	0.34	20.0		< 5.0
	AUG	1.00	< 0.10	0.73	2.90	0.50	0.014	3.00	< 0.50	0.17	23.0		< 5.0
2000	SEPT	0.90	< 0.10	2.80	8.00	1.40	0.017	4.70	< 0.50	0.41	29.0	< 2.6	< 5.0
	OCT	0.78	< 0.10	2.20	11.00	1.50	0.019	3.20	< 0.50	0.33	29.0		< 5.0
	NOV	< 0.50	< 0.10	0.77	6.70	1.10	0.017	2.70	< 0.50	0.22	25.0		< 5.0
	DEC	0.80	< 0.10	5.80	11.00	1.10	0.018	4.40	< 0.50	0.14	27.0		< 5.0
2000	JAN	1.30	0.11	2.00	9.20	1.50	0.068	3.00	1.50	0.12	29		5.5
	FEB	0.83	< 0.10	3.90	5.10	0.67	0.026	9.00	< 0.50	0.1	27		5
	MAR	1.40	< 0.10	3.40	4.50	0.53	0.014	7.10	< 0.50	0.19	18	< 5.3	5
	APR	0.78	0.29	11.00	8.40	1.90	0.015	< 0.50	< 0.50	0.1	20		5
2000	MAY	0.68	< 0.10	1.20	5.90	0.60	0.011	4.80	< 0.50	0.1	25		8.4
	JUNE	0.70	< 0.10	0.46	19.00	0.81	0.009	5.20	< 0.50	0.1	56		5
	JULY	0.83	< 0.10	1.70	4.30	< 0.50	0.009	1.90	< 0.50	0.1	24		7.7
	AUG	0.70	< 0.10	1.50	3.30	< 0.50	0.011	3.00	< 0.50	0.1	17		5
2000	SEPT	< 0.50	0.22	2.20	10.00	0.79	0.013	4.50	< 0.50	0.19	22	< 4.1	5
	OCT	0.58	< 0.10	3.20	6.30	< 0.50	0.008	2.70	< 0.50	0.27	25.0		< 5.0
	NOV	0.58	< 0.10	2.50	6.10	0.73	0.014	3.60	< 0.50	0.17	29.0		< 5.0
	DEC	0.88	< 0.10	7.40	8.00	< 0.50	0.010	8.30	< 0.50	0.20	17.0		< 5.0

CITY OF SAN MATEO  
 REASONABLE POTENTIAL ANALYSIS  
 METALS/CYANIDE/ PHENOL

JUNE 2001  
 1998-2000 DATA

(all values in ug/L unless otherwise specified)

	year	month	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn	Phenol	Cyanide
Number of Points			36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	6.00	36.00
Average (ug/L)			0.90	0.12	2.35	7.66	1.11	0.04	5.31	0.53	0.28	36.19	19.08	5.29
Standard Deviation			0.34	0.06	2.15	5.07	1.55	0.05	4.58	0.23	0.32	33.60	37.20	0.79
Average Plus 3 SD			1.93	0.30	8.80	22.88	5.77	0.19	19.06	1.21	1.23	136.99	130.69	7.65
Coeff. Variance			0.38	0.47	0.92	0.66	1.40	1.27	0.86	0.44	1.16	0.93	1.95	0.15
Min (ug/L)			0.50	0.10	0.46	2.10	0.50	0.01	0.50	0.20	0.10	16.00	2.60	5.00
<b>Max, or lowest Detection Limit if all ND (ug/L) (MEC)</b>			<b>2.10</b>	<b>0.36</b>	<b>11.00</b>	<b>29.00</b>	<b>8.40</b>	<b>0.26</b>	<b>27.00</b>	<b>1.50</b>	<b>2.00</b>	<b>180.00</b>	<b>2.60</b>	<b>8.40</b>
Basin Plan Water Quality Objectives <sup>2</sup>														
1-hr avg (WQO1); daily avg.			69	43	1100	4.9	140	2.1					500	5
4-day avg (WQO4); monthly avg.			36	9.3	50	5.6		0.025						
Instant. Max (WQO1)									140		2.3	170		
24-hr avg. (WQO24)									7.1			58		
Objectives for Human Health (HH)									4600					
<b>CTR Objectives <sup>2</sup></b>														
Criterion Max Conc. (CMC)			69	42	1100	5.78	220		74	20	2.24	95		1
Criterion Continuous Conc. (CCC)			36	9.3	50	3.7	8.5		8.3	5		85		1

CITY OF SAN MATEO  
 REASONABLE POTENTIAL ANALYSIS  
 METALS/CYANIDE/ PHENOL

JUNE 2001  
 1998-2000 DATA

(all values in ug/L unless otherwise specified)

year	month	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn	Phenol	Cyanide
Objectives for Human Health (HH)							0.051						220000
Most stringent Water Quality Objective-C		36	9.3	50	3.7	5.6	0.025	7.1	5	2.24	58	500	1
Is MEC > C?		N	N	N	Y	Y	Y	Y	N	N	Y	N	Y
Max Observed Central Bay RMP Sites (B) <sup>3</sup>		2.460	0.127	4.400	2.455	0.804	0.006	3.500	0.390	0.068	4.60	NA	NA
Is B > C?		N	N	N					N	N			
Reasonable Potential?		N	N	N	Y	Y	Y	Y	N	N	Y		Y
Existing Permit Limit (Monthly Average / Daily Maximum)		/ 200	/ 30	/ 110	/ 37	/ 53	0.21 / 1	/ 65	/ 50	/ 23	/ 580	/ 500	/ 10
Interim Monthly Average / Daily Maximum Limit <sup>4</sup>							87: Oct - April; 23: May - Sept						/ 10
Final Monthly Average / Daily Maximum Limit <sup>6</sup>					/ 33.1 <sup>5</sup>	30.7 / 53		29.5 / 71.1			398 / 580		

CITY OF SAN MATEO  
 REASONABLE POTENTIAL ANALYSIS  
 METALS/CYANIDE/ PHENOL  
 JUNE 2001

1998-2000 DATA

(all values in ug/L unless otherwise specified)

year	month	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn	Phenol	Cyanide
Notes:													
1. CV = 0.6 for data set of less than ten points													
2. Basin Plan and California Toxic Rule Water Quality Objectives Derived from Saltwater Criteria													
3. Background concentrations for metals are the maximum observed from the Yerba Buena Island and Richardson Bay stations from the Regional Monitoring Program (1992-1998).													
4. Interim Limits are the lower of performance-based limits and existing permit limits.													
5. For copper the log-transformed data is used to calculate the interim performance-based limits.													
6. Final Limits are the lower of the SIP-calculated limits and existing permit limits.													

**ATTACHMENT 2**

***Reasonable Potential Analysis - Organics***

CITY OF SAN MATEO  
WASTEWATER TREATMENT PLANT  
REASONABLE POTENTIAL ANALYSIS  
TOXIC POLLUTANTS  
JUNE 2001

(all values in micrograms per liter unless otherwise noted)

# in CTR	ORGANICS	California Toxic Rule		Steps in SIP		Step 3	Step 5	Step 6	Step 7					
		Water Quality Objectives	Human Health	Step 1	Step 2									
		CMC (ug/L)	CCC	Organisms only	lowest WQO	Effluent Data range; if NA, RP det by bckgrd)	DL range (discharger data)	MEC (= max detected, or if all ND, and any DL < WQO, then lowest det. limit)	MEC > WQO? (yes=Y RP)	bckgrd	bckgrd > WQO? (no=N RP, yes=Y RP, NA= not available, B=bckgrd Obj=Objective)	RP? (Y,N, Id=Ind, Det,lb=Ind, bckgrd, lo=Ind, objective)	Final or Interim limit (Yes if any yeses in left columns)	Effluent Concentration Allowance
16	2,3,7,8-TCDD (Dioxin)			0.014	0.014	ND	0.8 to 13	0.412	Yes	NA	B NA	No	No	
17	Acrolein			780	780	NA				NA	B NA	No, Id, Ib	No	
18	Acrylonitrile			0.66	0.66	NA				NA	B NA	No, Id, Ib	No	
19	Benzene			71	71	ND	.5 to 5	0.5	no	NA	B NA	No, Ib	No	
20	Bromoform			360	360	ND	0.5 to 5	0.5	no	NA	B NA	No, Ib	No	
21	Carbon Tetrachloride			4.4	4.4	ND	0.5 to 5	0.5	no	NA	B NA	No, Ib	No	
22	Chlorobenzene			21000	21000	ND	0.5 to 5	0.5	no	NA	B NA	No, Ib	No	
23	Chlorobromomethane			34	34	ND	0.5 to 5	0.5	no	NA	B NA	No, Ib	No	
24	Chloroethane					ND	0.5 to 5	0.5		NA	B & Obj NA	No, Io, Ib	No	
25	2-Chloroethylvinyl Ether					ND	1 to 10	1		NA	B & Obj NA	No, Io, Ib	No	
26	Chloroform					1.8-8.4		8.4		NA	B & Obj NA	No, Io, Ib	No	
27	Dichlorobromomethane			46	46	0.29-ND	0.5 to 5	0.29	no	NA	B NA	No, Ib	No	
28	1,1-Dichloroethane					ND	0.5 to 5	0.5		NA	B & Obj NA	No, Io, Ib	No	
29	1,2-Dichloroethane			99	99	ND	0.5 to 5	0.5	no	NA	B NA	No, Ib	No	
30	1,1-Dichloroethylene			3.2	3.2	ND	0.5 to 5	0.5	no	NA	B NA	No, Ib	No	
31	1,2-Dichloropropane			39	39	ND	0.5 to 5	0.5	no	NA	B NA	No, Ib	No	
32	1,3-Dichloropropylene			1700	1700	ND	0.5 to 5	0.5	no	NA	B NA	No, Ib	No	
33	Ethylbenzene			29000	29000	ND	0.5 to 5	0.5	no	NA	B NA	No, Ib	No	
34	Methyl Bromide			4000	4000	ND	0.5 to 5	0.5	no	NA	B NA	No, Id, Ib	No	
35	Methyl Chloride			n		ND	0.5 to 5	0.5		NA	B & Obj NA	No, Io, Ib	No	
36	Methylene Chloride			1600	1600	ND-59	5 to 50	59	no	NA	B NA	No, Ib	No	
37	1,1,2,2-Tetrachloroethane			11	11	ND	0.5 to 5	0.5	no	NA	B NA	No, Ib	No	
38	Tetrachloroethylene			8.85	8.85	ND	0.5 to 5	0.5	no	NA	B NA	No, Ib	No	
39	Toluene			200000	200000	.7-ND	0.5 to 5	2	no	NA	B NA	No, Ib	No	
40	1,2-Trans-Dichloroethylene			140000	140000	ND	0.2 to 5	0.2	no	NA	B NA	No, Ib	No	
41	1,1,1-Trichloroethane			n		ND	0.2 to 5	0.2		NA	B & Obj NA	No, Io, Ib	No	
42	1,1,2-Trichloroethane			42	42	ND	0.2 to 5	0.2	no	NA	B NA	No, Ib	No	
43	Trichloroethylene			81	81	ND	0.2 to 5	0.2	no	NA	B NA	No, Ib	No	
44	Vinyl Chloride			525	525	ND	0.2 to 5	0.5	no	NA	B NA	No, Ib	No	
45	Chlorophenol			400	400	ND	0.2 to 6.2	0.2	no	NA	B NA	No, Ib	No	
46	2,4-Dichlorophenol			790	790	0.1 - ND	0.2 to 6.2	0.26	no	NA	B NA	No, Ib	No	
47	2,4-Dimethylphenol			2300	2300	ND-2	2-6.2	0.2	no	NA	B NA	No, Ib	No	
48	2-Methyl-4,6-Dinitrophenol			765	765	ND	5-10	0.5	no	NA	B NA	No, Ib	No	
49	2,4-Dinitrophenol			14000	14000	ND-0.2	5-10	0.5	no	NA	B NA	No, Ib	No	
50	2-Nitrophenol					ND-26	0.5-5	0.26		NA	B & Obj NA	No, Ib, Io	No	
51	4-Nitrophenol					ND-66	.5-5	0.66		NA	B & Obj NA	No, Ib, Io	No	
52	3-Methyl-4-Chlorophenol					ND	1-6.2	0.1		NA	B & Obj NA	No, Ib, Io	No	
53	Penta-chlorophenol			8.2	7.9	ND	5 to 12	0.5	no	NA	B NA	No, Ib	No	
54	Phenol			4600000	4600000	ND-94	2-6.2	0.94	no	NA	B NA	No, Ib	No	
55	2,4,6-Trichlorophenol			6.5	6.5	ND-2	1 to 6.2	0.2	no	NA	B NA	No, Ib	No	

CITY OF SAN MATEO  
WASTEWATER TREATMENT PLANT  
REASONABLE POTENTIAL ANALYSIS  
TOXIC POLLUTANTS  
JUNE 2001

(all values in micrograms per liter unless otherwise noted)

# in CTR	ORGANICS	Water Quality Objectives		Step 1		Step 2		Step 3		Step 5		Step 6		Step 7	
		CMC (ug/L)	CCC	Organisms only	Human Health	Blank space	Effluent Data range; if NA, RP det by (bkgrd)	DL range (discharger data)	MEC (= max detected, or if all ND, and any DL < WQO, then lowest det. limit)	incomplete discharger data	MEC > WQO? (yes=Y, RP)	bkgrd	bkgrd > WQO? (no=N, RP, yes=Y, RP, NA=not available, B=bkgrd Obj=Objective)	RP? (Y, N, Id=Ind, Det, Ib=Ind, bkgrd, Io=Ind, objective)	Final or Interim limit (Yes if any yesses in left columns)
56	Acenaphthene			2700		ND	ND	.1-6.2	0.1	no	0.0015	no	No	No	No
57	Acenaphthylene			110000		ND	ND	.1-6.2	0.1	no	0.00053	Obj NA	No, Io	No	No
58	Anthracene			0.00054		ND	ND	.1-6.2	0.1	no	0.0005	no	No	No	No
59	Benzidine			0.049		ND	ND	6.2 to 20	NA	NA	NA	NA	B NA	No, Id, Ib	No
60	Benzo(a)Anthracene			0.049		ND	ND	.1-5	NA	NA	0.0053	no	No, Id	No	No
61	Benzo(a)Pyrene			0.049		ND	ND	.4-5	NA	NA	0.0025	no	No, Id	No	No
62	Benzo(b)Fluoranthene			0.049		ND	ND	.1-5	NA	NA	0.0046	no	No, Id	No	No
63	Benzo(ghi)Perylene			0.049		ND	ND	0.1-5	0.1	NA	0.0026	Obj NA	No, Io	No	No
64	Benzo(k)Fluoranthene			0.049		ND	ND	.1-5	NA	NA	0.0015	no	No, Id	No	No
65	Bis(2-Chloroethoxy)Methane			1.4		ND	ND	1 to 6.2	1	no	NA	B & Obj NA	No, Io, Ib	No	No
66	Bis(2-Chloroethyl)Ether			170000		ND	ND	1 to 6.2	1	no	NA	B NA	No, Io, Ib	No	No
67	Bis(2-Chloroisopropyl)Ether			5.9		ND	ND	2 to 6.2	0.2	no	NA	B NA	No, Io, Ib	No	No
68	Bis(2-Ethylhexyl)Phthalate			5200		ND	ND	5 to 12	8.3	yes	NA	B NA	Yes	Yes	Yes
69	4-Bromophenyl Phenyl Ether			4300		ND	ND	.1 to 6.2	0.1	no	NA	B & Obj NA	No, Io, Ib	No	No
70	Butylbenzyl Phthalate			0.049		ND	ND	.1 to 6.2	0.27	no	NA	B NA	No, Io, Ib	No	No
71	2-Chloronaphthalene			0.049		ND	ND	.1 to 6.2	0.1	no	NA	B NA	No, Io, Ib	No	No
72	4-Chlorophenyl Phenyl Ether			0.049		ND	ND	.1 to 6.2	0.1	no	NA	B & Obj NA	No, Io, Ib	No	No
73	Chrysene			0.049		ND	ND	.1 to 6.2	NA	NA	0.0024	no	No, Id	No	No
74	Dibenz(a,h)Anthracene			17000		ND	ND	.1 to 6.2	NA	NA	0.0006	no	No, Id	No	No
75	1,2-Dichlorobenzene			2600		ND	ND	0.17 - 0.3	0.29	no	NA	B NA	No, Io, Ib	No	No
76	1,3-Dichlorobenzene			2600		ND	ND	.1 to 6.2	0.57	no	NA	B NA	No, Io, Ib	No	No
77	1,4-Dichlorobenzene			2600		ND	ND	.1 to 6.2	0.47	no	NA	B NA	No, Io, Ib	No	No
78	3,3'-Dichlorobenzidine			120000		ND	ND	0.2 to 10	NA	NA	NA	B NA	No, Io, Ib	No	No
79	Diethyl Phthalate			2900000		ND	ND	4-6.2	0.34	no	NA	B NA	No, Io, Ib	No	No
80	Dimethyl Phthalate			12000		ND	ND	.1-5	0.1	no	NA	B NA	No, Io, Ib	No	No
81	Di-n-Butyl Phthalate			9.1		ND	ND	0.89 - 16	16	no	NA	B NA	No, Io, Ib	No	No
82	2,4-Dinitrotoluene			0.54		ND	ND	.1-6.2	0.1	no	NA	B NA	No, Io, Ib	No	No
83	2,6-Dinitrotoluene			370		ND	ND	.1-6.2	1.8	no	NA	Obj NA	No, Io	No	No
84	Di-n-Octyl Phthalate			14000		ND	ND	.1-5	0.29	no	NA	Obj NA	No, Io	No	No
85	1,2-Diphenylhydrazine			0.00077		ND	ND	1	NA	NA	NA	B NA	No, Id, Ib	No	No
86	Fluoranthene			50		ND	ND	.1 to 6.2	0.1	no	0.007	no	No	No	No
87	Fluorene			17000		ND	ND	.1-6.2	0.1	no	0.002078	no	No	No	No
88	Hexachlorobenzene			0.00077		ND	ND	.1 to 6.2	NA	NA	NA	B NA	No, Id, Ib	No	No
89	Hexachlorobutadiene			17000		ND	ND	2-6.2	0.2	no	NA	B NA	No, Io, Ib	No	No
90	Hexachlorocyclopentadiene			8.9		ND	ND	2-12	0.2	no	NA	B NA	No, Io, Ib	No	No
91	Hexachloroethane			0.049		ND	ND	2-6.2	0.2	no	NA	B NA	No, Io, Ib	No	No
92	Indeno(1,2,3-cd)Pyrene			600		ND	ND	0.1-6.2	NA	NA	0.004	no	No, Id	No	No
93	Isophorone			1900		ND	ND	.5-5	0.5	no	NA	B NA	No, Io, Ib	No	No
94	naphthalene			8.1		ND	ND	.1-5	0.1	no	0.00229	Obj NA	No, Io	No	No
95	Nitrobenzene			1.4		ND	ND	.5-10	0.5	no	NA	B NA	No, Io, Ib	No	No
96	N-Nitrosodimethylamine			16		ND	ND	5	1	no	NA	B NA	No, Io, Ib	No	No
97	N-Nitrosodi-n-Propylamine			16		ND	ND	1-6.2	1	no	NA	B NA	No, Id, Ib	No	No
98	N-Nitrosodiphenylamine					ND	ND	2-6.2	0.2	no	NA	B NA	No, Io, Ib	No	No

CITY OF SAN MATEO  
WASTEWATER TREATMENT PLANT  
REASONABLE POTENTIAL ANALYSIS  
TOXIC POLLUTANTS  
JUNE 2001

(all values in micrograms per liter unless otherwise noted)

# in CTR	ORGANICS	Water Quality Objectives		Step 1	Step 2	Step 3	Step 5	Step 6	Step 7							
		Saltwater	Human Health	Blank space	=	incomplete discharger data	MEC (= max detected, or if all ND, and any DL < WQO, then lowest det. limit)	DL range (discharger data)	Effluent Data range; if NA, RP det by (bkgrd)	lowest WQO	MEC > WQO? (yes=Y RP)	bkgrd	bkgrd > WQO? (no=N RP, yes=Y RP, NA=not available, B=bkgrd Obj=Objective)	RP? (Y,N, Id=Ind, Det, Ib=Ind, bkgrd, lo=Ind, objective)	Final or Interim limit (Yes if any yeses in left columns)	Effluent Concentration Allowance
99	Phenanthrene				ND	-2-6.2	0.0061	Obj NA	No, lo	No				No		
100	Pyrene		11000		ND	-2-6.2	0.019	no	No	No				No		
101	1,2,4-Trichlorobenzene				ND	-2-6.2	0.1	NA	No, Ib, lo	No				No		
102	Aldrin	1.3	0.00014		ND	.002 to .04	NA	NA	No, Id, Ib	No				No		
103	alpha-BHC		0.013		ND	.002 to .04	0.0005	no	No	No				No		
104	beta-BHC		0.046		ND	.004 to .1	0.004	no	No	No				No		
105	gamma-BHC		0.063		ND-0.043	.004 to .04	0.0007	no	No	No				No		
106	delta-BHC				ND	0.004-0.04	0.004	0.0005	Obj NA	No, lo				No		
107	Chlordane	0.09	0.004	0.00059	ND	0.002-0.5	NA	0.00018	No, Id	No				No		
108	4,4-DDT	0.13	0.001	0.00059	ND	.015 to .04	NA	0.0002	No, Id	No				No		
109	4,4-DDE			0.00059	ND	0.02-0.05	NA	0.00069	Yes	Yes				Yes		0.00059
110	4,4-DDD			0.00084	ND	0.02-0.15	NA	0.000313	No	No, Id				No		
111	Dieldrin (303(d) listed)	0.71	0.0019	0.00014	ND	.05 to .004	NA	0.000264	yes	Yes				Yes		0.00014
112	alpha-Endosulfan	0.034	0.0087	240	ND	.002 to .05	0.002	no	0.000031	no				No		
113	beta-Endosulfan	0.034	0.0087	240	ND	.004 to .05	0.004	no	0.000069	no				No		
114	Endosulfan Sulfate		240		ND	0.006-0.15	0.006	no	0.000011	no				No		
115	Endrin	0.037	0.0023	0.81	ND	.006 to .5	NA	NA	0.000016	no				No, Id	No	
116	Endrin Aldehyde			0.81	ND	0.01-0.15	0.01	no	NA	B NA				No, Ib	No	
117	Heptachlor	0.053	0.0036	0.00021	ND	.025 to .04	NA	NA	0.000008	no				No, Id	No	
118	Heptachlor Epoxide	0.053	0.0036	0.00011	ND-0.015	.002 to .015	0.015	NA	0.000094	no				No, Id	No	
119-125	PCBs		0.03		ND	.2 to 2	NA	??	??	??				No, Id	No	
126	Toxaphene	0.21	0.0002	0.00075	ND	.25 to 2	NA	NA	B NA	NA				No, Id, Ib	No	
	Tributyltin				0.005	.002 to .016	0.016	Yes	NA	NA				Yes	Yes	

Bold typeface indicates compounds where detection limits are higher than the lowest higher water quality objective, and improved sampling techniques need to be utilized which will yield precision at the level of the lowest objectives for protection of the Bay.

1. No reasonable potential can be determined for dioxins, as the toxicity equivalent quantitation (TEQ) for only one sample out of three is greater and than the lowest WQO. This one sample is a qualified data point.







**ATTACHMENT 3**

***Effluent Limit Calculations***

Constituent	C, ug/L	B, ug/L	B >(or =)C	CV	D	ECA, ug/L	Sigma	ECA Mult.	LTA	Lowest LTA	AMEL Mult.	MDEL Mult.	AML Limit	MDL Limit
<b>METALS</b>														
<b>Lead</b>														
acute	140	0.8 No	0.8 No	1.54	9	1392.8	1.10	0.141	196.86	12.60	2.43	7.08	30.7	89.1
chronic	5.6	0.8 No	0.8 No	1.54	9	48.8	0.68	0.258	12.60					
<b>Zinc</b>														
acute	170	4.6 No	4.6 No	0.93	9	1658.6	0.79	0.218	361.08	212.24	1.88	4.59	398	975
chronic	58	4.6 No	4.6 No	0.93	9	538.6	0.44	0.394	212.24					
<b>Copper</b>														
acute	5.78	2.46 No	2.46 No	0.66	9	35.66	0.60	0.296	10.55	7.41	1.61	3.38	11.9	25.0
chronic	3.7	2.46 No	2.46 No	0.66	9	14.86	0.32	0.499	7.41					
<b>Nickel</b>														
acute	140	3.5 No	3.5 No	0.9	9	1368.50	0.77	0.22	306.88	15.95	1.85	4.46	29.5	71.1
chronic	7.1	3.5 No	3.5 No	0.9	9	39.50	0.43	0.40	15.95					
<b>Mercury</b>														
acute	2.1	0.006 No	0.006 No	1.27	0	2.10	0.98	0.17	0.35	0.01	2.20	6.05	0.017	0.046
chronic	0.025	0.006 No	0.006 No	1.27	0	0.03	0.58	0.31	0.01					
<b>Cyanide</b>														
acute	5	1 No	1 No	0.6	9	41.00	0.55	0.32	13.16	0.53	1.55	3.11	1	2
chronic	1	1 yes	1 yes	0.6	9	1.00	0.29	0.53	0.53					
<b>4,4-DDE</b>														
Human Health	0.00059	0.00012	no	0.6	0	0.00059							0.00059	0.00118
<b>Bis(2-Ethylhexyl) Phthalate</b>														
human health	5.90000		no	0.91	0	5.90000							5.90	14.22
<b>Dieldrin</b>														
acute	0.71000	0.00026	no	0.6	0	0.71000	0.55451	0.32108	0.22797	0.00100	1.55242	3.11446	0.00156	0.00312
chronic	0.00190	0.00026	no	0.6	0	0.00190	0.29356	0.52743	0.00100				0.00014	0.00028
human health	0.00014	0.00010	no	0.6	0	0.00014								
<b>Tributyltin</b>														
acute	0.370		no	0.6	0	0.37000	0.55451	0.32108	0.11880	0.00527	1.55242	3.11446	0.008	0.016
chronic	0.010		no	0.6	0	0.01000	0.29356	0.52743	0.00527					

- As per Step 3 of Section 1.4 of the SIP, the CV for lead is calculated using one-half the value of the detection limit for all values in the data set, which are non-detect.
- For data sets less than 10 points CV is set at a default of 0.6 as per SIP

**ATTACHMENT 4**

***Interim Mercury Mass Limit Calculation***

**Mercury Mass Limit**  
**San Mateo Waste Treatment Plant -**  
**June 2001**

<b>MERCURY MASS LIMIT (1)</b>				
<b>Date</b>	<b>Total Flow. MGD</b>	<b>[Hg], ug/l</b>	<b>Mass = Flow x [Hg]; g/d (2)</b>	<b>MA [Hg] Mass Load = Flow x [Hg]; ug/L (2)</b>
Jan-98	20.91	0.075	5.94	
Feb-98	27.18	0.096	9.88	
Mar-98	14.37	0.260	14.14	
Apr-98	14.54	0.056	3.08	
May-98	13.55	0.043	2.21	
Jun-98	12.39	0.130	6.10	
Jul-98	11.80	0.019	0.85	
Aug-98	11.74	0.016	0.71	
Sep-98	12.01	0.021	0.95	
Oct-98	11.95	0.018	0.81	
Nov-98	12.69	0.060	2.88	
Dec-98	12.70	0.016	0.77	
Jan-99	14.61	0.140	7.74	4.026
Feb-99	18.50	0.072	5.04	4.177
Mar-99	14.73	0.056	3.12	3.774
Apr-99	14.57	0.011	0.61	2.856
May-99	12.43	0.035	1.65	2.649
Jun-99	12.15	0.008	0.36	2.603
Jul-99	11.79	0.015	0.67	2.125
Aug-99	11.64	0.014	0.62	2.110
Sep-99	11.59	0.017	0.75	2.102
Oct-99	11.50	0.019	0.83	2.085
Nov-99	12.11	0.017	0.78	2.086
Dec-99	11.61	0.018	0.79	1.911
Jan-00	15.160	0.068	3.902	1.913
Feb-00	19.910	0.026	1.959	1.593
Mar-00	16.050	0.014	0.850	1.336
Apr-00	13.150	0.015	0.747	1.146
May-00	12.770	0.011	0.532	1.158
Jun-00	12.170	0.039	0.415	1.065
Jul-00	11.860	0.009	0.404	1.069
Aug-00	11.790	0.011	0.491	1.047
Sep-00	11.920	0.013	0.587	1.037
Oct-00	12.800	0.008	0.388	1.024
Nov-00	12.400	0.014	0.634	0.987
Dec-00	11.900	0.010	0.450	0.975
<b>Avg</b>	<b>13.748</b>			<b>0.946</b>
<b>Count, n</b>				<b>25.000</b>
<b>Maximum MA value, g/d</b>				<b>4.177</b>
<b>Maximum mass, kg/mo</b>				<b>0.127</b>
<b>Average Moving Average Load</b>				<b>1.912</b>
<b>Standard Deviation MA Load</b>				<b>0.982</b>
<b>99.7 %tile</b>				<b>4.166</b>
<b>Ave + 3SD, g/d</b>				<b>4.858</b>
<b>Ave + 3SD, kg/mo</b>				<b>0.148</b>
<b>Mercury Mass Emission Limit =</b>				<b>0.15 kg/month</b>
Example: 4.858 g/d(kg/1000g) (30.42 d/mo) = 0.15kg/month				
Notes:				
(1) Information from the Annual Reports and Self-Monitoring Reports.				
(2) The mass in g/d is the product of the flow, concentration, and a multiplier of 3.785.				
(3) MA [Hg] load in g/d is the moving average mercury load in grams per day. This calculation is the average of the previous 12 mass data points.				

**ATTACHMENT 5**

***Salinity Analysis***

SALINITY VALUES IN PARTS PER THOUSAND RECEIVING WATER SAN MATEO WATER QUALITY  
CONTROL PLANT-DATA FROM RMP 1993-98

Station Code	Site	Date	Salinity (ppt)
BA40	Redwood Creek	3/2/93	17.95
BA40	Redwood Creek	5/24/93	24.17
BA40	Redwood Creek	9/13/93	28.94
BA40	Redwood Creek	1/31/94	27.6
BB15	San Bruno Shoal	1/30/94	28.3
BA40	Redwood Creek	4/18/94	26.4
BB15	San Bruno Shoal	4/18/94	26.7
BA40	Redwood Creek	8/16/94	29.9
BB15	San Bruno Shoal	8/15/94	31
BA40	Redwood Creek	2/7/95	16.2
BB15	San Bruno Shoal	2/6/95	15.1
BA40	Redwood Creek	4/24/95	15.8
BB15	San Bruno Shoal	4/25/95	16.2
BA30	Dumbarton Bridge	8/15/95	22.1
BA40	Redwood Creek	8/15/95	23.8
BB15	San Bruno Shoal	2/5/96	22.3
BA40	Redwood Creek	2/6/96	20.6
BB15	San Bruno Shoal	4/30/96	21.1
BA40	Redwood Creek	5/2/96	19.8
BB15	San Bruno Shoal	7/29/96	27.1
BA40	Redwood Creek	7/29/96	26.8
BB15	San Bruno Shoal	1/21/97	12.9
BA40	Redwood Creek	1/22/97	12.1
BB15	San Bruno Shoal	4/16/97	24.1
BA40	Redwood Creek	4/16/97	22.2
BB15	San Bruno Shoal	7/28/97	28.9
BA40	Redwood Creek	7/29/97	29.1
BB15	San Bruno Shoal	1/27/98	19
BA40	Redwood Creek	1/27/98	19
BB15	San Bruno Shoal	4/20/98	16.8
BA40	Redwood Creek	4/22/98	17.3
BB15	San Bruno Shoal	7/20/98	22.6
BA40	Redwood Creek	7/20/98	20.7
Average			22.1987879
% > 5 ppt			100
% > 10 ppt			100

**ATTACHMENT 6**

***Staff Report – Statistical Analysis of Pooled Data From Regionwide  
UltraClean Mercury Sampling For Municipal Dischargers***

**Staff Report -**

**Statistical Analysis of Pooled Data From  
Regionwide Ultraclean Mercury Sampling  
For Municipal Dischargers**

**Prepared By:**

**Ken Katen, P.E.**

**California Regional Water Quality Control Board**

**San Francisco Bay Region**

**June 11, 2001**

## Table of Contents

Table of Contents .....	i
List of Figures .....	i
List of Tables .....	ii
Executive Summary .....	1
Introduction .....	3
Procedures .....	4
Data Development and Analysis .....	4
Preliminary Data Analysis .....	4
Data Reevaluation and Refinement .....	12
Final Statistical Analysis .....	13
Final Statistical Analysis – Graphical Results .....	14
Applicability of Data Subgroups .....	16
Percentiles .....	16
Precision and Significant Figures .....	16
Proposed Interim Mercury Effluent Limitations .....	18
Discussion .....	19
Validity of Approach .....	19
Percentiles and Regulatory Control Points .....	20
Other possible data groupings .....	21
Performance Reevaluation .....	21
Protection of Water Quality .....	21
Summary .....	22
References Referred To In Conducting This Analysis .....	23
Appendix A: Preliminary Verified Data Set .....	24
Appendix B: Final Verified Data Set .....	33

## List of Figures

Figure 1. Key to reading boxplots .....	5
Figure 2. Boxplots of data in preliminary pooled data set, by discharger .....	6
Figure 3. Boxplots of preliminary pooled data set, by treatment type .....	7
Figure 4. Descriptive statistics, mercury concentrations, preliminary pooled data set, original units .....	9
Figure 5. Preliminary probability plot of all data, in original units .....	10
Figure 6. Ln-normal probability plot of all preliminary data .....	11
Figure 7. Ln- normal probability plots of mercury concentrations, grouped by treatment type .....	12
Figure 8. Boxplots of secondary treatment plants in final pooled data set, by discharger .....	14
Figure 9. Boxplots of advanced secondary treatment plants in final pooled data set, by discharger .....	14
Figure 10. Histogram of final data set, all data .....	15
Figure 11. Ln-plotted probability plots of final data, by treatment type .....	15

## List of Tables

Table 1.	Proposed regionwide interim municipal mercury effluent limitations. ....	2
Table 2.	Percentiles for secondary treatment. ....	17
Table 3.	Percentiles for advanced secondary treatment. ....	18
Table 4.	Proposed interim performance-based mercury effluent limits. ....	19

## Executive Summary

The entire San Francisco Bay Estuary is listed as being impaired by mercury, and a Total Maximum Daily Load (TMDL) with waste load allocations (WLAs) for individual point sources is being developed. Until the TMDL and WLAs are developed, mercury loadings into San Francisco Bay from individual point sources need to be held at current levels. Historically, most effluent mercury samples at municipal and industrial dischargers in the Bay Area Region were reported as below detection limits, which reduced the accuracy of mercury load estimates from these sources. In January 2000 municipal and industrial dischargers began using ultraclean sampling methods for mercury, which resulted in a much higher percentage of numerical results, with individual numerical results typically well below the older detection limits.

A number of NPDES permits for large dischargers are due for renewal in 2001. Regional Board staff performed a basic statistical analysis of pooled ultraclean mercury data from selected municipal dischargers, to evaluate the feasibility of developing regionwide interim performance-based mercury effluent limits for municipal dischargers based on ultraclean data that better reflect actual plant performance. Basic statistical analyses were used due to limitations in the underlying data set. Using basic statistical analyses is justified because municipal discharges are estimated to account for three percent (3%) of the current mercury mass loading to San Francisco Bay.

The statistical analysis used pooled data because, when the statistical study was initiated, most individual dischargers only had 12 or 13 ultraclean sample results, too few data points for reliable statistical analysis. In addition, ultraclean data from a cross section of different plants with generally similar processes, totaling approximately 400 total data points, is representative of general plant performance for the treatment categories. Also, pooling the data reduces the likelihood of penalizing plants that have implemented effective control measures and are already performing well, and rewarding other plants which may not have implemented similar measures. Finally, Regionwide effluent limits based on pooled data are more consistent and can be uniformly applied regionwide.

Data were gathered from the Region's Electronic Reporting System database, verified, and the statistical analysis was carried out to evaluate shape of data distribution, identify and evaluate relevance of data subgroups, suggest appropriate data transformations, normal-test untransformed and transformed data, and produce probability plots, whole-population percentile estimates, and confidence intervals on transformed, subgrouped data. The results of preliminary statistical analysis suggested simplified data groupings and prompted re-examination of some of the data. The final statistical analysis used the simplified groupings applied to 398 data points from 24 dischargers, with 285 data points from 18 secondary treatment plants and 113 data points from 7 advanced secondary treatment plants. Percentiles were calculated based on the final data set and treatment subgroups. Regional Board staff propose the following interim regionwide mercury effluent limits, based on the whole-population estimates of the 99.87<sup>th</sup> percentile of the treatment subgroups, to be taken as monthly averages, for municipal dischargers:

Table 1. Proposed regionwide interim municipal mercury effluent limitations.

Treatment Method	Proposed Limit, ng/L
Secondary Treatment	87
Advanced Secondary Treatment	23
Mixed-regime	87 when operated as secondary 23 when operated as advanced secondary
Secondary with holding ponds	23

Treatment plant mercury performance – and its treatment data distribution – should not change unless a plant changes its treatment technology. Any percentile-based regulatory control point will indicate whether current performance is being maintained in the future. The limits proposed here are based on statistical whole-population estimates of 99.87<sup>th</sup> percentile performance for municipal dischargers. The 99.87<sup>th</sup> percentile is useful because it represents an upper limit that should never be exceeded, which simplifies compliance monitoring. Also, it is more conservative than the U.S. EPA guidance suggests (once every 3 years, or approximately the 99.91<sup>st</sup> percentile).

As long as a plant's treatment technology and performance do not change, the data distribution of its effluent concentration samples should not change, either. Since mass load is a function of flow and concentration, unless flow increases, mass loading should not change. With implementation of mercury pollution prevention measures, reduction of inflow and infiltration, or wastewater reclamation, both effluent concentrations and loads can be expected to reduce and possibly offset flow increases due to growth.

Finally, the actual loadings estimated from the reported flows and concentrations in the ERS database project an annual average mercury mass loading of approximately 13 – 15 kilograms per year. This represents a significant difference from the earlier estimates of maximum possible loading, 45 kilograms per year [Regional Board, 2000, Table 22, Page 103], simply due to refinement of sampling and analytical techniques.

## Introduction

Section 303(d) of the Clean Water Act requires each state to identify and list all of its water bodies that are water-quality impaired, and to develop Total Maximum Daily Loads (TMDL's) for each impairing constituent in each impaired water body. The entire San Francisco Bay estuary (the Bay) is currently listed as impaired by mercury, and staff of the San Francisco Bay Regional Water Quality Control Board (the Regional Board) are developing a mercury TMDL for San Francisco Bay. While the TMDL is being developed, the Regional Board intends to hold mercury mass loadings in permitted discharges to current levels.

Estimating current mercury mass loadings by municipal dischargers (publicly owned treatment works – POTW's), and establishing interim performance-based effluent limits (IPBLs) for them was complicated by the relatively high detection limits available for mercury until recently. High detection limits result in a relatively large number of results reported as "non detect" (ND). By letters dated August 4, 1999, and October 22, 1999, the Regional Board required all dischargers with National Pollutant Discharger Elimination System (NPDES) permits within the San Francisco Bay Region to begin sampling for mercury using ultra-clean sampling techniques starting in January 2000. Ultra-clean sampling techniques attain detection limits much lower than previously used methods, typically between 1 and 2 nanograms per liter (ng/L), compared to 200 ng/L. This resulted in fewer ND's (i.e., "<200 ng/L") than previous sampling efforts using the higher detection limits. Most POTW's and industrial dischargers began gathering low-detection-limit data in January 2000. Some of these dischargers – both POTW's and industrial dischargers – use the Region's electronic reporting system (ERS) to report the results of their ongoing monitoring programs, including low-detection-limit mercury data. In other cases, the discharger's data are hand-input into the ERS by Regional Board staff.

Typically, an IPBL is discharger specific, utilizes the last three years data, and is based on enough data points to produce a reasonable statistical estimate of current performance. As noted above, most of the POTW's reporting via the ERS only had about a dozen ultraclean mercury data points at the inception of the statistical study (since risen to about 15 each). That sample size is too small for a reliable statistical analysis for individual POTW's. Staff then considered the possibility of using the more than 400 data points pooled from all the POTW's to see if a "regional" IPBL could be developed that would apply to all the POTW's.

Staff applied a series of statistical tests aimed at answering the following questions:

- Is pooling the ultraclean data from various municipal dischargers statistically valid?
- Should the data be divided into subgroups and, if so, based on which factors?
- Can statistical analysis of pooled data guide development of regionwide IPBLs for mercury from municipal dischargers?

- Would establishing regionwide IPBLs hold all POTWs at current performance and be protective?

## **Procedures**

### **Data Development and Analysis**

In April 2001, staff gathered POTW-derived ultra-clean mercury data that also had associated effluent flow data from the ERS database. The mercury concentration data were originally reported in units of micrograms per liter ( $\mu\text{g/L}$ ). A microgram is 1,000 nanograms. For ease of viewing, the mercury concentration data were converted to  $\text{ng/L}$  by multiplying the originally reported value by 1,000.

Next, the raw data (the preliminary data set) were checked for duplicates or blanks, which were removed, and to identify high values that might be outliers. Outliers – as indicated by examining boxplots of the data, see Figures 1 and 2, below - were verified, corrected, or removed based on further inquiries to the reporting dischargers. If an outlier was verified, it remained in the preliminary data set; if it resulted from a transcription or similar clerical error, it was corrected; and if it was associated with problems in the collection or analysis of the samples, it was removed from the preliminary data set. Results reported as below the detection limit (nondetects ND) were retained. This verified preliminary data set is reproduced in Appendix A.

Staff used MiniTab™, Release 13.30 to produce plots and conduct the statistical analysis of the data. The initial statistical analysis was aimed at determining

- if the preliminary data set consisted of one homogeneous data set, or multiple subsets;
- if multiple subsets, then how many and which variable defined the subsets; and
- the distribution of the data set(s).

### **Preliminary Data Analysis**

Staff initially evaluated flow and concentration data. Flow data did not appear to follow any known data distribution and were not considered further in this analysis. Staff then produced and inspected boxplots of concentration data for all dischargers in the preliminary data set, as depicted in Figures 2 and 3, below. A key to the reading the boxplots is shown in Figure 1, below. The boxplots visually present the median, the middle 50 percent of the data (the interquartile range - IQR), the general extent of data, and potential outliers for each of the discharger data sets contained in the preliminary data set, in a format that made comparing their basic qualities easier.

Figure 1. Key to reading boxplots.

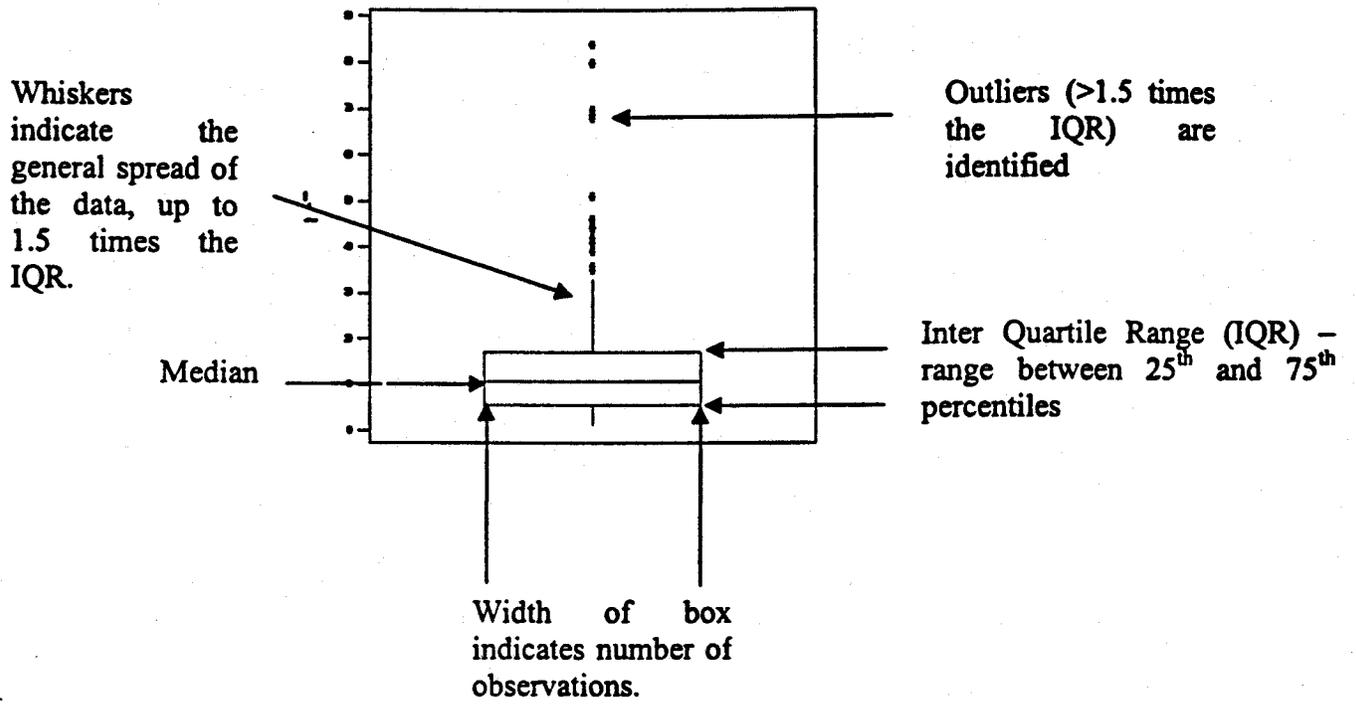
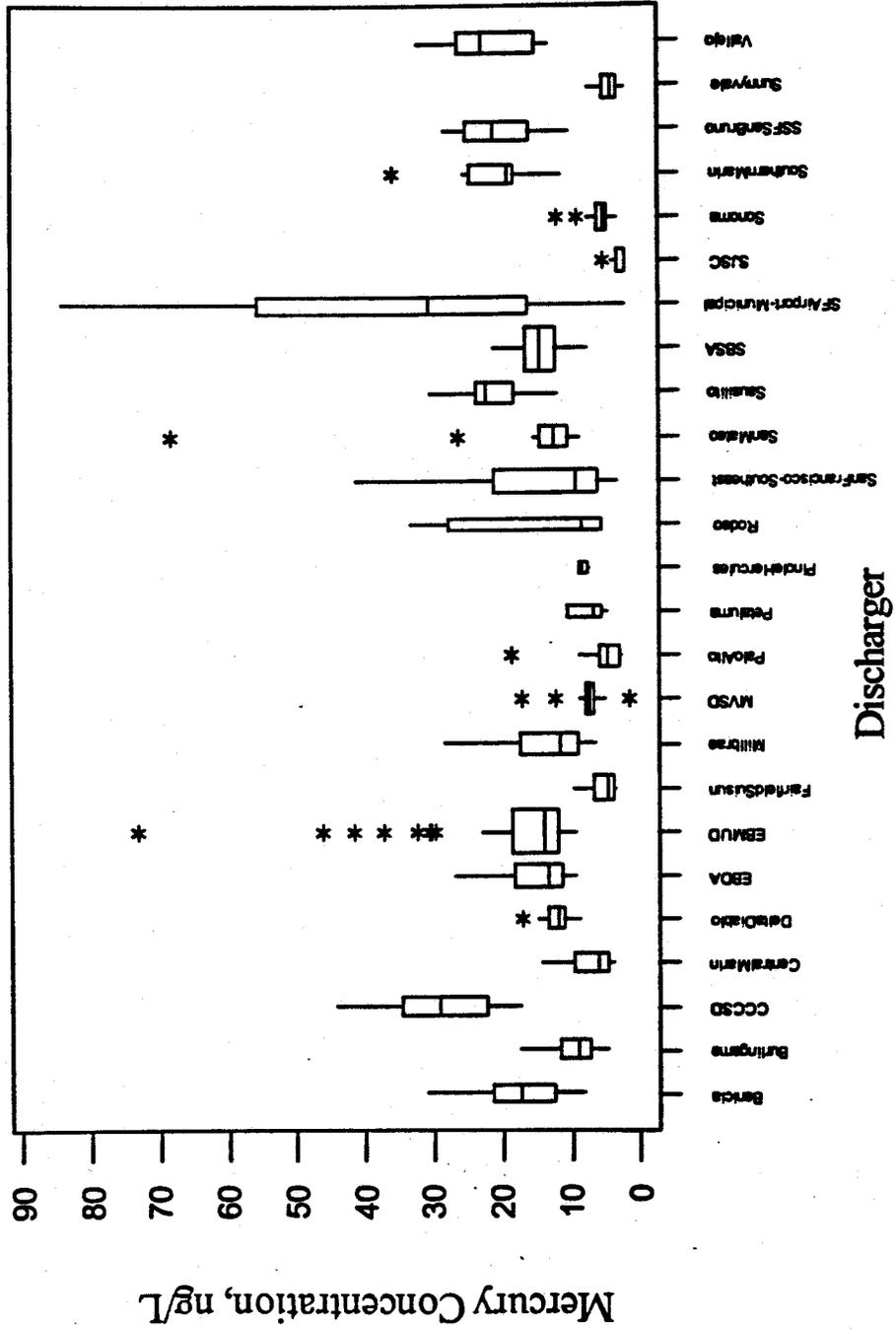


Figure 2. Boxplots of data in preliminary pooled data set, by discharger.



Inspection of the boxplots of all the preliminary pooled data suggested that it would be useful to group the data into subsets. Dischargers were categorized by treatment type, as listed in the Regional Board's 1995 *Water Quality Control Plan, San Francisco Bay Region (Region 2)* (Basin Plan) as amended [Table 4-9, pg. 4-74]. Regional Board staff verified the process classifications by checking the process descriptions contained in the current National Pollutant Discharge Elimination System (NPDES) permit for each discharger in the data set. The initial categories used were:

- full secondary treatment year round, by activated sludge and/or trickling filters;
- secondary treatment with occasional wet weather bypass, and
- advanced secondary treatment by activated sludge and/or trickling filters followed by filtration (later expanded to include secondary treatment consisting of large ponds).

Figure 3. Boxplots of preliminary pooled data set, by treatment type.

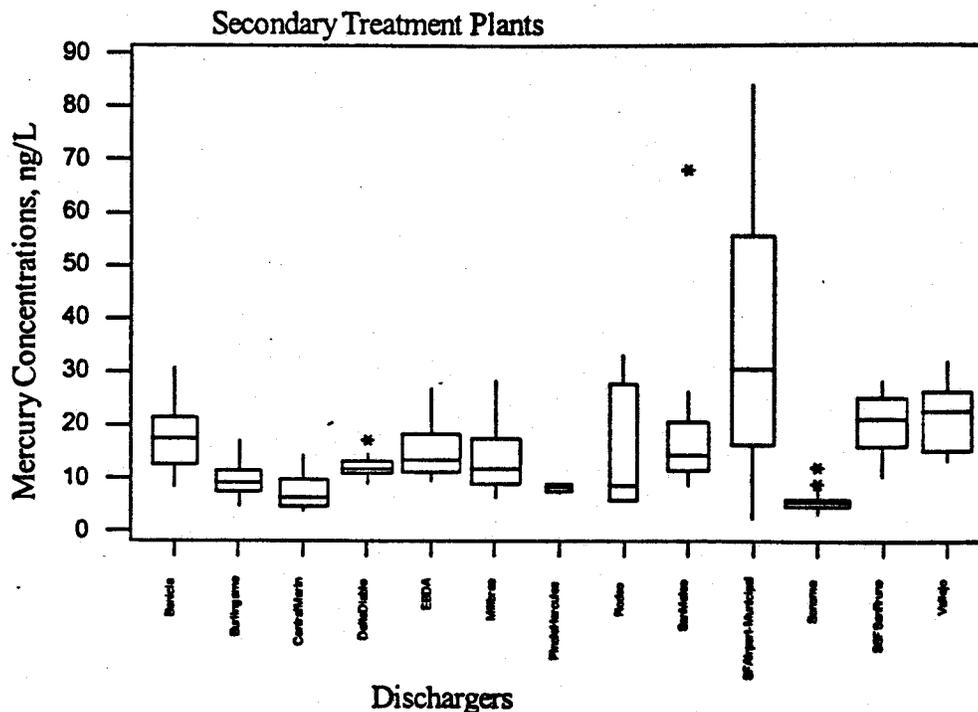
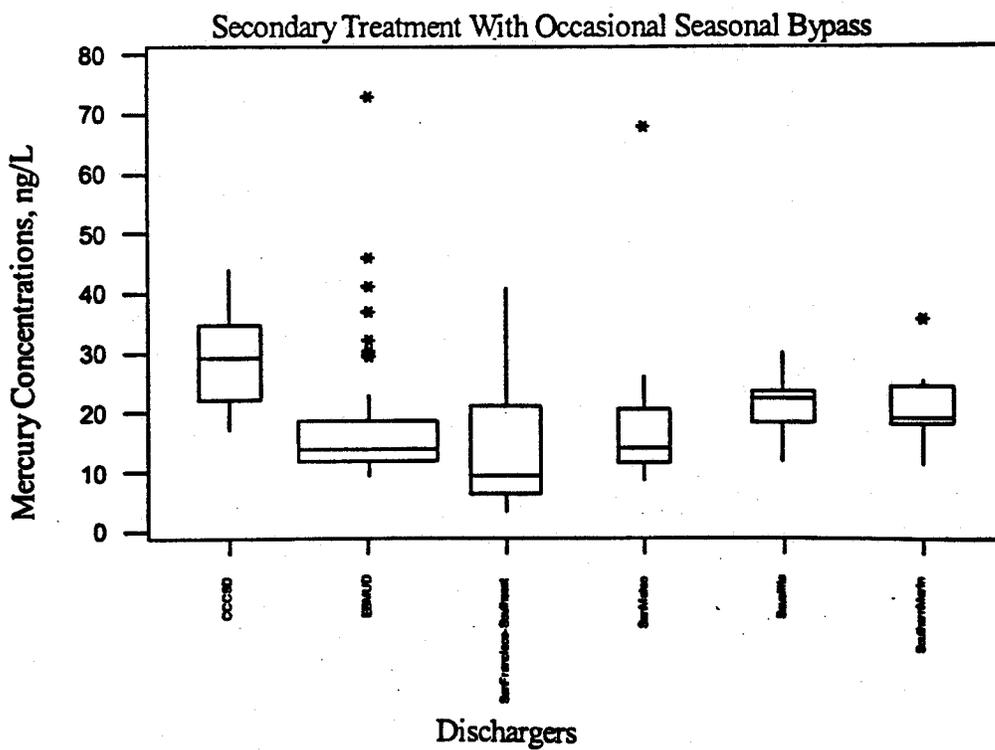
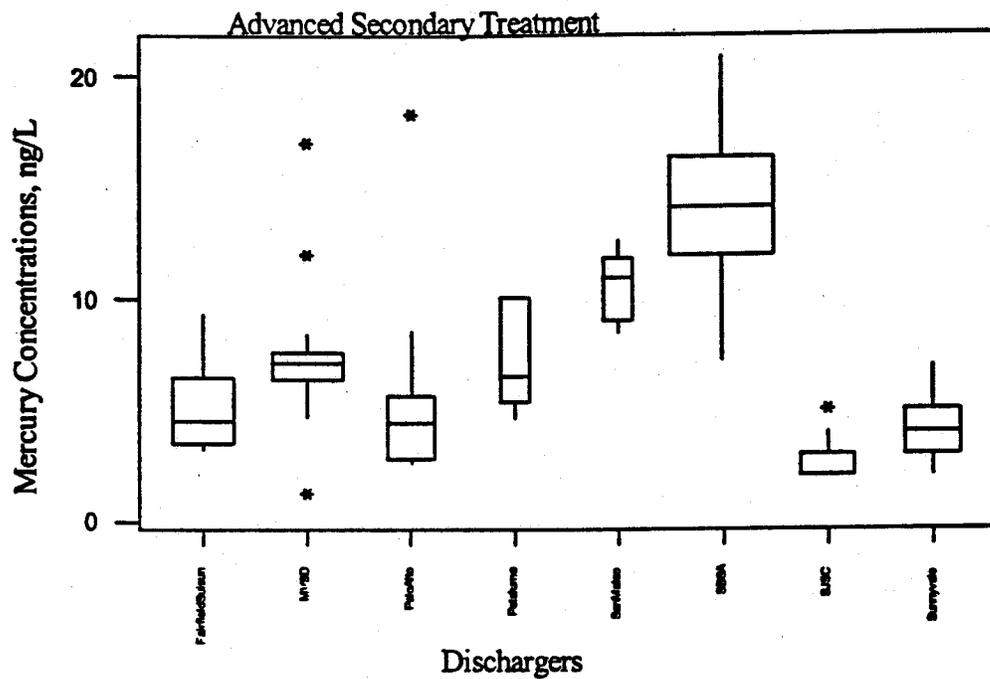
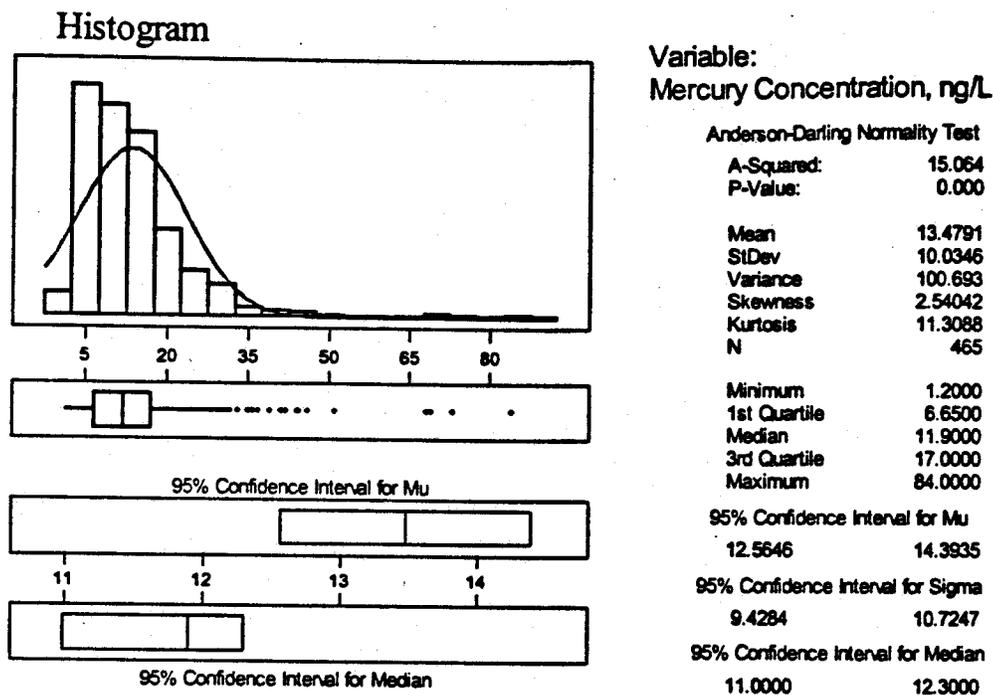


Figure 3. (Continued) Boxplots of preliminary pooled data set, by treatment type.



Before analyzing by subsets, staff examined the descriptive statistics of the preliminary pooled data, as shown in Figure 4, below, to make a preliminary evaluation of the data's distribution.

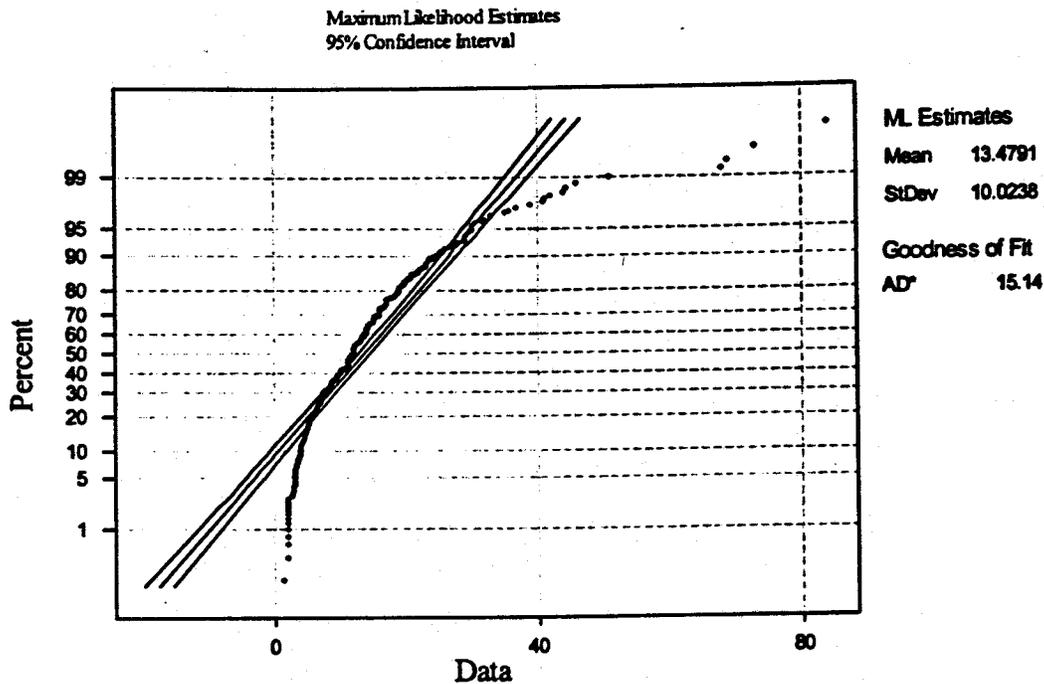
Figure 4. Descriptive statistics, mercury concentrations, preliminary pooled data set, original units.



The histogram and projected normal curve in Figure 4, above, indicate that concentration data in original units (ng/L) are not normally distributed, which is confirmed by the Anderson-Darling statistic (A-Squared) and the p-value. The Anderson-Darling statistic should generally be less than 1.035 for a normal distribution. The p-value indicates the probability that the data are normally distributed – if the p-value is less than 0.05, then the data cannot be assumed to be normal. The Anderson-Darling statistic is 15.064 and the p-value is estimated as 0.000, which are strong indications that the data in original units are not normally distributed. The non-normality of the data was confirmed by inspecting a probability plot of the original pooled data set, as shown in Figure 5, below.

MiniTab™ allows the user to select either the Most Likely Estimate (MLE) or the Least Squares method when calculating the coordinates used to project a probability line. The Most Likely Estimate (MLE) method was selected as being appropriate for this data set.

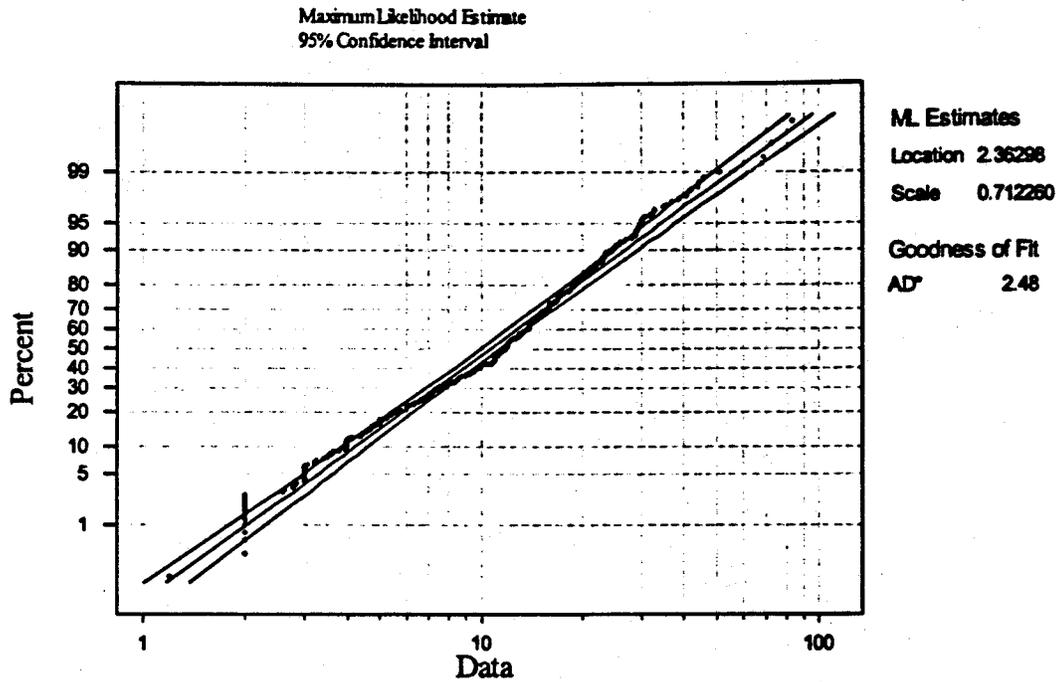
Figure 5. Preliminary probability plot of all data, in original units.



As noted above, an Anderson-Darling statistic above 1.035 strongly indicates that the data are not normally distributed. The Anderson-Darling statistic for the probability plot of the untransformed data is 15.14, a strong indication that the untransformed data are not normally distributed. This is further confirmed visually by the shape of the probability plot, which closely resembles a natural-logarithmic (ln) curve.

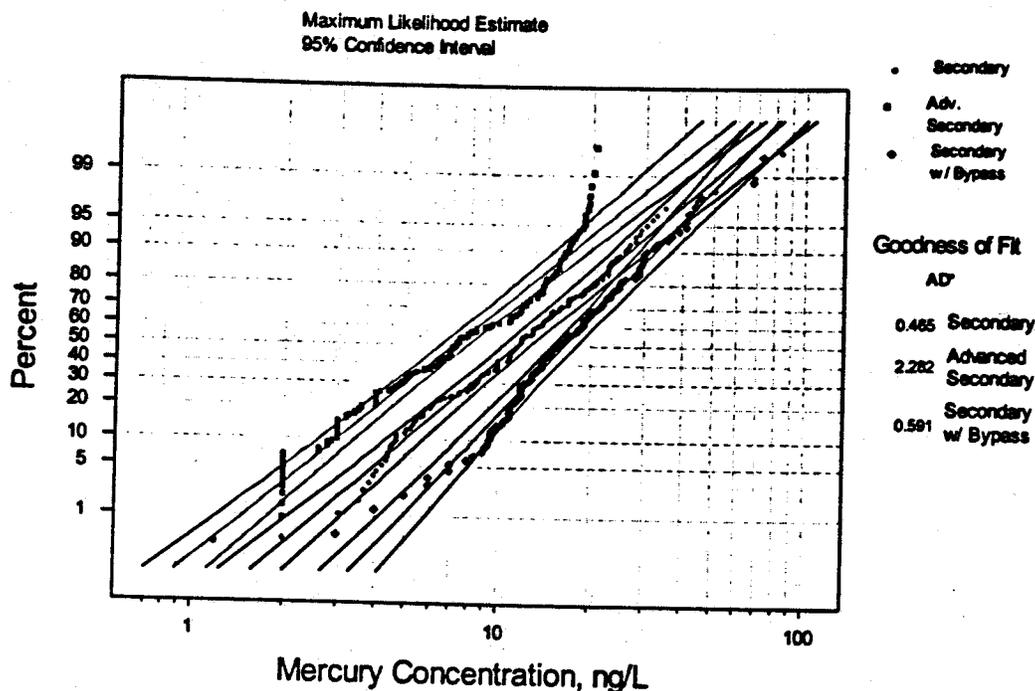
Next, a probability plot of the ln-transformed data (ln-normal probability plot) was produced. This plot is depicted in Figure 6, below. It is much more linear than the probability plot in original units, but the Anderson-Darling statistic is still too high – 2.48 vs. 1.035 – to accept the hypothesis that the ln-transformed data are normally distributed (ln-normal).

Figure 6. Ln-normal probability plot of all preliminary data.



Next, ln-normal probability plots were developed for the data grouped by treatment types as described above as shown in Figure 7, below.

Figure 7. Ln- normal probability plots of mercury concentrations, grouped by treatment type.



The ln-normal probability plots for mercury concentration data grouped by type of treatment appear more linear. The Anderson-Darling statistics for the individual ln-normal probability plots for secondary treatment and secondary treatment with bypass are both well below 1.0385, which indicates that the data are probably ln-normally distributed within each of those groups. The Anderson-Darling statistic for the ln-normal probability plot of the advanced secondary treatment group is still too high to accept the hypothesis that those data are ln-normally distributed. This is confirmed by the shape of the ln-transformed probability plot for that group of data.

#### Data Reevaluation and Refinement

Based on the preliminary statistical analysis, staff re-evaluated and refined the original classifications. The initial data set was more closely examined to investigate similarities and anomalies suggested by the probability plots of data grouped by type of treatment, and to simplify any proposed effluent limits based on the outcome of the final statistical analysis. The following conclusions were reached:

1. Secondary treatment and secondary treatment with occasional wet weather bypass could be combined. The similarity of their respective ln-transformed probability plots suggested the possibility of simplifying the analysis and IPBL development by recombining the two data subsets. In staff's judgment, this is appropriate because

bypasses only occur intermittently, during wet weather, and are limited in number and duration. This assumption is supported by the final statistical analysis, below.

2. One advanced secondary treatment plant was provisionally removed from the data set because the data from this plant were not similar to either secondary or advanced secondary treatment (see Figure 3, above). Regional Board staff will work with this discharger to determine what is causing this dissimilarity. That plant's mercury concentration data were removed from the data set and were not further considered in this analysis.
3. Another plant operates with filtration during dry weather and without filtration during wet weather months, per its NPDES permit. This plant's mercury concentrations were similar to advanced secondary treatment plants' concentrations when the filtration was being operated, and were similar to the secondary treatment plants' mercury concentrations when the filtration is not operated (see Figure 3, above). Accordingly, this plant's data were split between the secondary and advanced secondary classifications depending on the mode of operation, as determined by comparing the date of the sample to the NPDES permit conditions.
4. Data from one secondary treatment plant that employs large holding ponds were similar to data from advanced secondary treatment plants, and the plant's data were included in the advanced secondary treatment classification.

The final verified and corrected data set contains 398 records, with 8 mercury concentrations reported as nondetected (ND). The ND's represent approximately 2 percent of the preliminary pooled data set, which was not a significant percentage. Therefore, no measures were taken to estimate probable value distributions for the ND concentration data. The final pooled data set is reproduced in Appendix B.

### **Final Statistical Analysis**

The final data set was analyzed again using the MiniTab™ functions described above. First, staff plotted the final data set as boxplots arranged by discharger and grouped by type of treatment, as presented in Figures 8 and 9, below. The histogram of the final pooled concentration data was developed, as shown in Figure 10, below. This histogram is very similar to the histogram for the preliminary pooled data, and indicates that the overall combined data still appear to be ln-normally distributed.

Ln-normal probability plots were developed for the two data subsets: secondary treatment and advanced secondary treatment, as shown in Figure 11, below. The Anderson-Darling goodness of fit statistic for each probability plot is well within the range expected for an ln-normal distribution.

## Final Statistical Analysis – Graphical Results

Figure 8. Boxplots of secondary treatment plants in final pooled data set, by discharger.

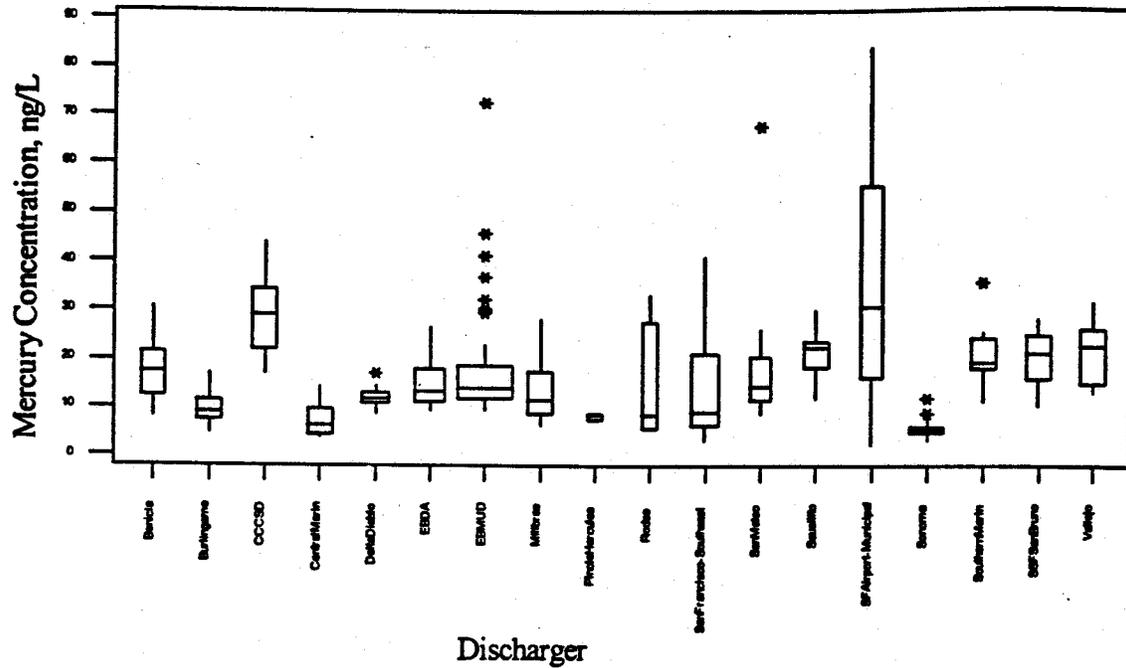


Figure 9. Boxplots of advanced secondary treatment plants in final pooled data set, by discharger.

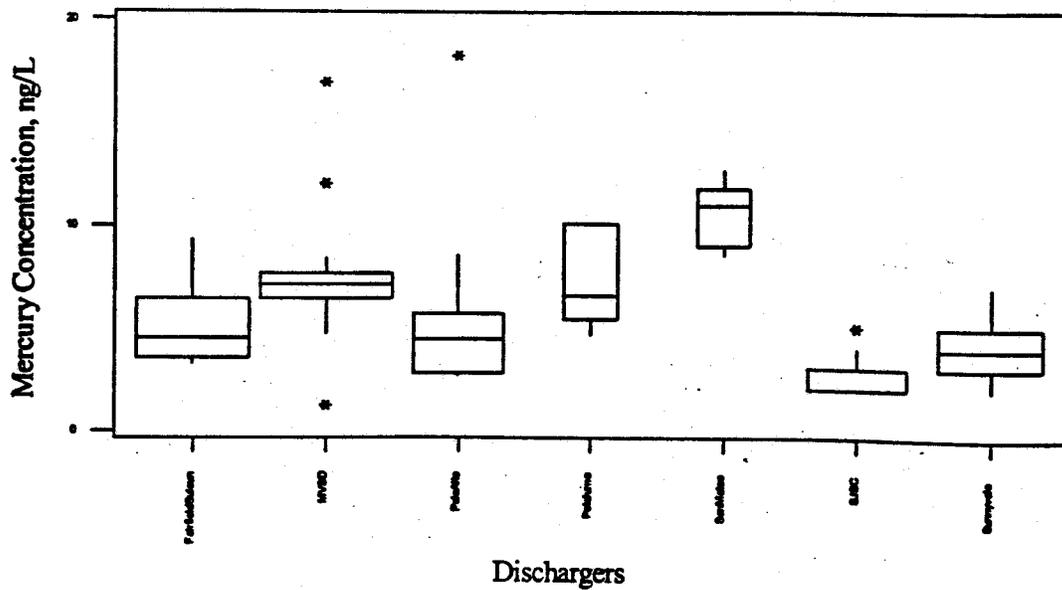


Figure 10. Histogram of final data set, all data.

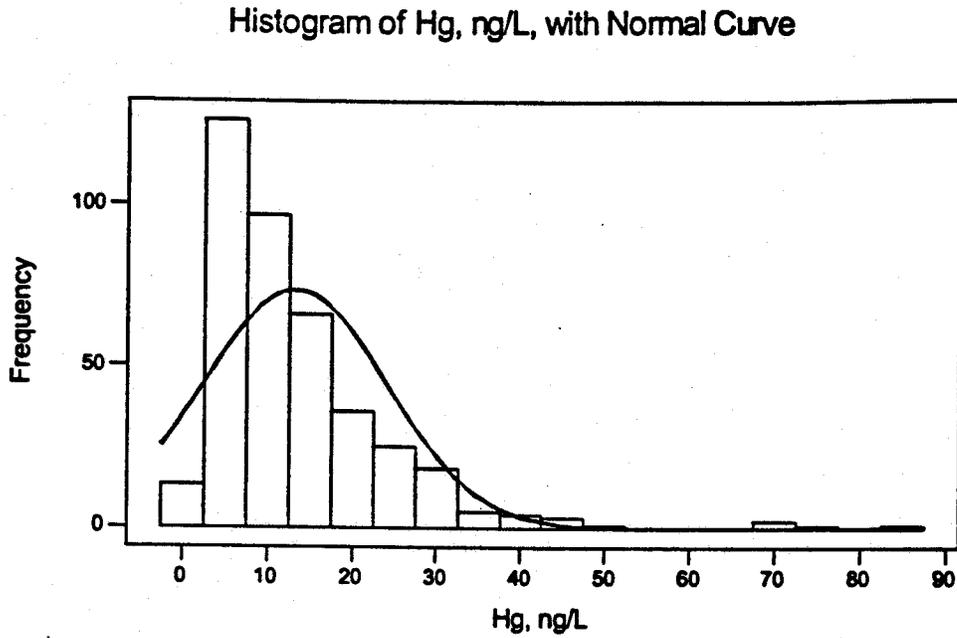
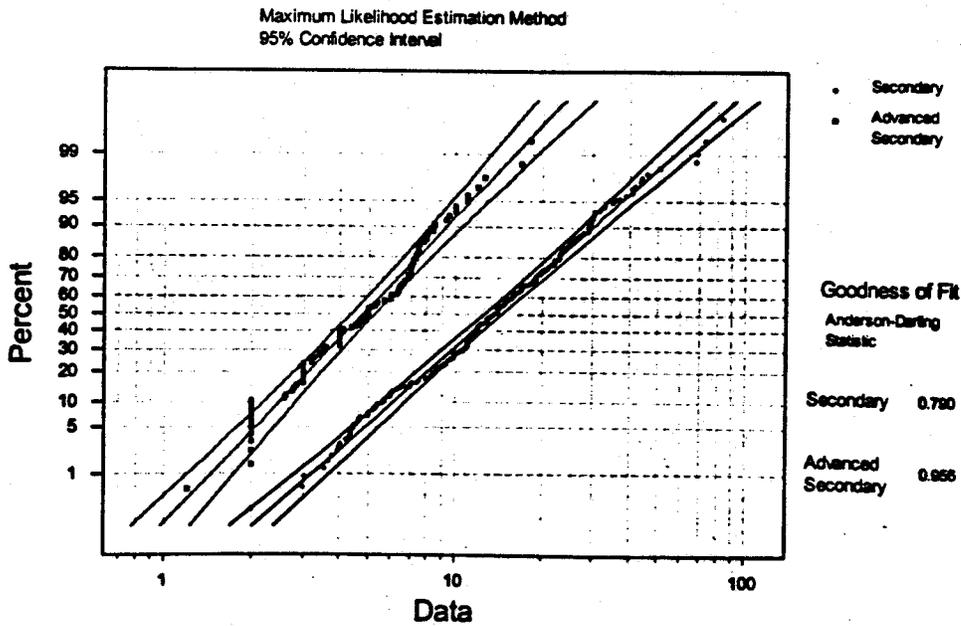


Figure 11. Ln-plotted probability plots of final data, by treatment type.



## Applicability of Data Subgroups

As a final check on the suitability of the division of the final data set into two subgroups based on treatment technology, staff used MiniTab™ to run Mood's Median Test on the two subgroup data sets. The results were  $\chi^2 = 123.56$ ,  $p=0.000$ , with the medians for secondary and advanced secondary being 13.7 and 5.0, respectively. The  $\chi^2$  and  $p$ -values indicate that there is sufficient evidence to reject the hypothesis that the two data subsets are similar, as confirmed by the difference in their medians. This confirmed that it was valid to divide the two subgroups by treatment type, and therefore it is appropriate to base the IBPLs on this division.

## Percentiles

MiniTab™ computes percentile tables for probability plots it produces. The percentile tables include the percent, the estimated data value (percentile) in original units, and a lower and upper 95 percent confidence limit for each estimated percentile, also in original units. The percentiles and confidence intervals are estimated for the entire population, based on the sample represented by the data set. The assumptions behind this extrapolation are valid as long as the data are a good fit to the distribution chosen for the probability plot. As discussed above, the data, grouped by treatment, appear to be a good fit for an ln-normal distribution.

Confidence intervals of ln-transformed data can be re-exponentiated to produce similar intervals in original units. The re-exponentiated confidence intervals are called *tolerance intervals* to distinguish them from confidence intervals calculated in original units. Therefore, the percentile estimates in Tables 2 and 3, below, include lower and upper 95 percent tolerance limits.

In addition to the standard percentiles, MiniTab™ permits the user to specify additional percentiles for explicit estimation. Staff added the 99.87<sup>th</sup> percentile for estimation in this analysis, due to its history as a regulatory control point (see Discussion, below).

## Precision and Significant Figures

The tables of percentiles for the final data analysis are reproduced as Tables 2 and 3, below. The values in Tables 2 and 3 contain more decimal places (to the 0.0001 ng/L) than would be supported by the original data. This would represent false precision were these results used in the proposed interim limits, since most dischargers report ultraclean mercury data to the nearest nanogram per liter. Therefore, 99.87<sup>th</sup> percentile values from the tables were rounded to the nearest whole nanogram per liter.

Table 2. Percentiles for secondary treatment.

Percent	Percentile, ng/L	Lower 95% Tolerance Limit, ng/L	Upper 95% Tolerance Limit, ng/L
0.10	2.0104	1.6919	2.389
1.00	3.2238	2.8078	3.701
2.00	3.8156	3.3620	4.330
3.00	4.2462	3.7682	4.785
4.00	4.6018	4.1051	5.159
5.00	4.9130	4.4008	5.485
6.00	5.1944	4.6688	5.779
7.00	5.4543	4.9168	6.051
8.00	5.6980	5.1497	6.305
9.00	5.9292	5.3708	6.546
10.00	6.1502	5.5824	6.776
20.00	8.0725	7.4257	8.776
30.00	9.8216	9.0978	10.603
40.00	11.6133	10.7966	12.492
50.00	13.5825	12.6417	14.593
60.00	15.8855	14.7684	17.087
70.00	18.7835	17.3993	20.278
80.00	22.8532	21.0220	24.844
90.00	29.9962	27.2270	33.047
91.00	31.1144	28.1844	34.349
92.00	32.3765	29.2610	35.824
93.00	33.8235	30.4905	37.521
94.00	35.5160	31.9226	39.514
95.00	37.5500	33.6354	41.920
96.00	40.0890	35.7619	44.940
97.00	43.4469	38.5559	48.958
98.00	48.3500	42.6024	54.873
99.00	57.2252	49.8401	65.704
99.87	87.4044	73.8246	103.482
99.90	91.7666	77.2284	109.042

Table 3. Percentiles for advanced secondary treatment.

Percent	Percentile, ng/L	Lower 95% Tolerance Limit, ng/L	Upper 95% Tolerance Limit, ng/L
0.10	0.9752	0.7755	1.2264
1.00	1.4477	1.2049	1.7395
2.00	1.6669	1.4089	1.9722
3.00	1.8229	1.5554	2.1364
4.00	1.9498	1.6753	2.2693
5.00	2.0595	1.7793	2.3839
6.00	2.1577	1.8726	2.4863
7.00	2.2477	1.9583	2.5799
8.00	2.3314	2.0382	2.6669
9.00	2.4103	2.1135	2.7488
10.00	2.4852	2.1851	2.8266
20.00	3.1202	2.7925	3.4864
30.00	3.6765	3.3210	4.0701
40.00	4.2298	3.8393	4.6601
50.00	4.8220	4.3834	5.3045
60.00	5.4971	4.9896	6.0563
70.00	6.3244	5.7128	7.0015
80.00	7.4520	6.6693	8.3266
90.00	9.3560	8.2262	10.6409
91.00	9.6469	8.4590	11.0016
92.00	9.9732	8.7188	11.4082
93.00	10.3448	9.0129	11.8735
94.00	10.7761	9.3522	12.4168
95.00	11.2900	9.7537	13.0683
96.00	11.9252	10.2462	13.8795
97.00	12.7553	10.8838	14.9487
98.00	13.9489	11.7901	16.5031
99.00	16.0610	13.3673	19.2974
99.87	22.8908	18.2907	28.6477
99.90	23.8427	18.9597	29.9832

### Proposed Interim Mercury Effluent Limitations

Based on the statistical analysis of pooled low-detection-limit mercury data for the representative dischargers selected, the following are proposed as interim regionwide mercury effluent limits, taken as monthly averages, for municipal dischargers:

Table 4. Proposed interim performance-based mercury effluent limits.

Type of Treatment	Proposed Interim Mercury Limit, ng/L
Secondary Treatment	87
Advanced secondary Treatment	23
Mixed-regime	87 when operated as secondary 23 when operated as advanced secondary
Secondary with holding ponds	23

## Discussion

### Validity of Approach

As noted in the Introduction, above, an IPBL is typically discharger specific, utilizes the last three years data, and is based on enough data points to produce a reasonable statistical estimate of current performance. For the reasons outlined in the Introduction, that was not feasible for the ultraclean mercury data generally available for individual POTW's in the Region. The approach outlined in this report appears to be valid for the following reasons:

- Final data subsets appear to be well represented by ln-normal distributions, as shown by the Anderson-Darling goodness of fit statistics in the final statistical analysis.
- Division of the data into subsets by type of treatment appears appropriate, again based on the Anderson-Darling goodness of fit statistics for the two projected probability lines (each subset provides an approximately homogeneous, ln-normally distributed group), and as indicated by the results of the Mood's Median test applied to the two subsets (the two sets are statistically dissimilar).
- The IPBLs are proposed as limits not to be exceeded, based on the 99.87<sup>th</sup> percentile of actual performance data for each subgroup, which is a standard approach for setting effluent limitations, and is more conservative than the once-every-three-years (approximately 99.91<sup>st</sup> percentile) frequency suggested by U.S. EPA.

Using pooled data is valid because:

- Only about one year's ultraclean data were available for this statistical analysis, and each discharger's individual data set was too small for reliable statistical analysis.

- one year of ultraclean data from a cross section of different plants with similar processes, with 285 data points for secondary treatment and 113 for advanced secondary treatment is representative of plants' performance in each category.
- pooling the data reduces the likelihood of penalizing plants that have implemented effective control measures and are already performing well as compared to other plants that may not have implemented similar measures (see Protection of Water Quality, below).
- pooling the data results in a more consistent set of interim mercury effluent limits that can be applied uniformly regionwide.
- pre-2000 performance data included a high percentage of non-detects (ND's), and the effluent limits based on those data were typically 210 nanograms per liter, rather than the lower limits proposed in this report.

### Percentiles and Regulatory Control Points

The proposed interim performance based effluent limits are based on the 99.87<sup>th</sup> percentile of the respective data groupings. The 99.87<sup>th</sup> percentile has historically been used in environmental regulation as an upper limit, as it represents a number that should not be exceeded more than once per 769 samples:

$$\text{Likelihood of of exceedence} = (1 - .9987) = \left(\frac{1}{769}\right).$$

This number is more conservative than the number given in U.S. EPA guidance that effluent limitations will be protective as long as they are not exceeded more than once every three years, which corresponds to approximately the 99.91<sup>th</sup> percentile, based on

$$\text{Likelihood of exceedence} = \left(\frac{1}{3 * 365}\right) = \left(\frac{1}{1095}\right) \approx (1 - .9991)$$

Since MiniTab™ estimates percentiles for the entire population, rather than the observed sample, the 99.87<sup>th</sup> percentile numbers may be greater than the observed data. This is an acceptable regulatory control point because the percentiles (including the 99.87<sup>th</sup> percentile) and the underlying data distribution from which they are calculated are both products of the underlying treatment technology. Although other data distribution shapes could be imagined that would have similar 99.87<sup>th</sup> percentile values, the shape of this data distribution should not change as long as treatment processes do not change. Should operational performance degrade, the data distribution would be expected to shift upward, taking the 99.87<sup>th</sup> percentile of the data up with it. This would produce more frequent violations of the interim effluent limit.

Regulatory controls are sometimes based on other percentiles than the 99.87<sup>th</sup>; in those cases, the regulatory language envisions a certain number of exceedences. It could be argued that some lower IPBL, perhaps based on a 12-month moving median, or some other, lower percentile should be used instead. The moving median approach would be

valid if applied to individual POTW's, and is premature at this point due to the lack of individual data points. Lower-percentile control points would require additional statistical evaluations by case handlers (and discharger staff) to evaluate compliance by determining the number of exceedences per number of sampling events (2 out of 10 for 80<sup>th</sup> percentile, for example). Automating this compliance tracking would require reprogramming the ERS to monitor numbers of exceedences for a particular number of sampling events. It is more straightforward to monitor compliance with upper limit controls – the proposed IPBLs are easily interpreted from a compliance perspective and place no additional load on staff or the ERS.

### **Other possible data groupings**

This statistical analysis is based on data groupings by treatment type, subject to the simplifications discussed in the Data Refinement and Reevaluation section, above. Although data groupings by other variables are possible, the data to investigate them are not currently available. This statistical analysis indicates that grouping by treatment type is adequate and appropriate at this time. Other data groupings may be investigated in the future if the data become available.

### **Performance Reevaluation**

The preliminary statistical analysis indicated one treatment plant had mercury concentration data significantly different from plants in either treatment category (see Data Reevaluation and Refinement section, above). This plant recently had its NPDES permit renewed, prior to this statistical analysis, and its NPDES permit includes an IPBL for mercury. Regional Board staff will work with that discharger to identify the cause(s) of this difference, and will determine if its NPDES permit should be reopened to change the mercury IPBL.

### **Protection of Water Quality**

This statistical approach has resulted in IPBLs that are significantly lower than the previous limits – 87 or 23 nanograms per liter versus 210 nanograms per liter for most deepwater discharges – and are still representative of overall plant performance regionwide. It is reasonable to expect that this will result in maintaining the current performance by the POTWs in each of the two groups until the mercury TMDL and its waste load allocations are developed.

Many POTWs have implemented sophisticated pollution prevention measures for mercury (collecting mercury thermometers, collecting fluorescent lamp tubes, and working with medical/dental facilities to insure mercury containing wastes are not discharged to collection systems). However, to date, not all POTWs have implemented these programs since mercury was not a compliance issue in the past. Continued implementation of existing and/or additional mercury pollution prevention measures will be the prerequisite to have an IPBL in lieu of final limit in the permit. The Regional Board staff expects NPDES permits to be one mechanism to ensure all POTW's to implement baseline pollution prevention programs. This is reflected in the positions of

the Bay Area Clean Water Agencies and the Bay Area Pollution Prevention Group. POTW groups have also sponsored SB 633 (Sher), The California Mercury Reduction Act of 2001, which will remove additional sources from the environment. Taken together, all these measures will ensure that current performance of POTW's in the Region is maintained or improved in the interim until the TMDL is developed.

## Summary

This statistical analysis provided the following answers to the questions stated in the Introduction, above

- *Is pooling the ultraclean data from various municipal dischargers statistically valid?*

Pooled data, divided into appropriate subgroups (see next bulleted item) is statistically valid.

- *Should the data be divided into subgroups and, if so, based on which factors?*

Dividing data into subgroups based on treatment technology produced statistically acceptable results, based on goodness-of-fit tests applied to projected probability plots of the subgrouped data.

- *Can statistical analysis of pooled data guide development of regionwide interim performance-based effluent limits (IPBLs) for mercury from municipal dischargers?*

The goodness-of-fit statistics for the last round of ln-plotted probability plots indicate that the whole-population percentile estimates calculated for those plots can be used to as the basis for regulatory control points (limits).

- *Would establishing regionwide IPBLs hold all POTWs at current performance and be protective?*

Explicit mass calculations are outside the scope of this statistical analysis. However, as discussed in the Protection of Water Quality section above, consistently controlling for any percentile from a data distribution will control the entire data distribution. Thus, compliance with the IPBLs proposed in this report would hold POTWs at current performance. To the extent that the IPBLs motivate less-well-performing plants to implement pollution prevention measures and source controls, they should result in improved performance from those plants. Total annual loading can be estimated in future years to see if this holds true. Considering the relatively small contribution of mercury loads from the POTWs to overall mercury loading to the Bay, it is unlikely that TMDL/WLA would require additional load reduction beyond the pollution prevention and source controls that are required by permits.

## References Referred To In Conducting This Analysis

1. California Regional Water Quality Control Board, San Francisco Bay Region *San Francisco Bay Basin (Region 2). Water Quality Control Plan*. 1995 and subsequent amendments.
2. California Regional Water Quality Control Board, San Francisco Bay Region, *Watershed Management of Mercury in the San Francisco Bay Estuary: A Total Maximum Daily Load Report to U.S. EPA*. April 1, 2000.
3. Helsel, D.R., and Hirsch, R.M. *Statistical Methods in Water Resources*. 2000.
4. Krebs, C.J. *Ecological Methodology*. 2000.
5. MiniTab Corporation. MiniTab™ Release 13.30 online documentation, 2001.
6. MiniTab Corporation, MiniTab™ Release 13.30, personal communication with MiniTab support technician, May 21, 2001.

Appendix A: Preliminary Verified Data Set

Appendix A: Preliminary Verified Data Set

Discharger	Trtmnt	County	Date	Q, mgd	Hg, ng/L
Benicia	2	Solano	1/10/00	2.7	30.6
Benicia	2	Solano	2/16/00	4.51	17.4
Benicia	2	Solano	4/4/00	3.29	15
Benicia	2	Solano	5/18/00	3.01	12
Benicia	2	Solano	6/13/00	3.26	17
Benicia	2	Solano	7/12/00	2.82	23
Benicia	2	Solano	8/8/00	2.64	19
Benicia	2	Solano	9/28/00	2.48	22
Benicia	2	Solano	10/18/00	2.76	19
Benicia	2	Solano	11/15/00	2.76	13
Benicia	2	Solano	12/14/00	3.42	11
Benicia	2	Solano	1/25/01	3.55	8
Burlingame	2	San Mateo	1/6/00	3.518	7.48
Burlingame	2	San Mateo	2/2/00	4.413	7.1
Burlingame	2	San Mateo	3/1/00	5.733	8.56
Burlingame	2	San Mateo	4/17/00	4.599	11.3
Burlingame	2	San Mateo	5/5/00	3.758	13.3
Burlingame	2	San Mateo	7/21/00	3.843	17
Burlingame	2	San Mateo	8/8/00	3.499	4.49
Burlingame	2	San Mateo	9/13/00	3.607	11.4
Burlingame	2	San Mateo	10/4/00	4.254	8.27
Burlingame	2	San Mateo	11/6/00	4.005	6.2
Burlingame	2	San Mateo	12/5/00	4.062	10
Burlingame	2	San Mateo	1/6/01	3.79	9.3
CCCSD	2B	Contra Costa	1/5/00	39.7	19
CCCSD	2B	Contra Costa	2/3/00	46.9	ND
CCCSD	2B	Contra Costa	3/2/00	64.9	25
CCCSD	2B	Contra Costa	4/5/00	47.6	17
CCCSD	2B	Contra Costa	5/4/00	43.8	22
CCCSD	2B	Contra Costa	6/12/00	41.3	28
CCCSD	2B	Contra Costa	7/7/00	40.8	29
CCCSD	2B	Contra Costa	8/3/00	41.1	29
CCCSD	2B	Contra Costa	9/7/00	40	29
CCCSD	2B	Contra Costa	10/4/00	39.4	39
CCCSD	2B	Contra Costa	11/3/00	41.2	42
CCCSD	2B	Contra Costa	12/6/00	39.7	22
CCCSD	2B	Contra Costa	1/23/01	41.5	44
CCCSD	2B	Contra Costa	2/8/01	40.2	30
CentralMarin	2	Marin	2/2/00	13.6	6.71
CentralMarin	2	Marin	3/8/00	23.5	14.1
CentralMarin	2	Marin	4/5/00	9.3	9.71
CentralMarin	2	Marin	5/3/00	8.7	8.34
CentralMarin	2	Marin	6/7/00	8.4	6.04
CentralMarin	2	Marin	7/6/00	8.3	4.47
CentralMarin	2	Marin	8/2/00	8.1	3.8
CentralMarin	2	Marin	9/6/00	7.9	4.2
CentralMarin	2	Marin	10/4/00	7.8	3.65
CentralMarin	2	Marin	11/8/00	8.2	12.2
CentralMarin	2	Marin	12/6/00	8.3	9.31
CentralMarin	2	Marin	1/3/01	8.4	5.6
CentralMarin	2	Marin	2/7/01	9.5	5
DeltaDiablo	2	Contra Costa	1/4/00	13.15	10
DeltaDiablo	2	Contra Costa	6/6/00	13.9	8.6

Appendix A: Preliminary Verified Data Set

Discharger	Trtmat	County	Date	Q, mgd	Hg, ng/L
DeltaDiablo	2	Contra Costa	6/19/00	13.09	11.6
DeltaDiablo	2	Contra Costa	8/1/00	14.12	12
DeltaDiablo	2	Contra Costa	9/13/00	13.8	ND
DeltaDiablo	2	Contra Costa	9/17/00	13.4	8.66
DeltaDiablo	2	Contra Costa	9/20/00	13.9	10.8
DeltaDiablo	2	Contra Costa	10/4/00	14.4	11
DeltaDiablo	2	Contra Costa	11/1/00	14.3	12.3
DeltaDiablo	2	Contra Costa	11/15/00	13.1	10.7
DeltaDiablo	2	Contra Costa	12/5/00	13.7	14.5
DeltaDiablo	2	Contra Costa	12/19/00	14.4	11
DeltaDiablo	2	Contra Costa	1/3/01	14.3	13
DeltaDiablo	2	Contra Costa	1/16/01	12.4	13
DeltaDiablo	2	Contra Costa	2/5/01	13.3	14
DeltaDiablo	2	Contra Costa	2/20/01	13.6	17
EBDA	2	Alameda	1/5/00	74.31	19.8
EBDA	2	Alameda	1/19/00	79.08	26.7
EBDA	2	Alameda	2/2/00	83.56	18.7
EBDA	2	Alameda	2/16/00	98.52	15
EBDA	2	Alameda	3/1/00	95.89	ND
EBDA	2	Alameda	3/15/00	89.81	9.1
EBDA	2	Alameda	4/5/00	73.18	18
EBDA	2	Alameda	4/19/00	78.46	10
EBDA	2	Alameda	5/3/00	70.57	14
EBDA	2	Alameda	5/17/00	75.51	10
EBDA	2	Alameda	6/7/00	70.96	12
EBDA	2	Alameda	6/21/00	74.65	11
EBDA	2	Alameda	7/5/00	66.54	10
EBDA	2	Alameda	7/19/00	71.89	13.2
EBDA	2	Alameda	8/2/00	73.43	15.8
EBDA	2	Alameda	8/16/00	68.68	11.2
EBDA	2	Alameda	9/5/00	70.52	11.4
EBDA	2	Alameda	10/4/00	70.32	13.6
EBDA	2	Alameda	11/1/00	85.87	11.8
EBDA	2	Alameda	12/6/00	74.3	21
EBMUD	2B	Alameda	12/8/99	68.4	13.2
EBMUD	2B	Alameda	12/21/99	63.7	13.7
EBMUD	2B	Alameda	12/28/99	64.5	18
EBMUD	2B	Alameda	1/9/00	63.2	14.2
EBMUD	2B	Alameda	1/13/00	66.6	18.4
EBMUD	2B	Alameda	1/19/00	80.9	16.9
EBMUD	2B	Alameda	1/26/00	95.1	36.9
EBMUD	2B	Alameda	2/4/00	78.1	11.5
EBMUD	2B	Alameda	2/10/00	114.6	11.6
EBMUD	2B	Alameda	2/15/00	144.3	73
EBMUD	2B	Alameda	2/24/00	130.5	41.2
EBMUD	2B	Alameda	3/5/00	151.1	30.4
EBMUD	2B	Alameda	3/9/00	148.9	32.1
EBMUD	2B	Alameda	3/15/00	81.3	12.2
EBMUD	2B	Alameda	3/19/00	79.1	11
EBMUD	2B	Alameda	3/29/00	72.1	19.9
EBMUD	2B	Alameda	4/5/00	72	29.6
EBMUD	2B	Alameda	4/12/00	82	19.2
EBMUD	2B	Alameda	4/20/00	72	22.7
EBMUD	2B	Alameda	4/27/00	70	14.2
EBMUD	2B	Alameda	5/4/00	66	9.8
EBMUD	2B	Alameda	5/10/00	76	12.6
EBMUD	2B	Alameda	5/14/00	72	14.1
EBMUD	2B	Alameda	5/24/00	69	21.6

Appendix A: Preliminary Verified Data Set

Discharger	Trtmnt	County	Date	Q, mgd	Hg, ng/L
EBMUD	2B	Alameda	6/1/00	70	9.6
EBMUD	2B	Alameda	6/8/00	70	12.1
EBMUD	2B	Alameda	6/11/00	69	11.2
EBMUD	2B	Alameda	6/21/00	68	29.4
EBMUD	2B	Alameda	6/27/00	69	9.4
EBMUD	2B	Alameda	7/6/00	69	15.8
EBMUD	2B	Alameda	7/12/00	69	14
EBMUD	2B	Alameda	7/20/00	67	9.35
EBMUD	2B	Alameda	7/26/00	71	16.4
EBMUD	2B	Alameda	8/3/00	68	9.16
EBMUD	2B	Alameda	8/9/00	72	9.54
EBMUD	2B	Alameda	8/13/00	64	13.5
EBMUD	2B	Alameda	8/23/00	67	11.9
EBMUD	2B	Alameda	8/24/00	68	10.8
EBMUD	2B	Alameda	8/29/00	68	12.9
EBMUD	2B	Alameda	9/6/00	63	20.3
EBMUD	2B	Alameda	9/13/00	67	10.4
EBMUD	2B	Alameda	9/20/00	65	9.55
EBMUD	2B	Alameda	9/24/00	66	11
EBMUD	2B	Alameda	10/5/00	64	18.3
EBMUD	2B	Alameda	10/15/00	68	14.8
EBMUD	2B	Alameda	10/19/00	65	18.5
EBMUD	2B	Alameda	10/24/00	64	12
EBMUD	2B	Alameda	11/2/00	69	12
EBMUD	2B	Alameda	11/7/00	66	11
EBMUD	2B	Alameda	11/17/00	68	13
EBMUD	2B	Alameda	11/19/00	70	12
EBMUD	2B	Alameda	11/29/00	81	16
EBMUD	2B	Alameda	12/6/00	69	15
EBMUD	2B	Alameda	12/13/00	82	12
EBMUD	2B	Alameda	12/19/00	67	13
EBMUD	2B	Alameda	12/28/00	69	11
EBMUD	2B	Alameda	1/4/01	66	30
EBMUD	2B	Alameda	1/9/01	72	13
EBMUD	2B	Alameda	1/18/01	71	10
EBMUD	2B	Alameda	1/24/01	75	14
EBMUD	2B	Alameda	1/28/01	75	12
EBMUD	2B	Alameda	2/4/01	72	15
EBMUD	2B	Alameda	2/15/01	83	16
EBMUD	2B	Alameda	2/23/01	134	46
EBMUD	2B	Alameda	2/28/01	85	16
FairfieldSuisun	2A	Solano	2/9/00	16.395	6.91
FairfieldSuisun	2A	Solano	2/17/00	29.996	6.35
FairfieldSuisun	2A	Solano	3/8/00	24.595	3.25
FairfieldSuisun	2A	Solano	3/15/00	18.057	4.54
FairfieldSuisun	2A	Solano	4/4/00	16.172	6.6
FairfieldSuisun	2A	Solano	4/11/00	17.167	5.4
FairfieldSuisun	2A	Solano	5/11/00	16.426	3.6
FairfieldSuisun	2A	Solano	5/16/00	15.694	3.4
FairfieldSuisun	2A	Solano	6/14/00	13.633	3.6
FairfieldSuisun	2A	Solano	6/21/00	16.735	9.3
FairfieldSuisun	2A	Solano	7/5/00	12.71	3.5
FairfieldSuisun	2A	Solano	7/13/00	16.335	4.1
FairfieldSuisun	2A	Solano	8/3/00	12.804	5.3
FairfieldSuisun	2A	Solano	8/9/00	14.225	6.3
FairfieldSuisun	2A	Solano	9/6/00	13.072	3.2
FairfieldSuisun	2A	Solano	9/14/00	13.455	6.7
FairfieldSuisun	2A	Solano	11/9/00	10.425	3.4

Appendix A: Preliminary Verified Data Set

Discharger	Trtmat	County	Date	Q, mgd	Hg, ng/L
FairfieldSuisun	2A	Solano	11/15/00	16.204	3.5
FairfieldSuisun	2A	Solano	12/9/00	13.936	4.4
FairfieldSuisun	2A	Solano	12/14/00	16.061	3.2
FairfieldSuisun	2A	Solano	1/3/01	14.698	4.8
FairfieldSuisun	2A	Solano	1/10/01	15.626	6.9
Millbrae	2	San Mateo	1/5/00	1.71	20.4
Millbrae	2	San Mateo	2/2/00	2.02	23.2
Millbrae	2	San Mateo	3/8/00	3.52	6.1
Millbrae	2	San Mateo	4/5/00	1.86	14.2
Millbrae	2	San Mateo	5/3/00	1.82	16.1
Millbrae	2	San Mateo	6/7/00	1.88	15.1
Millbrae	2	San Mateo	7/12/00	1.74	10
Millbrae	2	San Mateo	8/2/00	1.76	11
Millbrae	2	San Mateo	9/13/00	1.79	8.9
Millbrae	2	San Mateo	10/11/00	1.76	12
Millbrae	2	San Mateo	11/14/00	1.66	8.4
Millbrae	2	San Mateo	12/13/00	1.79	6.3
Millbrae	2	San Mateo	1/17/01	1.77	8.8
Millbrae	2	San Mateo	2/21/01	3.43	28
MVSD	2A	Contra Costa	2/9/00	1.854	8
MVSD	2A	Contra Costa	8/2/00	1.769	4.7
MVSD	2A	Contra Costa	8/9/00	1.778	5.3
MVSD	2A	Contra Costa	8/16/00	1.736	4.9
MVSD	2A	Contra Costa	8/22/00	1.738	1.2
MVSD	2A	Contra Costa	9/13/00	1.747	8.4
MVSD	2A	Contra Costa	10/4/00	1.674	6.4
MVSD	2A	Contra Costa	10/11/00	1.693	6.4
MVSD	2A	Contra Costa	10/18/00	1.75	7.4
MVSD	2A	Contra Costa	10/23/00	1.723	7.5
MVSD	2A	Contra Costa	11/2/00	1.732	17
MVSD	2A	Contra Costa	11/9/00	1.781	12
MVSD	2A	Contra Costa	11/17/00	1.824	8
MVSD	2A	Contra Costa	11/30/00	1.838	7
MVSD	2A	Contra Costa	12/4/00	1.731	8.1
MVSD	2A	Contra Costa	12/6/00	1.738	7
MVSD	2A	Contra Costa	12/11/00	1.811	7.3
MVSD	2A	Contra Costa	12/12/00	1.762	6.5
MVSD	2A	Contra Costa	12/18/00	1.822	7.6
MVSD	2A	Contra Costa	12/19/00	1.756	6.9
MVSD	2A	Contra Costa	12/27/00	1.777	7.5
MVSD	2A	Contra Costa	12/28/00	1.774	7.2
MVSD	2A	Contra Costa	1/2/01	1.776	7.3
MVSD	2A	Contra Costa	1/3/01	1.79	7.8
MVSD	2A	Contra Costa	1/9/01	1.814	7.1
MVSD	2A	Contra Costa	1/10/01	2.66	7
MVSD	2A	Contra Costa	1/16/01	1.818	6.7
MVSD	2A	Contra Costa	1/17/01	1.761	7.1
MVSD	2A	Contra Costa	1/24/01	1.83	7.5
MVSD	2A	Contra Costa	1/30/01	1.779	5.7
MVSD	2A	Contra Costa	1/31/01	1.779	5.7
PaloAlto	2A	Santa Clara	1/12/00	25.94357	4
PaloAlto	2A	Santa Clara	2/9/00	27.85798	5.11
PaloAlto	2A	Santa Clara	3/8/00	39.28131	2.85
PaloAlto	2A	Santa Clara	4/12/00	28.8104	2.59
PaloAlto	2A	Santa Clara	5/10/00	27.2606	2.61
PaloAlto	2A	Santa Clara	6/7/00	20.23016	2.78
PaloAlto	2A	Santa Clara	7/12/00	26.43544	4.1
PaloAlto	2A	Santa Clara	8/9/00	26.27452	2.77

## Appendix A: Preliminary Verified Data Set

Discharger	Trtmnt	County	Date	Q, mgd	Hg, ng/L
PaloAlto	2A	Santa Clara	9/13/00	27.38244	4.84
PaloAlto	2A	Santa Clara	10/18/00	26.37206	18.3
PaloAlto	2A	Santa Clara	11/15/00	26.51216	8.52
PaloAlto	2A	Santa Clara	12/6/00	24.23864	7.16
PaloAlto	2A	Santa Clara	1/9/01	25.69047	4.76
PaloAlto	2A	Santa Clara	2/6/01	27.86786	5.02
Petaluma	2A	Sonoma	1/1/00	0	6.54
Petaluma	2A	Sonoma	2/1/00	6.37	10.1
Petaluma	2A	Sonoma	3/1/00	8.557	10.1
Petaluma	2A	Sonoma	11/17/00	5.24	4.6
Petaluma	2A	Sonoma	1/12/01	8.75	6.1
PinoleHercules	2	Contra Costa	3/8/00	4.63	7.97
PinoleHercules	2	Contra Costa	6/7/00	2.11	8.4
PinoleHercules	2	Contra Costa	9/11/00	2.06	8.6
PinoleHercules	2	Contra Costa	12/11/00	2.52	7
Rodeo	2	Contra Costa	3/6/00	1.56	10.8
Rodeo	2	Contra Costa	6/5/00	0.86	5.4
Rodeo	2	Contra Costa	9/6/00	0.761	33
Rodeo	2	Contra Costa	12/5/00	0.702	5.7
SanFrancisco-Southeast	2B	San Francisco	9/1/00	79.2	33
SanFrancisco-Southeast	2B	San Francisco	9/3/00	60.4	29
SanFrancisco-Southeast	2B	San Francisco	9/20/00	75.9	41
SanFrancisco-Southeast	2B	San Francisco	9/28/00	64.1	25
SanFrancisco-Southeast	2B	San Francisco	11/3/00	64.2	7
SanFrancisco-Southeast	2B	San Francisco	11/9/00	66.8	17
SanFrancisco-Southeast	2B	San Francisco	11/17/00	67.9	5
SanFrancisco-Southeast	2B	San Francisco	11/21/00	97.4	11
SanFrancisco-Southeast	2B	San Francisco	12/2/00	66.9	3
SanFrancisco-Southeast	2B	San Francisco	12/16/00	68.4	4
SanFrancisco-Southeast	2B	San Francisco	12/23/00	67.5	7
SanFrancisco-Southeast	2B	San Francisco	1/7/01	62	6
SanFrancisco-Southeast	2B	San Francisco	1/14/01	62.9	9
SanFrancisco-Southeast	2B	San Francisco	1/21/01	64.2	8
SanFrancisco-Southeast	2B	San Francisco	2/5/01	64.1	6
SanFrancisco-Southeast	2B	San Francisco	2/12/01	114.1	14
SanFrancisco-Southeast	2B	San Francisco	2/26/01	84.8	15
SanMateo	2B	San Mateo	1/4/00	11.18	68
SanMateo	2B	San Mateo	2/8/00	12.95	26
SanMateo	2B	San Mateo	3/7/00	20.5	14
SanMateo	2B	San Mateo	4/2/00	14.24	15
SanMateo	2A	San Mateo	5/6/00	12.67	11
SanMateo	2A	San Mateo	6/6/00	12.22	9.5
SanMateo	2A	San Mateo	7/5/00	11.71	8.5
SanMateo	2A	San Mateo	8/7/00	11.74	11
SanMateo	2A	San Mateo	9/12/00	11.41	12.7
SanMateo	2B	San Mateo	10/3/00	11.66	8.4
SanMateo	2B	San Mateo	11/7/00	12.12	13.5
SanMateo	2B	San Mateo	12/5/00	11.76	10.5
SanMateo	2B	San Mateo	1/7/01	13.38	12
SanMateo	2B	San Mateo	2/7/01	11.76	14
Sausalito	2B	Marin	1/2/00	1.598	22.4
Sausalito	2B	Marin	2/2/00	1.369	21
Sausalito	2B	Marin	3/1/00	2.114	16.8
Sausalito	2B	Marin	4/3/00	1.305	21.5
Sausalito	2B	Marin	5/4/00	1.393	15.2
Sausalito	2B	Marin	6/5/00	1.44	25.3
Sausalito	2B	Marin	7/11/00	1.387	30
Sausalito	2B	Marin	8/3/00	1.296	11.7

Appendix A: Preliminary Verified Data Set

Discharger	Trtmnt	County	Date	Q, mgd	Hg, ng/L
Sausilito	2B	Marin	9/6/00	1.178	19.5
Sausilito	2B	Marin	10/3/00	1.286	22.1
Sausilito	2B	Marin	12/10/00	1.517	23.4
Sausilito	2B	Marin	1/1/01	1.385	23.5
Sausilito	2B	Marin	2/1/01	1.385	23.5
SBSA	2A	San Mateo	1/1/00	16.8	12.7
SBSA	2A	San Mateo	1/7/00	17.9	17.2
SBSA	2A	San Mateo	1/11/00	18.7	17.3
SBSA	2A	San Mateo	1/13/00	18.1	14.3
SBSA	2A	San Mateo	1/19/00	21	11.7
SBSA	2A	San Mateo	1/25/00	37.6	9.6
SBSA	2A	San Mateo	2/3/00	21.87	12
SBSA	2A	San Mateo	2/6/00	21.31	11.1
SBSA	2A	San Mateo	2/12/00	33.46	14.4
SBSA	2A	San Mateo	2/18/00	24.26	14
SBSA	2A	San Mateo	2/25/00	26.39	14
SBSA	2A	San Mateo	3/1/00	26.92	14.1
SBSA	2A	San Mateo	3/7/00	24.73	15.5
SBSA	2A	San Mateo	3/14/00	23.16	13.5
SBSA	2A	San Mateo	3/20/00	21.89	18.8
SBSA	2A	San Mateo	3/25/00	20.24	16.3
SBSA	2A	San Mateo	3/27/00	20.57	19.8
SBSA	2A	San Mateo	4/5/00	19.93	17.9
SBSA	2A	San Mateo	4/12/00	20.29	16.4
SBSA	2A	San Mateo	4/18/00	20.62	14.2
SBSA	2A	San Mateo	4/24/00	20.23	14
SBSA	2A	San Mateo	5/1/00	19.4	19.9
SBSA	2A	San Mateo	5/6/00	19.16	16
SBSA	2A	San Mateo	5/12/00	19.46	14.2
SBSA	2A	San Mateo	5/18/00	19.61	15.8
SBSA	2A	San Mateo	5/23/00	19.56	13.4
SBSA	2A	San Mateo	5/30/00	19.94	15
SBSA	2A	San Mateo	6/5/00	20.13	16.9
SBSA	2A	San Mateo	6/12/00	19.69	12.1
SBSA	2A	San Mateo	6/17/00	18.73	12
SBSA	2A	San Mateo	6/23/00	19.05	16.4
SBSA	2A	San Mateo	6/25/00	19.36	15.8
SBSA	2A	San Mateo	7/5/00	19.99	19
SBSA	2A	San Mateo	7/11/00	19.16	19.2
SBSA	2A	San Mateo	7/17/00	19.43	12.5
SBSA	2A	San Mateo	7/25/00	19.05	15.5
SBSA	2A	San Mateo	7/29/00	18.47	16.8
SBSA	2A	San Mateo	8/4/00	18.76	17.8
SBSA	2A	San Mateo	8/10/00	18.2	11.9
SBSA	2A	San Mateo	8/16/00	17.68	12
SBSA	2A	San Mateo	8/22/00	18.63	19.2
SBSA	2A	San Mateo	8/27/00	17.82	7.99
SBSA	2A	San Mateo	9/4/00	18.47	11.8
SBSA	2A	San Mateo	9/9/00	18.45	14
SBSA	2A	San Mateo	9/15/00	18.3	13.8
SBSA	2A	San Mateo	9/20/00	18.58	11
SBSA	2A	San Mateo	9/26/00	18.68	12.3
SBSA	2A	San Mateo	10/3/00	18.07	11.4
SBSA	2A	San Mateo	10/9/00	18.28	12.4
SBSA	2A	San Mateo	10/15/00	18.2	10.9
SBSA	2A	San Mateo	10/21/00	18.42	13.4
SBSA	2A	San Mateo	10/27/00	22.33	11.3
SBSA	2A	San Mateo	11/3/00	19.38	20.9

**Appendix A: Preliminary Verified Data Set**

Discharger	Trtmt	County	Date	Q, mgd	Hg, ng/L
SBSA	2A	San Mateo	11/8/00	19.21	19.5
SBSA	2A	San Mateo	11/14/00	18.91	20.3
SBSA	2A	San Mateo	11/20/00	18.86	19.8
SBSA	2A	San Mateo	11/26/00	18.25	15.1
SBSA	2A	San Mateo	12/2/00	18.43	15.8
SBSA	2A	San Mateo	12/8/00	18.4	15.8
SBSA	2A	San Mateo	12/14/00	19.49	15.3
SBSA	2A	San Mateo	12/20/00	18.68	13.4
SBSA	2A	San Mateo	12/26/00	17.55	11
SBSA	2A	San Mateo	1/1/01	17.19	9.07
SBSA	2A	San Mateo	1/11/01	30.47	7.28
SBSA	2A	San Mateo	1/13/01	20.69	8.19
SBSA	2A	San Mateo	1/19/01	18.58	14.3
SBSA	2A	San Mateo	1/25/01	25.42	16
SFAirport-Municipal	2	San Mateo	1/3/00	0.89	69
SFAirport-Municipal	2	San Mateo	2/22/00	1.42	84
SFAirport-Municipal	2	San Mateo	4/10/00	0.83	35
SFAirport-Municipal	2	San Mateo	5/8/00	1.04	51
SFAirport-Municipal	2	San Mateo	6/5/00	0.87	24
SFAirport-Municipal	2	San Mateo	7/10/00	0.97	44.4
SFAirport-Municipal	2	San Mateo	8/7/00	1.08	17
SFAirport-Municipal	2	San Mateo	9/11/00	0.9	13
SFAirport-Municipal	2	San Mateo	11/13/00	0.79	26
SFAirport-Municipal	2	San Mateo	12/11/00	0.85	2
SJSC	2A	Santa Clara	1/20/00	127.5	5
SJSC	2A	Santa Clara	2/9/00	128.2	3
SJSC	2A	Santa Clara	3/22/00	131	3
SJSC	2A	Santa Clara	4/6/00	127.4	3
SJSC	2A	Santa Clara	5/2/00	126.9	2
SJSC	2A	Santa Clara	6/8/00	128	3
SJSC	2A	Santa Clara	7/19/00	118.1	2
SJSC	2A	Santa Clara	7/20/00	118.4	2
SJSC	2A	Santa Clara	8/17/00	116.6	2
SJSC	2A	Santa Clara	9/6/00	118.4	4
SJSC	2A	Santa Clara	9/7/00	118.3	3
SJSC	2A	Santa Clara	10/3/00	118.2	2
SJSC	2A	Santa Clara	10/4/00	119.1	2
SJSC	2A	Santa Clara	11/14/00	125	2
SJSC	2A	Santa Clara	11/15/00	123.6	2
SJSC	2A	Santa Clara	12/7/00	120.2	4
SJSC	2A	Santa Clara	1/17/01	120.3	2
Sonoma	2	Sonoma	1/1/00	3.174	4.38
Sonoma	2	Sonoma	1/10/00	3.066	5.02
Sonoma	2	Sonoma	1/18/00	5.785	5.37
Sonoma	2	Sonoma	1/24/00	5.785	5.24
Sonoma	2	Sonoma	1/31/00	5.111	5.8
Sonoma	2	Sonoma	2/7/00	4.213	7.44
Sonoma	2	Sonoma	2/14/00	10.789	11.7
Sonoma	2	Sonoma	2/22/00	8.108	8.65
Sonoma	2	Sonoma	2/28/00	9.086	4.66
Sonoma	2	Sonoma	3/6/00	6.791	6.01
Sonoma	2	Sonoma	3/13/00	5.423	6.5
Sonoma	2	Sonoma	3/20/00	4.584	3.55
Sonoma	2	Sonoma	3/27/00	3.608	4.58
Sonoma	2	Sonoma	4/3/00	3.011	5.72
Sonoma	2	Sonoma	4/10/00	3.449	4.67
Sonoma	2	Sonoma	4/17/00	7.658	5.75
Sonoma	2	Sonoma	4/24/00	3.469	4.04

Appendix A: Preliminary Verified Data Set

Discharger	Trtmnt	County	Date	Q, mgd	Hg, ng/L
Sonoma	2	Sonoma	5/1/00	3.295	5.22
Sonoma	2	Sonoma	5/8/00	3.858	4.39
Sonoma	2	Sonoma	5/15/00	4.604	3.95
Sonoma	2	Sonoma	12/4/00	2.786	5.33
Sonoma	2	Sonoma	12/11/00	3.365	3.04
Sonoma	2	Sonoma	12/18/00	3.157	4.7
Sonoma	2	Sonoma	12/26/00	2.724	4.36
SouthernMarin	2B	Marin	1/27/00	4.14	24.5
SouthernMarin	2B	Marin	3/16/00	3.22	35.7
SouthernMarin	2B	Marin	4/5/00	2.37	18.8
SouthernMarin	2B	Marin	5/2/00	2.64	25.2
SouthernMarin	2B	Marin	6/9/00	2.51	11
SouthernMarin	2B	Marin	7/13/00	2.41	19
SouthernMarin	2B	Marin	8/3/00	2.46	19
SouthernMarin	2B	Marin	9/6/00	2.4	16
SouthernMarin	2B	Marin	10/18/00	2.44	19
SouthernMarin	2B	Marin	11/5/00	2.85	17
SouthernMarin	2B	Marin	12/20/00	2.85	20
SouthernMarin	2B	Marin	1/3/01	2.52	24
SouthernMarin	2B	Marin	2/14/01	3.67	20
SSFSanBruno	2	San Mateo	1/1/00	8.31	27
SSFSanBruno	2	San Mateo	2/2/00	10.3	21
SSFSanBruno	2	San Mateo	3/7/00	13.01	28
SSFSanBruno	2	San Mateo	4/4/00	9.91	21
SSFSanBruno	2	San Mateo	5/2/00	9.94	23
SSFSanBruno	2	San Mateo	6/1/00	10.02	10
SSFSanBruno	2	San Mateo	7/6/00	10.12	16
SSFSanBruno	2	San Mateo	8/3/00	10.12	17
SSFSanBruno	2	San Mateo	9/6/00	10.07	23
SSFSanBruno	2	San Mateo	10/3/00	9.98	12
SSFSanBruno	2	San Mateo	11/3/00	10.13	15
SSFSanBruno	2	San Mateo	12/13/00	10.28	24.4
SSFSanBruno	2	San Mateo	1/10/01	17.56	26
SSFSanBruno	2	San Mateo	2/1/01	9.84	19
Vallejo	2	Solano	1/4/00	11.3	29.1
Vallejo	2	Solano	1/24/00	27.69	31.7
Vallejo	2	Solano	2/1/00	13.8	23.4
Vallejo	2	Solano	2/11/00	3.2	29.3
Vallejo	2	Solano	3/1/00	20.3	12.9
Vallejo	2	Solano	3/5/00	3.03	14.7
Vallejo	2	Solano	4/3/00	12.6	20.8
Vallejo	2	Solano	5/2/00	13.6	15
Vallejo	2	Solano	6/13/00	12.8	16
Vallejo	2	Solano	7/11/00	12	23
Vallejo	2	Solano	8/10/00	11.4	14
Vallejo	2	Solano	9/13/00	12.3	23
Vallejo	2	Solano	10/4/00	11.2	25
Vallejo	2	Solano	11/8/00	10.2	22
Sunnyvale	2A	Santa Clara	1/11/00	15.9	6
Sunnyvale	2A	Santa Clara	1/23/00	17.68	5
Sunnyvale	2A	Santa Clara	2/9/00	22.79	ND
Sunnyvale	2A	Santa Clara	2/24/00	23.26	ND
Sunnyvale	2A	Santa Clara	3/8/00	19.79	5
Sunnyvale	2A	Santa Clara	3/26/00	18.09	4
Sunnyvale	2A	Santa Clara	4/13/00	13.1	5
Sunnyvale	2A	Santa Clara	4/18/00	13.84	4
Sunnyvale	2A	Santa Clara	5/11/00	11.96	3
Sunnyvale	2A	Santa Clara	5/25/00	13.53	ND

**Appendix A: Preliminary Verified Data Set**

<b>Discharger</b>	<b>Trtmt</b>	<b>County</b>	<b>Date</b>	<b>Q, mgd</b>	<b>Hg, ng/L</b>
Sunnyvale	2A	Santa Clara	6/14/00	13.27	4
Sunnyvale	2A	Santa Clara	6/27/00	7.05	ND
Sunnyvale	2A	Santa Clara	7/18/00	15.74	ND
Sunnyvale	2A	Santa Clara	7/25/00	17.02	7
Sunnyvale	2A	Santa Clara	8/8/00	11.98	2
Sunnyvale	2A	Santa Clara	8/15/00	9.17	3
Sunnyvale	2A	Santa Clara	9/20/00	9.76	3
Sunnyvale	2A	Santa Clara	9/26/00	7.37	4
Sunnyvale	2A	Santa Clara	10/12/00	15.97	4
Sunnyvale	2A	Santa Clara	10/25/00	13.76	3
Sunnyvale	2A	Santa Clara	11/5/00	13.59	3
Sunnyvale	2A	Santa Clara	11/20/00	16.6	4
Sunnyvale	2A	Santa Clara	12/13/00	12.96	2
Sunnyvale	2A	Santa Clara	12/19/00	13.56	6

Appendix B: Final Verified Data Set

Appendix B: Final Verified Data Set

Discharger	Treatment	County	Date	Q, mgd	C_Ng/L
Benicia	2	Solano	1/10/00	2.7	30.6
Benicia	2	Solano	2/16/00	4.5	17.4
Benicia	2	Solano	4/4/00	3.3	15
Benicia	2	Solano	5/18/00	3.0	12
Benicia	2	Solano	6/13/00	3.3	17
Benicia	2	Solano	7/12/00	2.8	23
Benicia	2	Solano	8/8/00	2.6	19
Benicia	2	Solano	9/28/00	2.5	22
Benicia	2	Solano	10/18/00	2.8	19
Benicia	2	Solano	11/15/00	2.8	13
Benicia	2	Solano	12/14/00	3.4	11
Benicia	2	Solano	1/25/01	3.6	8
Burlingame	2	San Mateo	1/6/00	3.5	7.48
Burlingame	2	San Mateo	2/2/00	4.4	7.1
Burlingame	2	San Mateo	3/1/00	5.7	8.56
Burlingame	2	San Mateo	4/17/00	4.6	11.3
Burlingame	2	San Mateo	5/5/00	3.8	13.3
Burlingame	2	San Mateo	7/21/00	3.8	17
Burlingame	2	San Mateo	8/8/00	3.5	4.49
Burlingame	2	San Mateo	9/13/00	3.6	11.4
Burlingame	2	San Mateo	10/4/00	4.3	8.27
Burlingame	2	San Mateo	11/6/00	4.0	6.2
Burlingame	2	San Mateo	12/5/00	4.1	10
Burlingame	2	San Mateo	1/6/01	3.8	9.3
CCCSD	2	Contra Costa	1/5/00	39.7	19
CCCSD	2	Contra Costa	2/3/00	46.9	<16
CCCSD	2	Contra Costa	3/2/00	64.9	25
CCCSD	2	Contra Costa	4/5/00	47.6	17
CCCSD	2	Contra Costa	5/4/00	43.8	22
CCCSD	2	Contra Costa	6/12/00	41.3	28
CCCSD	2	Contra Costa	7/7/00	40.8	29
CCCSD	2	Contra Costa	8/3/00	41.1	29
CCCSD	2	Contra Costa	9/7/00	40.0	29
CCCSD	2	Contra Costa	10/4/00	39.4	39
CCCSD	2	Contra Costa	11/3/00	41.2	42
CCCSD	2	Contra Costa	12/6/00	39.7	22
CCCSD	2	Contra Costa	1/23/01	41.5	44
CCCSD	2	Contra Costa	2/8/01	40.2	30
CentralMarin	2	Marin	2/2/00	13.6	6.71
CentralMarin	2	Marin	3/8/00	23.5	14.1
CentralMarin	2	Marin	4/5/00	9.3	9.71
CentralMarin	2	Marin	5/3/00	8.7	8.34
CentralMarin	2	Marin	6/7/00	8.4	6.04
CentralMarin	2	Marin	7/6/00	8.3	4.47
CentralMarin	2	Marin	8/2/00	8.1	3.8
CentralMarin	2	Marin	9/6/00	7.9	4.2
CentralMarin	2	Marin	10/4/00	7.8	3.65
CentralMarin	2	Marin	11/8/00	8.2	12.2

## Appendix B: Final Verified Data Set

CentralMarin	2	Marin	12/6/00	8.3	9.31
CentralMarin	2	Marin	1/3/01	8.4	5.6
CentralMarin	2	Marin	2/7/01	9.5	5
DeltaDiablo	2	Contra Costa	1/4/00	13.2	10
DeltaDiablo	2	Contra Costa	6/6/00	13.9	8.6
DeltaDiablo	2	Contra Costa	6/19/00	13.1	11.6
DeltaDiablo	2	Contra Costa	8/1/00	14.1	12
DeltaDiablo	2	Contra Costa	9/13/00	13.8	<16.5
DeltaDiablo	2	Contra Costa	9/17/00	13.4	8.66
DeltaDiablo	2	Contra Costa	9/20/00	13.9	10.8
DeltaDiablo	2	Contra Costa	10/4/00	14.4	11
DeltaDiablo	2	Contra Costa	11/1/00	14.3	12.3
DeltaDiablo	2	Contra Costa	11/15/00	13.1	10.7
DeltaDiablo	2	Contra Costa	12/5/00	13.7	14.5
DeltaDiablo	2	Contra Costa	12/19/00	14.4	11
DeltaDiablo	2	Contra Costa	1/3/01	14.3	13
DeltaDiablo	2	Contra Costa	1/16/01	12.4	13
DeltaDiablo	2	Contra Costa	2/5/01	13.3	14
DeltaDiablo	2	Contra Costa	2/20/01	13.6	17
EBDA	2	Alameda	1/5/00	74.3	19.8
EBDA	2	Alameda	1/19/00	79.1	26.7
EBDA	2	Alameda	2/2/00	83.6	18.7
EBDA	2	Alameda	2/16/00	98.5	15
EBDA	2	Alameda	3/1/00	95.9	<13.8
EBDA	2	Alameda	3/15/00	89.8	9.1
EBDA	2	Alameda	4/5/00	73.2	18
EBDA	2	Alameda	4/19/00	78.5	10
EBDA	2	Alameda	5/3/00	70.6	14
EBDA	2	Alameda	5/17/00	75.5	10
EBDA	2	Alameda	6/7/00	71.0	12
EBDA	2	Alameda	6/21/00	74.7	11
EBDA	2	Alameda	7/5/00	66.5	10
EBDA	2	Alameda	7/19/00	71.9	13.2
EBDA	2	Alameda	8/2/00	73.4	15.8
EBDA	2	Alameda	8/16/00	68.7	11.2
EBDA	2	Alameda	9/5/00	70.5	11.4
EBDA	2	Alameda	10/4/00	70.3	13.6
EBDA	2	Alameda	11/1/00	85.9	11.8
EBDA	2	Alameda	12/6/00	74.3	21
EBMUD	2	Alameda	12/8/99	68.4	13.2
EBMUD	2	Alameda	12/21/99	63.7	13.7
EBMUD	2	Alameda	12/28/99	64.5	18
EBMUD	2	Alameda	1/9/00	63.2	<20
EBMUD	2	Alameda	1/13/00	66.6	<20
EBMUD	2	Alameda	1/19/00	80.9	<20
EBMUD	2	Alameda	1/26/00	95.1	31
EBMUD	2	Alameda	2/4/00	78.1	<20
EBMUD	2	Alameda	2/10/00	114.6	<20
EBMUD	2	Alameda	2/15/00	144.3	70
EBMUD	2	Alameda	2/24/00	130.5	31
EBMUD	2	Alameda	3/5/00	151.1	30
EBMUD	2	Alameda	3/9/00	148.9	30

## Appendix B: Final Verified Data Set

EBMUD	2	Alameda	3/15/00	81.3 <20	
EBMUD	2	Alameda	3/19/00	79.1 <20	
EBMUD	2	Alameda	3/29/00	72.1 <20	
EBMUD	2	Alameda	4/5/00	72.0 <20	
EBMUD	2	Alameda	4/12/00	82.0 <20	
EBMUD	2	Alameda	4/20/00	72.0	23
EBMUD	2	Alameda	4/27/00	70.0	20
EBMUD	2	Alameda	5/4/00	66.0	80
EBMUD	2	Alameda	5/10/00	76.0 <20	
EBMUD	2	Alameda	5/14/00	72.0 <20	
EBMUD	2	Alameda	5/24/00	69.0	26
EBMUD	2	Alameda	6/1/00	70.0 <20	
EBMUD	2	Alameda	6/8/00	70.0 <20	
EBMUD	2	Alameda	6/11/00	69.0 <20	
EBMUD	2	Alameda	6/21/00	68.0 <20	
EBMUD	2	Alameda	6/27/00	69.0 <20	
EBMUD	2	Alameda	7/6/00	69.0	15.8
EBMUD	2	Alameda	7/12/00	69.0	14
EBMUD	2	Alameda	7/20/00	67.0	9.35
EBMUD	2	Alameda	7/26/00	71.0	16.4
EBMUD	2	Alameda	8/3/00	68.0	9.16
EBMUD	2	Alameda	8/9/00	72.0	9.54
EBMUD	2	Alameda	8/13/00	64.0	13.5
EBMUD	2	Alameda	8/23/00	67.0	11.9
EBMUD	2	Alameda	8/24/00	68.0	10.8
EBMUD	2	Alameda	8/29/00	68.0	12.9
EBMUD	2	Alameda	9/6/00	63.0	20.3
EBMUD	2	Alameda	9/13/00	67.0	10.4
EBMUD	2	Alameda	9/20/00	65.0	9.55
EBMUD	2	Alameda	9/24/00	66.0	11
EBMUD	2	Alameda	10/5/00	64.0	18.3
EBMUD	2	Alameda	10/15/00	68.0	14.8
EBMUD	2	Alameda	10/19/00	65.0	18.5
EBMUD	2	Alameda	10/24/00	64.0	12
EBMUD	2	Alameda	11/2/00	69.0	12
EBMUD	2	Alameda	11/7/00	66.0	11
EBMUD	2	Alameda	11/17/00	68.0	13
EBMUD	2	Alameda	11/19/00	70.0	12
EBMUD	2	Alameda	11/29/00	81.0	16
EBMUD	2	Alameda	12/6/00	69.0	15
EBMUD	2	Alameda	12/13/00	82.0	12
EBMUD	2	Alameda	12/19/00	67.0	13
EBMUD	2	Alameda	12/28/00	69.0	11
EBMUD	2	Alameda	1/4/01	66.0	30
EBMUD	2	Alameda	1/9/01	72.0	13
EBMUD	2	Alameda	1/18/01	71.0	10
EBMUD	2	Alameda	1/24/01	75.0	14
EBMUD	2	Alameda	1/28/01	75.0	12
EBMUD	2	Alameda	2/4/01	72.0	15
EBMUD	2	Alameda	2/15/01	83.0	16
EBMUD	2	Alameda	2/23/01	134.0	46
EBMUD	2	Alameda	2/28/01	85.0	16

Appendix B: Final Verified Data Set

FairfieldSuisun	2A	Solano	2/9/00	16.4	6.91
FairfieldSuisun	2A	Solano	2/17/00	30.0	6.35
FairfieldSuisun	2A	Solano	3/8/00	24.6	3.25
FairfieldSuisun	2A	Solano	3/15/00	18.1	4.54
FairfieldSuisun	2A	Solano	4/4/00	16.2	6.6
FairfieldSuisun	2A	Solano	4/11/00	17.2	5.4
FairfieldSuisun	2A	Solano	5/11/00	16.4	3.6
FairfieldSuisun	2A	Solano	5/16/00	15.7	3.4
FairfieldSuisun	2A	Solano	6/14/00	13.6	3.6
FairfieldSuisun	2A	Solano	6/21/00	16.7	9.3
FairfieldSuisun	2A	Solano	7/5/00	12.7	3.5
FairfieldSuisun	2A	Solano	7/13/00	16.3	4.1
FairfieldSuisun	2A	Solano	8/3/00	12.8	5.3
FairfieldSuisun	2A	Solano	8/9/00	14.2	6.3
FairfieldSuisun	2A	Solano	9/6/00	13.1	3.2
FairfieldSuisun	2A	Solano	9/14/00	13.5	6.7
FairfieldSuisun	2A	Solano	11/9/00	10.4	3.4
FairfieldSuisun	2A	Solano	11/15/00	16.2	3.5
FairfieldSuisun	2A	Solano	12/9/00	13.9	4.4
FairfieldSuisun	2A	Solano	12/14/00	16.1	3.2
FairfieldSuisun	2A	Solano	1/3/01	14.7	4.8
FairfieldSuisun	2A	Solano	1/10/01	15.6	6.9
Millbrae	2	San Mateo	1/5/00	1.7	20.4
Millbrae	2	San Mateo	2/2/00	2.0	23.2
Millbrae	2	San Mateo	3/8/00	3.5	6.1
Millbrae	2	San Mateo	4/5/00	1.9	14.2
Millbrae	2	San Mateo	5/3/00	1.8	16.1
Millbrae	2	San Mateo	6/7/00	1.9	15.1
Millbrae	2	San Mateo	7/12/00	1.7	10
Millbrae	2	San Mateo	8/2/00	1.8	11
Millbrae	2	San Mateo	9/13/00	1.8	8.9
Millbrae	2	San Mateo	10/11/00	1.8	12
Millbrae	2	San Mateo	11/14/00	1.7	8.4
Millbrae	2	San Mateo	12/13/00	1.8	6.3
Millbrae	2	San Mateo	1/17/01	1.8	8.8
Millbrae	2	San Mateo	2/21/01	3.4	28
MVSD	2	Contra Costa	2/9/00	1.9	8
MVSD	2	Contra Costa	8/2/00	1.8	4.7
MVSD	2	Contra Costa	8/9/00	1.8	5.3
MVSD	2	Contra Costa	8/16/00	1.7	4.9
MVSD	2	Contra Costa	8/22/00	1.7	1.2
MVSD	2	Contra Costa	9/13/00	1.7	8.4
MVSD	2	Contra Costa	10/4/00	1.7	6.4
MVSD	2	Contra Costa	10/11/00	1.7	6.4
MVSD	2	Contra Costa	10/18/00	1.8	7.4
MVSD	2	Contra Costa	10/23/00	1.7	7.5
MVSD	2	Contra Costa	11/2/00	1.7	17
MVSD	2	Contra Costa	11/9/00	1.8	12
MVSD	2	Contra Costa	11/17/00	1.8	8
MVSD	2	Contra Costa	11/30/00	1.8	7
MVSD	2	Contra Costa	12/4/00	1.7	8.1
MVSD	2	Contra Costa	12/6/00	1.7	7

Appendix B: Final Verified Data Set

MVSD	2	Contra Costa	12/11/00	1.8	7.3
MVSD	2	Contra Costa	12/12/00	1.8	6.5
MVSD	2	Contra Costa	12/18/00	1.8	7.6
MVSD	2	Contra Costa	12/19/00	1.8	6.9
MVSD	2	Contra Costa	12/27/00	1.8	7.5
MVSD	2	Contra Costa	12/28/00	1.8	7.2
MVSD	2	Contra Costa	1/2/01	1.8	7.3
MVSD	2	Contra Costa	1/3/01	1.8	7.8
MVSD	2	Contra Costa	1/9/01	1.8	7.1
MVSD	2	Contra Costa	1/10/01	2.7	7
MVSD	2	Contra Costa	1/16/01	1.8	6.7
MVSD	2	Contra Costa	1/17/01	1.8	7.1
MVSD	2	Contra Costa	1/24/01	1.8	7.5
MVSD	2	Contra Costa	1/30/01	1.8	5.7
MVSD	2	Contra Costa	1/31/01	1.8	5.7
PaloAlto	2A	Santa Clara	1/12/00	25.9	4
PaloAlto	2A	Santa Clara	2/9/00	27.9	5.11
PaloAlto	2A	Santa Clara	3/8/00	39.3	2.85
PaloAlto	2A	Santa Clara	4/12/00	28.8	2.59
PaloAlto	2A	Santa Clara	5/10/00	27.3	2.61
PaloAlto	2A	Santa Clara	6/7/00	20.2	2.78
PaloAlto	2A	Santa Clara	7/12/00	26.4	4.1
PaloAlto	2A	Santa Clara	8/9/00	26.3	2.77
PaloAlto	2A	Santa Clara	9/13/00	27.4	4.84
PaloAlto	2A	Santa Clara	10/18/00	26.4	18.3
PaloAlto	2A	Santa Clara	11/15/00	26.5	8.52
PaloAlto	2A	Santa Clara	12/6/00	24.2	7.16
PaloAlto	2A	Santa Clara	1/9/01	25.7	4.76
PaloAlto	2A	Santa Clara	2/6/01	27.9	5.02
Petaluma	2A	Sonoma	1/1/00	-	6.54
Petaluma	2A	Sonoma	2/1/00	6.4	10.1
Petaluma	2A	Sonoma	3/1/00	8.6	10.1
Petaluma	2A	Sonoma	11/17/00	5.2	4.6
Petaluma	2A	Sonoma	1/12/01	8.8	6.1
PinoleHercules	2	Contra Costa	3/8/00	4.6	7.97
PinoleHercules	2	Contra Costa	6/7/00	2.1	8.4
PinoleHercules	2	Contra Costa	9/11/00	2.1	8.6
PinoleHercules	2	Contra Costa	12/11/00	2.5	7
Rodeo	2	Contra Costa	3/6/00	1.6	10.8
Rodeo	2	Contra Costa	6/5/00	0.9	5.4
Rodeo	2	Contra Costa	9/6/00	0.8	33
Rodeo	2	Contra Costa	12/5/00	0.7	5.7
SanFrancisco-Southeast	2	San Francisco	9/1/00	79.2	33
SanFrancisco-Southeast	2	San Francisco	9/3/00	60.4	29
SanFrancisco-Southeast	2	San Francisco	9/20/00	75.9	41
SanFrancisco-Southeast	2	San Francisco	9/28/00	64.1	25
SanFrancisco-Southeast	2	San Francisco	11/3/00	64.2	7
SanFrancisco-Southeast	2	San Francisco	11/9/00	66.8	17
SanFrancisco-Southeast	2	San Francisco	11/17/00	67.9	5
SanFrancisco-Southeast	2	San Francisco	11/21/00	97.4	11
SanFrancisco-Southeast	2	San Francisco	12/2/00	66.9	3
SanFrancisco-Southeast	2	San Francisco	12/16/00	68.4	4

## Appendix B: Final Verified Data Set

SanFrancisco-Southeast	2	San Francisco	12/23/00	67.5	7
SanFrancisco-Southeast	2	San Francisco	1/7/01	62.0	6
SanFrancisco-Southeast	2	San Francisco	1/14/01	62.9	9
SanFrancisco-Southeast	2	San Francisco	1/21/01	64.2	8
SanFrancisco-Southeast	2	San Francisco	2/5/01	64.1	6
SanFrancisco-Southeast	2	San Francisco	2/12/01	114.1	14
SanFrancisco-Southeast	2	San Francisco	2/26/01	84.8	15
SanMateo	2	San Mateo	1/4/00	11.2	68
SanMateo	2	San Mateo	2/8/00	13.0	26
SanMateo	2	San Mateo	3/7/00	20.5	14
SanMateo	2	San Mateo	4/2/00	14.2	15
SanMateo	2A	San Mateo	5/6/00	12.7	11
SanMateo	2A	San Mateo	6/6/00	12.2	9.5
SanMateo	2A	San Mateo	7/5/00	11.7	8.5
SanMateo	2A	San Mateo	8/7/00	11.7	11
SanMateo	2A	San Mateo	9/12/00	11.4	12.7
SanMateo	2	San Mateo	10/3/00	11.7	8.4
SanMateo	2	San Mateo	11/7/00	12.1	13.5
SanMateo	2	San Mateo	12/5/00	11.8	10.5
SanMateo	2	San Mateo	1/7/01	13.4	12
SanMateo	2	San Mateo	2/7/01	11.8	14
Sausilito	2	Marin	1/2/00	1.6	22.4
Sausilito	2	Marin	2/2/00	1.4	21
Sausilito	2	Marin	3/1/00	2.1	16.8
Sausilito	2	Marin	4/3/00	1.3	21.5
Sausilito	2	Marin	5/4/00	1.4	15.2
Sausilito	2	Marin	6/5/00	1.4	25.3
Sausilito	2	Marin	7/11/00	1.4	30
Sausilito	2	Marin	8/3/00	1.3	11.7
Sausilito	2	Marin	9/6/00	1.2	19.5
Sausilito	2	Marin	10/3/00	1.3	22.1
Sausilito	2	Marin	12/10/00	1.5	23.4
Sausilito	2	Marin	1/1/01	1.4	23.5
Sausilito	2	Marin	2/1/01	1.4	23.5
SFAirport-Municipal	2	San Mateo	1/3/00	0.9	69
SFAirport-Municipal	2	San Mateo	2/22/00	1.4	84
SFAirport-Municipal	2	San Mateo	4/10/00	0.8	35
SFAirport-Municipal	2	San Mateo	5/8/00	1.0	51
SFAirport-Municipal	2	San Mateo	6/5/00	0.9	24
SFAirport-Municipal	2	San Mateo	7/10/00	1.0	44.4
SFAirport-Municipal	2	San Mateo	8/7/00	1.1	17
SFAirport-Municipal	2	San Mateo	9/11/00	0.9	13
SFAirport-Municipal	2	San Mateo	11/13/00	0.8	26
SFAirport-Municipal	2	San Mateo	12/11/00	0.9	2
SJSC	2A	Santa Clara	1/20/00	127.5	5
SJSC	2A	Santa Clara	2/9/00	128.2	3
SJSC	2A	Santa Clara	3/22/00	131.0	3
SJSC	2A	Santa Clara	4/6/00	127.4	3
SJSC	2A	Santa Clara	5/2/00	126.9	2
SJSC	2A	Santa Clara	6/8/00	128.0	3
SJSC	2A	Santa Clara	7/19/00	118.1	2
SJSC	2A	Santa Clara	7/20/00	118.4	2

## Appendix B: Final Verified Data Set

SJSC	2A	Santa Clara	8/17/00	116.6	2
SJSC	2A	Santa Clara	9/6/00	118.4	4
SJSC	2A	Santa Clara	9/7/00	118.3	3
SJSC	2A	Santa Clara	10/3/00	118.2	2
SJSC	2A	Santa Clara	10/4/00	119.1	2
SJSC	2A	Santa Clara	11/14/00	125.0	2
SJSC	2A	Santa Clara	11/15/00	123.6	2
SJSC	2A	Santa Clara	12/7/00	120.2	4
SJSC	2A	Santa Clara	1/17/01	120.3	2
Sonoma	2	Sonoma	1/1/00	3.2	4.38
Sonoma	2	Sonoma	1/10/00	3.1	5.02
Sonoma	2	Sonoma	1/18/00	5.8	5.37
Sonoma	2	Sonoma	1/24/00	5.8	5.24
Sonoma	2	Sonoma	1/31/00	5.1	5.8
Sonoma	2	Sonoma	2/7/00	4.2	7.44
Sonoma	2	Sonoma	2/14/00	10.8	11.7
Sonoma	2	Sonoma	2/22/00	8.1	8.65
Sonoma	2	Sonoma	2/28/00	9.1	4.66
Sonoma	2	Sonoma	3/6/00	6.8	6.01
Sonoma	2	Sonoma	3/13/00	5.4	6.5
Sonoma	2	Sonoma	3/20/00	4.6	3.55
Sonoma	2	Sonoma	3/27/00	3.6	4.58
Sonoma	2	Sonoma	4/3/00	3.0	5.72
Sonoma	2	Sonoma	4/10/00	3.4	4.67
Sonoma	2	Sonoma	4/17/00	7.7	5.75
Sonoma	2	Sonoma	4/24/00	3.5	4.04
Sonoma	2	Sonoma	5/1/00	3.3	5.22
Sonoma	2	Sonoma	5/8/00	3.9	4.39
Sonoma	2	Sonoma	5/15/00	4.6	3.95
Sonoma	2	Sonoma	12/4/00	2.8	5.33
Sonoma	2	Sonoma	12/11/00	3.4	3.04
Sonoma	2	Sonoma	12/18/00	3.2	4.7
Sonoma	2	Sonoma	12/26/00	2.7	4.36
SouthernMarin	2	Marin	1/27/00	4.1	24.5
SouthernMarin	2	Marin	3/16/00	3.2	35.7
SouthernMarin	2	Marin	4/5/00	2.4	18.8
SouthernMarin	2	Marin	5/2/00	2.6	25.2
SouthernMarin	2	Marin	6/9/00	2.5	11
SouthernMarin	2	Marin	7/13/00	2.4	19
SouthernMarin	2	Marin	8/3/00	2.5	19
SouthernMarin	2	Marin	9/6/00	2.4	16
SouthernMarin	2	Marin	10/18/00	2.4	19
SouthernMarin	2	Marin	11/5/00	2.9	17
SouthernMarin	2	Marin	12/20/00	2.9	20
SouthernMarin	2	Marin	1/3/01	2.5	24
SouthernMarin	2	Marin	2/14/01	3.7	20
SSFSanBruno	2	San Mateo	1/1/00	8.3	27
SSFSanBruno	2	San Mateo	2/2/00	10.3	21
SSFSanBruno	2	San Mateo	3/7/00	13.0	28
SSFSanBruno	2	San Mateo	4/4/00	9.9	21
SSFSanBruno	2	San Mateo	5/2/00	9.9	23
SSFSanBruno	2	San Mateo	6/1/00	10.0	10

Appendix B: Final Verified Data Set

SSFSanBruno	2	San Mateo	7/6/00	10.1	16
SSFSanBruno	2	San Mateo	8/3/00	10.1	17
SSFSanBruno	2	San Mateo	9/6/00	10.1	23
SSFSanBruno	2	San Mateo	10/3/00	10.0	12
SSFSanBruno	2	San Mateo	11/3/00	10.1	15
SSFSanBruno	2	San Mateo	12/13/00	10.3	24.4
SSFSanBruno	2	San Mateo	1/10/01	17.6	26
SSFSanBruno	2	San Mateo	2/1/01	9.8	19
Sunnyvale	2A	Santa Clara	1/11/00	15.9	6
Sunnyvale	2A	Santa Clara	1/23/00	17.7	5
Sunnyvale	2A	Santa Clara	2/9/00	22.8 <4	
Sunnyvale	2A	Santa Clara	2/24/00	23.3 <3	
Sunnyvale	2A	Santa Clara	3/8/00	19.8	5
Sunnyvale	2A	Santa Clara	3/26/00	18.1	4
Sunnyvale	2A	Santa Clara	4/13/00	13.1	5
Sunnyvale	2A	Santa Clara	4/18/00	13.8	4
Sunnyvale	2A	Santa Clara	5/11/00	12.0	3
Sunnyvale	2A	Santa Clara	5/25/00	13.5 <2	
Sunnyvale	2A	Santa Clara	6/14/00	13.3	4
Sunnyvale	2A	Santa Clara	6/27/00	7.1 <2	
Sunnyvale	2A	Santa Clara	7/18/00	15.7 <3	
Sunnyvale	2A	Santa Clara	7/25/00	17.0	7
Sunnyvale	2A	Santa Clara	8/8/00	12.0	2
Sunnyvale	2A	Santa Clara	8/15/00	9.2	3
Sunnyvale	2A	Santa Clara	9/20/00	9.8	3
Sunnyvale	2A	Santa Clara	9/26/00	7.4	4
Sunnyvale	2A	Santa Clara	10/12/00	16.0	4
Sunnyvale	2A	Santa Clara	10/25/00	13.8	3
Sunnyvale	2A	Santa Clara	11/5/00	13.6	3
Sunnyvale	2A	Santa Clara	11/20/00	16.6	4
Sunnyvale	2A	Santa Clara	12/13/00	13.0	2
Sunnyvale	2A	Santa Clara	12/19/00	13.6	6
Vallejo	2	Solano	1/4/00	11.3	29.1
Vallejo	2	Solano	1/24/00	27.7	31.7
Vallejo	2	Solano	2/1/00	13.8	23.4
Vallejo	2	Solano	2/11/00	3.2	29.3
Vallejo	2	Solano	3/1/00	20.3	12.9
Vallejo	2	Solano	3/5/00	3.0	14.7
Vallejo	2	Solano	4/3/00	12.6	20.8
Vallejo	2	Solano	5/2/00	13.6	15
Vallejo	2	Solano	6/13/00	12.8	16
Vallejo	2	Solano	7/11/00	12.0	23
Vallejo	2	Solano	8/10/00	11.4	14
Vallejo	2	Solano	9/13/00	12.3	23
Vallejo	2	Solano	10/4/00	11.2	25
Vallejo	2	Solano	11/8/00	10.2	22



# California Regional Water Quality Control Board

## San Francisco Bay Region



Winston H. Hickox  
Secretary for  
Environmental  
Protection

Internet Address: <http://www.swrcb.ca.gov>  
1515 Clay Street, Suite 1400, Oakland, California 94612  
Phone (510) 622-2300 • FAX (510) 622-2460

Gray Davis  
Governor

Date: JUL 05 2001  
File No. 2179.7035 (JN)

Certified Mail No. 70993220000146714263

Ms. Kacey Karmendy  
Laboratory Supervisor  
City of San Mateo  
Wastewater Treatment Plant  
2050 Detroit Drive  
San Mateo, CA 94404-1002

Dear Ms. Karmendy:

The Regional Board adopted Order No. 01-071 at its regular monthly meeting on Wednesday June 20, 2001. I have enclosed the adopted order which reissues the NPDES permit for the City of San Mateo Wastewater Treatment Plant.

One change from the permit Tentative Order that was adopted, and the attached copy is the sampling requirement for turbidity. The attached final permit requires 24-hour composite turbidity sampling as opposed to grab sampling.

Should you have any questions or comments regarding this matter, please contact Mr. James Nusrala of my staff at (510) 622-2320, or email him at [jn@rb2.swrcb.ca.gov](mailto:jn@rb2.swrcb.ca.gov).

Sincerely

Loretta K. Barsamian  
Executive Officer

Enclosure