CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

NPDES PERMIT NO. CA0038628

ORDER NO. 01-105

WASTE DISCHARGE REQUIREMENTS FOR:

CENTRAL MARIN SANITATION AGENCY
SAN RAFAEL SANITATION DISTRICT
SANITARY DISTRICT NO. 1 OF MARIN COUNTY
SANITARY DISTRICT NO. 2 OF MARIN COUNTY
CITY OF LARKSPUR
IN MARIN COUNTY

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

1. *Discharger and Permit Application.* The Central Marin Sanitation Agency (hereinafter called the discharger), has applied to the Board for reissuance of waste discharge requirements and a permit to discharge treated wastewater to waters of the State and the United States under the National Pollutant Discharge Elimination System (NPDES).

2. *Discharge Facility.* The discharger owns and operates a wastewater treatment plant, located at 1301 Andersen Drive, San Rafael, Marin County, California. The plant provides secondary level treatment for domestic wastewater from its four member agencies: San Rafael Sanitation District, Sanitary Districts N and 2 of Marin County, and the City of Larkspur. The discharger also transports and treats sewage from other sewerage agencies pursuant to separate agreements with member agencies. The four other sewera agencies are: City of San Rafael, Murray Park Sewer Maintenance District, San Quentin Sewer Mainte District, and California Department of Corrections (San Quentin Prison). The treatment plant has a de capacity of 10.0 million gallons per day (mgd) average dry weather flow. The plant was designed to p secondary treatment for flows up to 30 mgd, primary treatment for flows up to 90 mgd, and has a hy capacity of 125 mgd. The plant presently discharges an average dry weather flow of 8.0 mgd, and ar average effluent flow of 11.1 mgd (based on 2000 data). A location map of the discharger's faciliti included as Attachment A of this Order.

3. *Discharges.* Treated wastewater is currently discharged 8,000 ft. offshore at depth between 12 fe feet below MLLW into San Francisco Bay (Central Bay) through a submerged diffuser (Latitude Longitude 122E 27' 23"). The effluent receives an initial dilution of at least 10:1 at all times; an by the Board as a deepwater discharge.

4. This discharge is presently regulated by Waste Discharge Requirements in Order No. 96-034, Board on March 20, 1996.

5. The U.S. Environmental Protection Agency (USEPA) and the Board have classified this dis discharge.

COLLECTION SYSTEM AND TREATMENT PROCESS DESCRIPTION

6. *Collection System and Pump Stations*. The discharger's wastewater collection system consists of force mains, gravity lines and pump stations, as described below.
    a. *Force Mains*. The discharger owns and operates approximately 3,784 feet of force mains. Maintenance includes cathodic protection surveys.
    b. *Gravity Lines*. The discharger does not own or operate any gravity sewer systems with the exception of a few hundred feet of gravity sewers which serve the discharger's administration and maintenance facilities at the wastewater treatment plant site in San Rafael.
    c. *Pump Stations*. The discharger does not own any pump stations. All collection system and force main pump stations are owned by the discharger's member agencies. The discharger operates and maintains pumps stations for one member agency, Sanitary District No. 2 of Marin County. The discharger also operates pump stations for the Town of Belvedere which sends its flows to another wastewater treatment facility not owned or operated by the discharger. Maintenance is scheduled by the discharger's computerized maintenance management system. Pump Station upgrades are controlled by the owners, not the discharger.

7. *Satellite Collection Systems*. The discharger owns and operates the collection system described in Finding 6. Additionally, wastewater is conveyed to the discharger's system from six satellite collection systems, which include San Rafael Sanitation District, Sanitary District No.1 of Marin County, Sanitary District No.2 of Marin County, and City of Larkspur. Each of the satellite systems is operated independently from the discharger and collects wastewater from their respective service areas. The satellite systems each convey wastewater to a discrete location into the discharger's collection system. Each satellite collection system is responsible for an ongoing program of maintenance and capital improvements for sewer lines and pump stations within their respective jurisdiction in order to ensure adequate capacity and reliability of the collection system.

8. *Roles and Responsibilities of Satellite Collection Systems*. Each satellite collection system is responsible for ensuring their wastewater does not adversely impact the discharger's treatment plant and/or collection system. Their responsibilities include managing overflows, controlling Infiltration and Inflow (I&I) and implementing collection system maintenance.

9. *Infiltration/Inflow Correction and Collection System Improvement Programs*. The discharger does not maintain or make improvements to the collection systems which are owned by member agencies. Member agencies have been and are currently spending between 1.8 to 2.3 million dollars per year on gravity system replacement and improvements.

10. *Treatment Process*. Prior to discharge to San Francisco Bay, raw sewage passes through comminuters at remote pump stations and is pumped through force mains to the plant. Influent is metered and passes through bar screens and grit removal prior to primary treatment using clarifiers. During high wet weather flows, a portion of primary effluent is routed around biological treatment to the disinfection facility, providing for blending of primary and secondary effluent during wet weather periods when the secondary capacity is exceeded. Flows processed through biological units are treated by high-rate trickling filters followed by conventional activated sludge and secondary clarification. The combined flows are chlorinated and dechlorinated. The dechlorinated flow is discharged through a submarine outfall. A treatment process schematic diagram is included as Attachment B of this Order.

11. *Solids Handling and Disposal*. Wastewater solids are digested in an anaerobic digester, centrifuged and currently disposed of at the Redwood Sanitary Landfill in wet weather, and land-applied to the Lakeville site in Sonoma County in dry weather. Grit is hauled to Marin Sanitary Transfer Station and disposed of at the same landfill. The discharger currently generates about 1,800 dry tons of biosolids per year.

STORM WATER

12. *Treatment Plant Storm Water Discharges.*
    a. *Regulations.* Federal Regulations for storm water discharges were promulgated by the USEPA on November 19, 1990. The regulations [40 CFR Parts 122, 123, and 124] require specific categories of industrial activity (industrial storm water) to obtain a NPDES permit and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to control pollutants in industrial storm water discharges.

    b. *Permit.* The discharger is permitted to discharge storm water in accordance with "State Water Resources Control Board Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001, Wastewater Discharge Requirements for discharges of storm water associated with industrial activities". The discharger identification number is WDID 2 21S000810.

REGIONAL MONITORING PROGRAM

13. On April 15, 1992, the Board adopted Resolution No. 92-043 directing the Executive Officer to implement the Regional Monitoring Program (RMP) for the San Francisco Bay. Subsequent to a public hearing and various meetings, Board staff requested major permit holders in this region, under authority of section 13267 of California Water Code, to report on the water quality of the estuary. These permit holders, including the Discharger, responded to this request by participating in a collaborative effort, implemented by the San Francisco Estuary Institute (formerly the Aquatic Habitat Institute). This effort has come to be known as the San Francisco Bay Regional Monitoring Program for Trace Substances. This Order specifies that the Discharger shall continue to participate in the RMP, which involves collection of data on pollutants and toxicity in water, sediment and biota of the estuary. Annual reports from the RMP are referenced elsewhere in this Order.

APPLICABLE PLANS, POLICIES AND REGULATIONS

14. *Basin Plan.* The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin on June 21, 1995 (Basin Plan). This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board (SWRCB) 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. The Basin Plan identifies beneficial uses for waters of the state in the Region, including surface waters and ground waters. The Basin Plan also identifies water quality objectives, discharge prohibitions and effluent limitations intended to protect beneficial uses. This Order implements the plans, policies and provisions of the Board's Basin Plan.

15. State Implementation Plan (SIP) and California Toxics Rule (CTR). The State Water Resources Control Board (SWRCB) and the Office of Administrative Law (OAL) adopted on March 2, 2000 and April 28, 2000, respectively, the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (or State Implementation Policy – SIP). This policy establishes implementation provisions for priority pollutant criteria promulgated by the USEPA through the National Toxics Rule (NTR) and through the California Toxics Rule (CTR), and for priority pollutant objectives established by the Regional Water Quality Control Boards (RWQCBs) in their water quality control plans (basin plans). The policy also establishes monitoring requirements for 2,3,7,8-TCDD equivalents and chronic toxicity control provisions.

16. *Beneficial Uses.* Beneficial uses for the Central 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

17. Effluent limitations in this permit are based on the SIP, the plans, policies and water quality objectives and criteria of the Basin Plan; California Toxics Rule (Federal Register, Volume 65, No 97) *Quality Criteria for Water* (EPA 440/5-86-001, 1986 and subsequent amendments, "USEPA Gold Book"), applicable Federal Regulations (40 CFR Parts 122 and 131), the National Toxics Rule (57 FR 60848, 22 December 1992 and 40 CFR Part 131.36(b), "NTR"), NTR Amendment (Federal Register Volume 60, Number 86, 4 May 1995, pages 22229-22237), and Best Professional Judgment (BPJ) as defined in the Basin Plan. Where numeric effluent limitations have not been established in the Basin Plan, CTR or NTR, 40 CFR 122.44(d) specifies that water quality based effluent limits may be set based on USEPA criteria and supplemented where necessary by other relevant information to attain and maintain narrative water quality criteria to fully protect designated beneficial uses. Discussion of the specific bases and rationale for effluent limits are given in the associated Fact Sheet for this Permit, which is incorporated as part of this Order.

REQUIREMENT FOR MONITORING OF POLLUTANTS IN EFFLUENT AND RECEIVING WATER TO IMPLEMENT NEW STATEWIDE REGULATIONS

18. *Insufficient effluent and ambient background data.* Staff's review of the effluent and ambient background monitoring data found that were insufficient data to determine reasonable potential and calculate numeric WQBELs for some pollutants listed in the SIP.

19. *SIP- Required 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 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.

20. On August 6, 2001, the Regional Board sent a letter to all the permitted Dischargers pursuant to Section 13267 of the California Water Code requiring the submittal of effluent and receiving water data on priority pollutants. This formal request for technical information addresses the insufficient effluent and ambient background data and the dioxin study. The sample plan is due October 1, 2001. An interim report presenting the data is due May 18, 2003, with the final report due 180 days prior to expiration of the permit.

21. The letter (described above) is referenced throughout the permit as the "August 6, 2001 Letter".

BASIS FOR EFFLUENT LIMITATIONS

22. Effluent limitations and toxic effluent standards are established pursuant to sections 301 through 305, and 307 of the Federal Water Pollution Control Act and amendments thereto are applicable to the discharges herein.

23. *Applicable Water Quality Objectives.* The Basin Plan includes numeric WQOs as well as a narrative WQO for toxicity in order 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 Basin Plan directs that prior to formal adoption or promulgation of applicable WQOs, BPJ will be used in deriving numerical effluent limitations that will ensure attainment of narrative WQOs. Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information. The CTR includes a comprehensive list of numeric WQOs for inorganics and organics. The CTR numeric WQOs will apply to the discharge except when there are applicable Basin Plan WQOs.

24. *Receiving Water Salinity.* The receiving waters for the discharges regulated by this Order are the waters of Central San Francisco Bay. The receiving waters for the subject discharges are tidally influenced salt waters, with significant fresh water inflows during the wet weather season. The CTR states that the salinity characteristics (i.e., fresh water vs. marine water) of the receiving water shall be considered in establishing water quality objectives. Freshwater effluent limitations shall apply to discharges to waters with salinities lower than 1 part per thousand (ppt) at least 95 percent of the time. Marine (saltwater) effluent limitations shall apply to 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 in between these two categories, or to tidally-influenced fresh waters that support estuarine beneficial uses, effluent limitations shall be the lower of the marine or freshwater effluent limitation, based on ambient hardness, for each substance. Salinity data indicate that the receiving waters of subject discharge are marine by the CTR's definition. Previous permit limits were based on marine (saltwater) standards. Therefore, this Order's effluent limitations are based on the marine water quality objectives (WQOs).

25. *Effluent Data for Inorganics.* Effluent data, from June 1998 through May 2001,was utilized in determining the Maximum Effluent Concentration (MEC) for the reasonable potential analysis, and the coefficient of variation (CV) for the calculation of final effluent limits. The inorganics evaluated include Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Selenium, Silver, Zinc and Cyanide.

26. *Receiving Water Ambient Background for Inorganics (CTR Constituent Numbers 1-15).* Ambient background values are utilized in the reasonable potential analysis and in the calculation of effluent limitations. As stated in the SIP, ambient background concentration shall be the observed maximum ambient water column concentration or the arithmetic mean of observed ambient water concentrations*. In setting the ambient background concentrations, it was determined the Richardson Bay and Yerba Buena Island stations as established by the RMP are most representative of ambient background conditions within the Central San Francisco Bay. Using the RMP data set, from 1992 through 1998, the following ambient background concentrations were utilized in the RPA and calculation of effluent limitations.

Ambient Background Concentrations (ug/L)

	Silver	Arsenic	Cadmium	Chromium	Copper	Mercury	Nickel	Lead	Selenium	Zinc	Cyanide
Arithmetic Mean	0.01	1.86	0.06	1.44	1.78	0.003	2.10	0.29	0.12	2.37	<1
Max Observed	0.07	2.22	0.13	4.4	2.45	0.006	3.5	0.8	0.19	4.6	<1

* Arithmetic Mean used when calculating effluent limitations based on human health WQO.

However, not all the constituents listed in the CTR (Constituent Numbers 1-14) are analyzed by the RMP, which creates a data gap in determining the ambient background values for those constituents. The August 6, 2001 letter requires the discharger to determine ambient background for those constituents. Upon completion of the required ambient background monitoring, the Board shall use the gathered data to conduct the RPA and determine if a water-quality based effluent limitation is required.

27. *Effluent Data for Organics.* Because there is insufficient effluent monitoring data for organics, the RPA and calculation of final effluent limitations were limited. The only constituents monitored were total PAHs and total Phenols from June 1998 through May 2001. According to the SIP, an RPA should be conducted on individual PAHs and individual Phenols, not totals. The August 6, 2001 letter requires effluent monitoring of all organics prescribed in the SIP to complete the RPA.

28. *Receiving Water Ambient Background for Organics (CTR Constituent Numbers 16-126).* Ambient background values are utilized in the reasonable potential analysis and in the calculation of effluent limitations. As stated in the SIP, ambient background concentration shall be the observed maximum ambient water column concentration or the arithmetic mean of observed ambient water concentrations*. In setting the ambient background concentrations, it was determined the Richardson Bay and Yerba Buena Island stations are most representative of ambient background conditions within the Central San Francisco Bay, The RMP station at Yerba Buena Island located in the Central Bay has been sampled since 1993 for organics. Using the RMP data set, from 1993 through 1998, for all the CTR Constituent Numbers 16-126, ambient background concentrations were utilized in the RPA.

    However, not all the constituents listed in the CTR (Constituent Numbers 16-126) are analyzed by the RMP which creates a data gap in determining the ambient background values for those constituents. The August 6, 2001 letter requires the discharger to determine ambient background for those constituents. Upon completion of the required ambient background monitoring, the Board shall use the gathered data to conduct the RPA and determine if a water-quality based effluent limitation is required.

29. *Technology Based Effluent Limits.* Permit effluent limits for conventional pollutants are technology based. Limits in this permit are the same as in the prior permit for the following constituents: Carbonaceous Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), settleable matter, and chlorine residual. Technology-based effluent limitations are put in place to ensure that full secondary treatment is achieved by the wastewater treatment facility. Federal regulations allow the parameter BOD to be substituted with the parameter Carbonaceous BOD (CBOD).

30. *Water Quality Based Effluent Limitations.* The water quality based effluent limits in this Order are revised and updated from the limits in the previous permit based on the evaluation of the discharger's data as described below under the Reasonable Potential Analysis. The limits included in this Order are water quality based effluent limitations (WQBELs) derived in accordance with the water quality criteria listed in Basin Plan Tables 3-3 and 3-4, the NTR, the CTR and/or BPJ. WQBELs are developed using the methodology outlined in the SIP. Finally the WQBELs derived from the SIP are compared with the previous permit limits and the more stringent is the final WQBEL. Further details about the effluent limitations are given in the associated Fact Sheet for this Permit.

Constituents Identified in the 303(d)-List

31. On May 12, 1999, the USEPA approved the State's list of impaired waterbodies and added dioxins, furans, and dioxin-like polychlorinated biphenols (PCBs) to the State's list. The list (hereinafter referred to as the 303(d) 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. Central San Francisco Bay is listed as an impaired

water body. The pollutants impairing the Central San Francisco Bay include copper, mercury, selenium, exotic species, PCBs total, dioxin and furan compounds, chlordane, DDT, Dieldrin, Diazinon, and dioxin-like PCBs.

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

32. Based on the 303(d) list of pollutants impairing Central San Francisco Bay, the Board plans to adopt Total Maximum Daily Loads (TMDLs) for these pollutants no later than 2010 that will include waste load allocations (WLAs), with the exception of dioxin and furan compounds. The Board defers development of the TMDL for dioxins and furans to the US EPA. However, future review of the 303(d) list for the Central San Francisco Bay may result in revision of the schedules and/or provide schedules for other pollutants and/or remove schedules for delisted pollutants.

33. TMDLs will establish waste load allocations (WLAs) and load allocations for point sources and non-point sources, respectively, and will result in achieving the water quality standards for 303 (d)-listed pollutants for the waterbody. Final effluent limitations for 303(d)-listed pollutants for this discharge will be based on WLAs that are contained in the TMDLs, if the constituent is not delisted before a TMDL is prepared.

34. The following summarizes the Board's strategy to collect water quality data and to develop TMDLs:
    a. Data collection – The Board will request dischargers collectively assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or water quality objectives. The Board will require dischargers to characterize the pollutant loads from their facilities into the water-quality limited waterbodies. The effluent and ambient monitoring results will be used in the development of TMDLs, but may also be used to update/revise the 303(d) list and/or change the water quality objectives for the impaired waterbodies including San Francisco Bay.

    b. Funding mechanism – The 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 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 may be for the discharger to enter into agreement with the Board staff to provide specific work products to complete TMDLs.

Interim Limits and Compliance Schedule

35. a In the interim, until final WQBELs or WLAs are adopted, state and federal antibacksliding and antidegradation policies and the SIP require that the Board include interim effluent limits to maintain the existing water quality. The interim effluent limits will be the lower of the following:
    a. current performance; or
    b. the previous order's limits

    In addition to interim concentration limits, interim performance-based mass limits are established to limit discharge of 303(d)-listed bioaccumulative pollutants' mass loads to their current levels. These interim mass limits are based on recent discharge data. Where pollutants have existing high detection limits (such as for PCBs , Chlordane, DDT, Dieldrin, Dioxins and Furans, etc.), interim mass limits are not established because meaningful performance-based limits cannot be calculated for those pollutants with non-detectable concentrations. However, the discharger has the option to investigate alternative

analytical procedures that result in lower detection limits. This may occur either through participation in new RMP special studies or through equivalent studies conducted jointly with other dischargers.

b. If an existing discharger cannot immediately comply with a new 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 July 3, 2001, the discharger submitted an infeasibility 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 calculated WQBELs for mercury. Therefore, this permit establishes a compliance schedule of May 18, 2010 for the final limits based on the Basin Plan objectives (e.g., mercury). The May 18, 2010 compliance schedule exceeds the length of the permit, therefore, the 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 WQBEL for mercury will very likely be based on the TMDL/WLA as described in other findings specific to mercury.

d. Pursuant to SIP (Section 2.2.2, Interim Requirements for Providing Data), in the case where available data are insufficient (e.g., cyanide), a data collection period until May 18, 2003 is established. This Order contains a provision requiring the Discharger to participate in a regional discharger-funded effort to conduct a study for data collection. The Discharger is required to fully participate in the study, which will include a submission of a final report to the Board by May 18, 2003. The Board intends to include, in a subsequent permit revision, a 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 final limit, the permit revision will establish a maximum five-year compliance schedule.

During the data collection period, interim limits and requirements are included. The Board may take appropriate enforcement actions if interim limits and requirements are not met.

Reasonable Potential Analysis

36. As specified in 40 CFR 122.44(d) (1) (i), permits are required to include WQBELs for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard." Using the method described in the SIP, Board staff has analyzed the effluent data to determine if the discharges, which are the subject of this Permit and Order, have a reasonable potential to cause or contribute to an excursion above a State water quality standard ("Reasonable Potential Analysis" or "RPA").

   a. *Reasonable Potential Determination.* The RPA compares the effluent data with numeric WQOs in the Basin Plan, CTR and NTR and numeric WQOs translated from narrative WQO in the Basin Plan. The RPA involves identifying the observed maximum effluent concentration (MEC) for each constituent based on effluent concentration data. There are three triggers in determining reasonable potential.

i. First trigger, the MEC is compared 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 there is reasonable potential for that constituent to cause or contribute to an excursion above the WQO and a water –quality based effluent limitation (WQBEL) is required. (Is the MEC>WQO?)

ii. The second trigger is activated, if the MEC is less than the adjusted WQO, or if a 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 second trigger is the observed maximum ambient concentration (B) for the pollutant compared with the adjusted WQO. If B is greater than the adjusted WQO, then a WQBEL is required. (Is B>WQO?)

iii. The third trigger is the review of other information to determine if a WQBEL is required, then a limit is only required under certain circumstances to protect beneficial uses.

b. *RPA Data.*

(i) Effluent Monitoring Data: The RPA was based on effluent monitoring data from June 1998 through May 2001. Review of the data found that the following constituents have been observed in the discharged effluent at concentrations greater than respective analytical detection limits: arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc. The RPA was conducted for these inorganic constituents.

For organics, in general there was insufficient effluent monitoring data to determine reasonable potential, as a letter was sent out on August 6, 2001 to expand the analytical list for effluent monitoring to include organics.

(ii.)Receiving Water Data: For constituents where there was available information, ambient background concentrations were determined by using RMP data from 1992-1998 for inorganics and organics collected from Central Bay Stations at Yerba Buena Island and Richardson Bay.

c. *Summary of Reasonable Potential Analysis (RPA) Determinations for inorganics and Phenols.* The WQOs, MECs, Ambient Background (B) and reasonable potential conclusions from the RPA are listed in the following table for each constituent analyzed.

Constituent	WQO (µg/L)	MEC (µg/L)	B	RP
Arsenic	36	1.9	2.22	No
Cadmium	9.3	0.6	0.13	No
Chromium	50	2.3	4.4	No
Copper	3.7	6.9	2.45	Yes
Lead	5.6	2.7	0.8	No
Mercury	0.025	0.09	0.006	Yes
Nickel	7.1	11.0	3.5	Yes
Selenium	5.0	1.7	0.19	No
Silver	2.3	1.3	0.068	No
Zinc	58	82.0	4.6	Yes
Cyanide	1	16.0	<1	Yes

** NA= *Not Available*: Background concentration is not available.

d. *Phenols.* This Order implements the policy and regulations of the CTR and SIP in regard to phenolic compounds. The previous permit contained an effluent limit for total phenols of 500 ug/l, based on a technology based effluent limit established in the Basin Plan. The CTR specifies criteria for individual phenolic compounds which are a subset of total phenols. The previous total phenols limit may be more restrictive for several phenolic compounds (e.g. phenol, and 2,4-dimethylphenol) than the water quality based limits calculated from the SIP owing to their high CTR criteria. However, for most of the phenolic compounds in the CTR, the water quality based limits would be more restrictive. Retaining limits for both total and individual phenolics would potentially limit and count the same pollutant twice. Therefore, this Order follows the requirements of the CTR and SIP in lieu

of the Basin Plan technology limit because 1) the water quality considerations of the CTR and SIP are generally more restrictive, and 2) the low historic concentrations of total phenols in the discharge. At this time, there is no effluent data from the Discharger upon which to conduct a RPA for specific phenolic compounds. The August 6, 2001 letter requires the Discharger to collect the necessary data. Furthermore, in this Order is a permit re-opener to establish limits if new data show that there is a reasonable potential and limits are necessary.

e. Summary of Reasonable Potential Analysis (RPA) Determinations for organics

First RPA Trigger (MEC > WQO): As stated in (b) , there is insufficient effluent monitoring data for organics, so the comparison of WQO to MEC cannot be performed for all constituents. ***Second RPA Trigger (B > WQO):*** There are ambient background concentrations (B) for 23 organic constituents available from the RMP (Central Bay Station at Yerba Buena Island (1993-1998)). ***Third trigger:*** The third trigger is the review of other information to determine if a WQBEL is required, then a limit is only required under certain circumstances to protect beneficial uses.

This comparison was performed and the RP conclusions from the RPA are in the following table:

CTR Number	Constituent	WQO (µg/L)	MEC (µg/L)	B	RP
56	Acenaphthene	2700	NA	0.0015	I
58	Anthracene	110000	NA	0.0005	I
60	Benzo(a)Anthracene	0.049	NA	0.0053	I
61	Benzo(a)Pyrene	0.049	NA	0.0025	I
62	Benzo(b)Fluoranthene	0.049	NA	0.0046	I
64	Benzo(k)Fluoranthene	0.049	NA	0.0015	I
73	Chrysene	0.049	NA	0.0041	I
74	Dibenzo(a,h)Anthracene	0.049	NA	0.0006	I
86	Fluoranthene	370	NA	0.007	I
87	Fluorene	14000	NA	0.002078	I
92	Indeno(1,2,3-cd) Pyrene	0.049	NA	0.004	I
100	Pyrene	11000	NA	0.0051	I
107	Chlordane	0.00059	NA	0.00018	I
108	4,4-DDT	0.00059	NA	0.000066	I
109	**4,4-DDE**	**0.00059**	**NA**	**0.00069**	**Yes,(a)**
110	4,4-DDD	0.00084	NA	0.000313	I
111	**Dieldrin**	**0.00014**	**NA**	**0.000264**	**Yes,(a)**
112	alpha-Endosulfan	0.0087	NA	0.000031	I
113	beta-Endosulfan	0.0087	NA	0.000069	I
114	Endosulfan Sulfate	240	NA	0.000011	I
115	Endrin	0.0023	NA	0.000016	I
117	Heptachlor	0.00021	NA	0.000019	I
118	Heptchlor Epoxide	0.00011	NA	0.000094	I

* WQO based on the numeric WQO for protection of human health through consumption of organisms only.

** NA = Effluent monitoring data not available

*** I = Incomplete pending effluent characterization

(a) No effluent concentration data exist to calculate a WQBEL using Section 1.4 of the SIP. Effluent characterization study required.

f. *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 annual sampling from 1998 to 2000. All of the concentrations were reported as non-detected with detection limits higher

that the WQO's. Background concentrations were all below the WQOs. Based on the SIP, there is insufficient data to determine reasonable potential. The August 6, 2001 letter, requires the discharger to characterize the effluent for individual PAH constituents 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.

g. *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 but continued monitoring is required as identified in the August 6, 2001 letter. 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 pose a threat to water quality.

h. *Permit Reopener.* The permit includes a reopener provision to allow numeric effluent limits to be added or deleted for any constituent that in the future exhibits or does not exhibit, respectively, 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.

Feasibility to Comply with Water Quality-Based Effluent Limits (WQBELs)

37. For pollutants with reasonable potential, WQBELs were calculated using the methodology set forth in Section 1.4 of the SIP, Calculation of Effluent Limitations. Certain working assumptions were made before preceding with the WQBEL calculation:

- Background (B): The maximum or average background value, as appropriate, from the Regional Monitoring Program (RMP) Central Bay Stations, Yerba Buena Island and Richardson Bay. The RMP data set includes information gathered from 1992-1998.
- Coefficient of Variation (CV): CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values. When calculating the CV, if an effluent data point is below the detection limit, one-half of the detection limit is used as the value in the calculation. The three most recent years of effluent data (June 1998- May 2001) is used to calculate the CV.
- In response to the State Board's recommendation (SB Order # WQ 2001-06), staff has evaluated the assimilative capacity of the receiving water for 303(d) listed pollutants. 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 representiveness of the appropriate ambient background data to conclusively quantify the assimilative capacity of the receiving water. However in calculating the WQBEL for pollutants with reasonable potential, certain working assumptions on dilution credit were made as follows:

  Dilution (D):

  - 10:1 dilution is given to non-bioaccumulative constituents, such as Cu, and Ni
  - 10:1 dilution is not given to 303(d)-listed bioaccumulative constituents, such as Hg

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

4,4 DDE

38. a. A MEC could not be determined for 4,4 DDE because the discharger has not sampled for this constituent in the effluent. The RPA for 4,4 DDE was based on comparing the WQO with an ambient background concentration. According to the RPA methodology described in the SIP, 4,4 DDE has reasonable potential to cause or contribute to an excursion above a WQO and a numeric WQBEL is required. An interim limit cannot be established because there is no effluent data. The August 6, 2001 letter requires the discharger to conduct effluent monitoring to characterize 4,4 DDE.

b. Upon completion of the required monitoring, the RWQCB shall use the gathered data to establish interim limits.

c. The Central Bay is listed as impaired for DDT. 4,4 DDE is chemically linked to the presence of DDT. The Board intends to work toward derivation of a TMDL that will lead towards overall reduction of this constituent. Based on these studies, the final limit will be derived from the TMDL/WLA.

Dieldrin

39. a. A MEC could not be determined for Dieldrin because the discharger has not sampled for this constituent in the effluent. The RPA for Dieldrin was based on comparing the WQO with an ambient background concentration. According to the RPA methodology described in the SIP, Dieldrin has reasonable potential to cause or contribute to an excursion above a WQO and a numeric WQBEL is required. An interim limit cannot be established because there is no effluent data. The August 6, 2001 letter, requires the discharger to conduct effluent monitoring to characterize Dieldrin.

b. Upon completion of the required monitoring, the RWQCB shall use the gathered data to establish interim limits.

c. The Central Bay is listed as impaired for Dieldrin. The Board intends to work toward derivation of a TMDL that will lead towards overall reduction of this constituent. Based on these studies, the final limit will be derived from the TMDL/WLA.

Copper

40. a. CTR *Copper Water Quality Objectives*. 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 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 provide the guidance on how to establish a site-specific translator. Whenever feasible, the Board staff encourage joint studies for discharges in close proximity.

b. Water Effects Ratios. In order to assure that the metal criteria are appropriate for the chemical conditions under which they are applied, USEPA in the CTR provided for adjustment of the criteria to derive site-specific objective (SSO) through application of the "water-effect ratio" (WER) procedure. A WER is a means to account for a difference between the toxicity of the metal in laboratory dilution water and its toxicity in the water at the site. EPA published Interim Guidance on Determination and Use of Water Effects Ratios for Metals on February 22, 1994 that superceded all prior guidance. The Regional Board will consider site-specific water quality objectives as long as the Discharger follows the process described in Section 5.2 of the SIP and demonstrates that the site-specific objective will protect existing beneficial uses, is scientifically defensible, and is consistent with the Antidegradation policy.

c. *Treatment Plant Performance and Compliance Attainability.* Effluent concentrations during the past three years (June 1998-May 2001) range from 1.3 to 6.9 μg/L (36 samples). The effluent discharged to Central San Francisco Bay has been in consistent compliance with the previous permit limit of 37 μg/L.

d. *Site Specific Objective.* Currently, the Discharger is participating in impairment assessment 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 for developing a copper SSO. The final WQBEL for copper will be consistent with either the wasteload allocation derived from a TMDL or established based on the SIP procedures (Section 1.4) if these impairment assessment studies support adoption of a SSO, a finding that the Bay is not impaired by copper, and delisting. Existing RMP dissolved copper results show most of the Bay north of the Dumbarton Bridge to be in compliance with the 3.1 ug/l dissolved copper CTR WQO.

e. *Water Quality Based Effluent Limit (WQBEL).* The WQBEL, calculated using the methodolgy described in the SIP, is AMEL: 13.1 ug/L and MDEL: 21.8 ug/L. The discharger can comply with these effluent limitations, therefore no interim limit and compliance schedule are necessary. However this Order requires the discharger to continue its existing pollution prevention and pretreatment programs to maximize practicable control over influent copper sources.

Mercury

41. a. *Mercury Water Quality Objectives and TMDL.* For mercury, the national chronic criterion is based on 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 Gold Book, the fresh water criterion is based on the Final Residual Value of 0.012 µg/L derived from the bioconcentration factor (BCF) of 81,700 for methyl mercury with the fathead minnow, which assumes that essentially all discharged mercury is methylmercury. The saltwater criterion of 0.025 µg/L was similarly derived using the BCF of 40,000 obtained for methylmercury with the eastern oyster and the criterion is listed in the 1986 Basin Plan. The CTR adopted a dissolved mercury water quality objective of 0.05 ug/L for protection of human health. However, according to Footnote b in the CTR's Table of Criteria for Priority Toxic Pollutants, "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 Water Resources Control Board, approved by USEPA", and which continue to apply. Although ambient background concentrations are below WQOs for protection of both fresh and salt-water aquatic species, the Central San Francisco Bay is listed as impaired for mercury because of fish tissue level exceedances. These WQOs were meant to limit bioaccumulation of methyl-mercury in fish and shellfish, they have clearly not succeeded in accomplishing this. The Board intends to work toward the derivation of a TMDL that will lead towards overall reduction of mercury mass loadings in the watershed. Based on TMDL development, the final limit will be derived based on a WLA.

b. *Mercury 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 below.

c. *Treatment Plant Performance and Compliance Attainability.* Effluent mercury concentrations during June 1998 to May 2001 were often below the detection limit used (Detection limit ranges from 0.2 µg/L to 0.01 µg/L). Effluent concentrations during the past three years range from 0.2 to 0.0037 µg/L (36

samples). The effluent discharged to Central San Francisco Bay has been in consistent compliance with the previous permit limit of 1/0.21 µg/L.

d. *Concentration-based Effluent Limit.* 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 Region-wide Ultra-clean 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. The discharger operates a secondary-level treatment plant, therefore the value of the interim concentration-based limit is 87 ng/L. 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 Emission Limit.* A mass-based loading limit (mass emission limit) for mercury of 0.10 kilograms per month is established in this Order (Effluent Limitation B.5.a). This limit is the 99.87 percentile value (or average + 3* standard deviation) of the calculated 12-month moving averages of total recoverable mercury loading from discharges to the Central San Francisco Bay, based on effluent data from June 1998 through May 2001. The loadings were calculated using 12-month moving averages for effluent flows and concentrations. This mass limit is designed to hold the discharger to current loadings until a TMDL is established and is intended to address anti-degradation concerns. The final effluent limit will be based on the WLA derived from the mercury TMDL.

f. *Source Control and Pollution Prevention* As a prerequisite to be granted a compliance schedule and interim limit, the discharger committed to implement source control and pollution prevention activities in its infeasibility analysis, submitted July 3, 2001. This order establishes interim concentration and mass loading limits; and requires the Discharger to continue its existing pollution prevention and pretreatment programs to maximize practicable control over influent mercury sources.

Nickel

42. a. *Water Quality Objectives.* The Basin Plan contains a numeric water quality objective for total nickel of 7.1 µg/L for chronic toxicity; and 140 ug/L for acute toxicity.

b. *Water Quality Based Effluent Limit (WQBEL).* The WQBEL, calculated using the methodolgy described in the SIP, is AMEL: 34.4 ug/L and MDEL: 58.8 ug/L. The discharger can comply with these effluent limitations, therefore no interim limit and compliance schedule are necessary.

c. *Treatment Plant Performance and Compliance Attainability.* Effluent concentrations during the past three years (June1998 to May 2001) range from 2.1 to 11 ug/L (36 samples). The effluent discharged to Central San Francisco Bay has been in consistent compliance with the previous permit limit of 65 µg/L.

Cyanide

43. 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 total and six dissolved data points which were all non detects (<1 μg/L) collected in 1993 at Richardson Bay and Yerba Beuna Island stations. 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 participate in a regional discharger-funded effort to conduct a study for data collection. The Discharger is required to fully participate in the study, which will include a submission of a final report to the Board by May 18, 2003. The Board intends to include, in a subsequent permit revision, a 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 final limit, the permit revision will establish a maximum five-year compliance schedule.

e. In the meantime, the SIP requires an interim numeric effluent limit for the pollutant based on current treatment plant performance, or previous permit limitations, whichever is more stringent. This Order establishes interim concentration-based effluent limit for cyanide of 25 μg/L, based on the previous permit limit. The performance-based limit of 31 ug/L, which was calculated using a valid statistical probit analysis, was higher than the previous permit limit of 25 ug/L. The probit analysis is utilized when the data set is predominately non-detects. The cyanide data set contained only 33% detectable values, the majority of the samples were non-detects.

Zinc

44. a. *Treatment Plant Performance and Compliance Attainability.* Effluent concentrations during the past three years (June 1998 to May 2001) range from 20 to 82 μg/L (36 samples). The effluent discharged to Central San Francisco Bay has been in consistent compliance with the previous permit limit of 580 μg/L.

b. *Final Water Quality Based Effluent Limitation (WQBEL) Calculations.* The final WQBEL is set at the lower of the previous permit limit (average daily = 580 ug/L) or at the values calculated by the methodology described in the SIP (average monthly = 482 ug/L and maximum daily = 750 ug/L). In both cases, to determine the final WQBEL the water quality objectives used are 58 ug/L for chronic toxicity and 170 ug/L for acute toxicity. However the methodology to calculate final WQBELs has significantly changed.

i) *Basin Plan.* The following equation is used $C_e = C_o + D(C_o - C_b)$. This methodology determined the WQBEL to equal: Average Daily Limit = 580 ug/L.

ii) *SIP.* The SIP describes a more complex steady-state statistical approach , the detailed methodology is described in Section 1.4 and the attached Fact Sheet. The SIP methodology projects the zinc WQOs (both acute and chronic) as a maximum daily limit and average monthly limit while incorporating site specific data variability. This methodology determined the WQBEL to equal: Average Monthly Limit= 482 ug/L and Maximum Daily Limit = 750 ug/L.

c. *Selection of Zinc WQBEL.* Upon evaluation of the previous permit limit and the limits derived from the SIP methodology, it was determined the SIP-derived limits are more stringent considering the discharger monitors zinc once a month. As a result the final zinc WQBELs are Average Monthly Limit= 482 ug/L and Maximum Daily Limit = 750 ug/L.

d. *Source Control and Pollution Prevention* This order requires the discharger to continue its existing pollution prevention and pretreatment programs to maximize practicable control over influent zinc sources. Zinc orthophosphate used for corrosion control in potable water is the predominant source of zinc in the CMSA service area. CMSA has worked with Marin Municipal Water District (MMWD) on this issue; MMWD has been able to reduce but not eliminate the zinc used. Regulation of auto shops and public education are also aspects of the discharger's Pollution Prevention Program for zinc. CMSA complies with the 503 regulations for land application of biosolids.

Dioxins and Furans

45. a. *Current Limit* The current Permit, Order No. 96-034, does not include a limit for dioxins.

b. *Numerical Water Quality Objective* On May 18, 2000, the US EPA published in the Federal Register the California Toxics Rule (CTR) establishing water quality standards for toxic pollutants for California waters (FR 31681). The CTR was effective on the date of publication. The following are pertinent to dioxins and furans:

i. The CTR establishes a standard for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) of 0.014 picograms per liter (pg/l) for the protection of human health from consumption of aquatic organisms.

ii. Although the CTR establishes a numeric standard for just one of the dioxin-like compounds, the preamble of the CTR states that California should use toxicity equivalents or TEQs in NPDES Permits where there is a reasonable potential for dioxin-like compounds to cause or contribute to a violation of a narrative criterion. The preamble further states US EPA's intent to use the 1998 World Health Organization Toxicity Equivalence Factor[1] scheme in the future and encourages California to use this scheme in State programs. Finally, the preamble states US EPA's intent to adopt revised water quality criteria guidance subsequent to their health reassessment for dioxin-like compounds.

c. *State Implementation Plan.* The SIP establishes the implementation policy for 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 six (6) sampling events within three (3) years by all major NPDES dischargers for the other sixteen dioxins and furans compounds.

d. *Interim Monitoring Requirements.* Since the discharger has not monitored for dioxins and furans, there is no effluent data to conduct a RPA or calculate an interim limit. Pursuant to the SIP, the discharger will be required to monitor for dioxins and furans. If there is Reasonable Potential based on sufficient effluent data, a performance-based interim limit will be established based on TEQs.

Compliance with BOD & TSS Effluent Limits during Wet Weather Conditions

46. In reviewing compliance with the 85 % Removal limits for BOD and TSS as given in this Order (Effluent Limitation B.2.) and considering potential discretionary enforcement actions for exceeding these limits, the Board will take special note of difficulties encountered in achieving compliance during wet weather periods when ordinary treatment capabilities are impeded by peak flows and storm water-diluted influent, provided that all wastewater facilities are operated in a manner to optimize treatment performance and compliance with these requirements.

[1] The 1998 WHO scheme includes TEFs for dioxin-like PCBs. But since this Order addresses only dioxins and furans, these dioxin-like PCB TEFs are not addressed in this Order.

Coliform Limits

47. The Basin Plan's Table 4-2 and its footnotes allow fecal coliform limitations to be substituted for total coliform limitations provided that the discharger conclusively demonstrates "through a program approved by the Regional Board that such substitution will not result in unacceptable adverse impacts on the beneficial uses of the receiving waters". In 1996, the discharger conducted chlorination reduction and receiving water impact monitoring studies, to support substitution of fecal for total coliform effluent limits, this resulted in applying the Basin Plan's five day geometric mean fecal coliform water quality objectives of 200 MPN/100mL and 90th percentile limits of 400 MPN/100mL as effluent limits.

Whole Effluent Acute Toxicity

48. This Order includes effluent limits for whole-effluent acute toxicity. Compliance evaluation is based on 96-hour flow-through bioassays. USEPA promulgated updated test methods for acute and chronic toxicity bioassays on October 16, 1995, in 40 CFR Part 136. Dischargers have identified several practical and technical issues that need to be resolved before implementing the new procedures. The primary issue is that the use of younger, possibly more sensitive, fish, may necessitate a reevaluation of permit limits. A provision is included in this order to allow the Discharger 12 months to implement the new test method. In the interim, the discharger is required to continue using the current test protocols.

Whole Effluent Chronic Toxicity

49. 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 Board initiated the Effluent Toxicity Characterization Program (ETCP), with the goal of developing and implementing toxicity limits for each discharger based on actual characteristics of both receiving waters and waste streams. Dischargers were required to monitor their effluent using critical life stage toxicity tests to generate information on toxicity test species sensitivity and effluent variability to allow 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. Board guidelines for conducting toxicity tests and analyzing results were published in 1988 and last updated in 1991.

The Board adopted Order No. 92-104 in August 1992 amending the permits of eight dischargers to include numeric chronic toxicity limits. However, due to the court decision which invalidated the California Enclosed Bays and Estuaries Plan and Inland Surface Waters Plan, on which Order No. 92-104 was based, the SWRCB stated, by letter dated November 8, 1993, that the Board will have to reconsider the order. This letter also committed to providing the regional boards with guidance on issuing permits in the absence of the State Plans (*Guidance for NPDES Permit Issuance,* February 1994).

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

c. *Regional Board Program Update.* The Board intends to reconsider Order No. 92-104 as directed by the SWRCB, and to update, as appropriate, the Board's Whole Effluent Toxicity (chronic and acute) program guidance and requirements. This will be done based on analysis of discharger routine

monitoring and ETCP results, and in accordance with current USEPA and SWRCB guidance. In the interim, decisions regarding the need for and scope of chronic toxicity requirements for individual dischargers will need to be consistent with SIP.

d. *Permit Requirements.* In accordance with the SIP, USEPA and SWRCB Task Force guidance, and based on BPJ, this Permit includes requirements for chronic toxicity monitoring based on the Basin Plan narrative toxicity objective. This Permit includes the Basin Plan narrative toxicity objective as the applicable effluent limit, implemented via monitoring with numeric values as "triggers" to initiate accelerated monitoring and to initiate a chronic TRE as necessary.

e. *Permit Reopener.* The Board will consider amending this Permit 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-artifactual toxicity.

Pollution Prevention and Minimization

50. The discharger has an approved Pretreatment Program and has established a Pollution Prevention Program under the requirements specified by the Regional Board.
    a. 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.
    b. There may be some redundancy required between the Pollution Prevention Program and the Pollutant Minimization Program.
    c. 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.
    d. For copper, mercury, zinc, 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 pollution minimization measures.

51. The Board staff intends to require an objective third party to establish baseline programs, and to review program proposals and reports for adequacy. The discharger has met the intent of the third party review by implementing a pilot project under the California Environmental Management System.

PRETREATMENT PROGRAMS

52. The discharger has implemented and is maintaining a USEPA approved pretreatment program in accordance with Federal pretreatment regulations (40 CFR 403) and the requirements specified in Attachment E "Pretreatment Requirements" and its revisions thereafter.

ENVIRONMENTAL MANAGEMENT SYSTEM

53. CMSA is committed to obtaining ISO 14001 certification. CMSA is developing an environmental management system (EMS) in order to systematically monitor and improve their environmental performance. CMSA is participating in the California State EMS Pilot Project. CMSA, currently in the midst of the EMS development process, has adopted an Environmental Policy, identified significant environmental aspects and impacts of their operations, and proposed environmental objectives and targets. After certification, and based on results from the pilot project, an evaluation will be make on whether to continue with the EMS.

OTHER DISCHARGE CHARACTERISTICS AND PERMIT CONDITIONS

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

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

56. *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.

57. *Notification.* The discharger and interested agencies and persons have been notified of the Board's intent to reissue requirements for the existing discharge and have been provided an opportunity to submit their written views and recommendations.

58. *Public Hearing.* The 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 Central Marin Sanitation Agency (discharger) shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. Discharge of treated wastewater at a location or in a manner different from that described in this Order is prohibited.

2. Discharge of wastewater at any point where it does not receive an initial dilution of at least 10:1 is prohibited.

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

4. The discharge of average dry weather flows greater than 10 mgd is prohibited. The average dry weather flow shall be determined over three consecutive dry weather months each year.

5. Discharges of water, materials, or wastes other than storm water, 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 Central San Francisco Bay outfall (Sampling Station E-001):

1. The effluent shall not exceed the following limits:

Constituent	Units	Monthly Average	Weekly Average	Daily Maximum	Instantaneous Maximum
a. Biochemical Oxygen Demand (BOD)	mg/L	30	45	60	--
or Carbonaceous BOD	mg/L	25	40	--	
b. Total Suspended Solids (TSS)	mg/L	30	45	--	--
c. Oil & Grease	mg/L	10	--	20	--
d. Settleable Matter	ml/l-hr	0.1	--	0.2	--
e. Total Chlorine Residual (1)	mg/L	--	--	--	0.0

(1) Requirement defined as 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, chlorine, and sodium bisulfite dosage (including a safety factor) and concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Board staff will conclude that these false positive chlorine residual exceedances are not violations of the permit limit.

2. 85 Percent Removal, BOD and TSS:
The arithmetic mean of the biochemical oxygen demand (BOD_5 20°C) and total suspended solids (TSS) values, for effluent samples collected in each calendar month shall not exceed 15 percent of the arithmetic mean 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 (5) day geometric mean fecal coliform density shall not exceed 200 MPN/100 ml; and,

   b. The ninetieth percentile value of fecal coliform density shall not exceed 400 MPN/100 ml.

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 bioassay test organisms in 96-hour bioassays of undiluted effluent shall be:
      (1) an 11-sample median value of not less than 90 percent survival [b(1)] ; and
      (2) an 11-sample 90th percentile value of not less than 70 percent survival [b(2)] .

b. These acute toxicity limits are further defined as follows:
   (1) 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.
   (2) 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.

   (3) 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 limitation. If effluent toxicity is attributed to ammonia and the discharge is not adversely impacting receiving water quality or beneficial uses, and static renewal testing is being used, ammonia toxicity may be controlled in future testing by maintaining the pH to initial conditions with the use of buffers, a CO2 chamber, or other method approved by the Executive Officer.

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

      (1) routine monitoring;
      (2) accelerated monitoring after exceeding a three sample median value of 10 chronic toxicity[2] (TUc) or a single sample maximum of 20 TUc or greater. Accelerated monitoring shall consist of monitoring at frequency intervals of one half the interval given for routine monitoring in the SMP of this Order;
      (3) return to routine monitoring if accelerated monitoring does not exceed either "trigger" in "2", above;
      (4) initiate approved toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) work plan if accelerated monitoring confirms consistent toxicity above either "trigger" in "2", above;
      (5) return to routine monitoring after appropriate elements of TRE work plan are implemented and either the toxicity drops below "trigger" level in "2", above or, based on the results of the TRE, the Executive Officer authorizes a return to routine monitoring.

6. Mass Emission Limit for Mercury.
   Until TMDL and Waste Load Allocation (WLA) efforts for mercury are completed, the discharger shall maintain current total mass loadings for this pollutant discharged to Central San Francisco Bay by complying with the following:

Constituent	Mass emission limit (kg/month)
a. Mercury	0.10

   c. The total mass load for the above constituent shall not exceed the respective limit. Compliance with this limit shall be evaluated using monthly moving averages of total mass load.

[2] 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.

d. The monthly moving average of total mass load to be used for evaluating compliance with the mass emission limit shall be calculated as follows:

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

Monthly Total Mass Load (kg/month) = monthly average plant effluent flows in mgd from Central San Francisco Bay Outfall (E-001) x monthly average effluent concentration measurements in µg/L corresponding to the above flows, for samples taken at E-001 x 0.1151.

If more than one measurement is obtained in a calendar month, the average of these measurements is used as the monthly value for that month. If test results are less than the method detection limit used, the measurement value is assumed to be equal to the method detection limit.

e. These mass emission limit values will be superseded upon completion of a TMDL and WLA. According to the Antibacksliding rule in the Clean Water Act, Section 402(o), the permit may be modified to include a less stringent requirement following completion of a TMDL and WLA, if the basis for an exception to rule are met.

7. pH: The pH of the effluent shall not exceed 9.0 nor be less than 6.0. The Discharger shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied: (i) 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 (ii) No individual excursion from the range of pH values shall exceed 60 minutes.

8. Toxic Substances: The effluent shall not exceed the following limits (1):

Constituent	Average Monthly Limit	Maximum Daily Limit	Interim Daily Maximum	Interim Monthly Average	Units	Notes
Copper	13.1	21.8			µg/L	(1)
Mercury			1.0	0.087	µg/L	(1), (2), (4)
Nickel	34.4	58.8			µg/L	(1)
Cyanide			25		µg/L	(1), (3), (4)
Zinc	482	750			µg/L	(1)

Footnotes :

(1) (a) Compliance with these limits is intended to be achieved through secondary treatment and, as necessary, pretreatment and source control.

(b) All analyses shall be performed using current USEPA 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).

(d) Maximum Daily effluent limitations based on EPA aquatic life criterion continuous concentrations may be met as a 4-day average (an average of all samples taken over a continuous 4-day period). If compliance is to be determined based on a 4-day average, then concentrations of each of the 24-hour composite samples shall be reported, as well as the average of the total number of composite samples taken over the 4-day period.

(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: Compliance may be demonstrated by measurement of weak acid dissociable cyanide.

(4) (i) The interim limit for mercury shall remain in effect until March 31, 2010, or until the Board amends the limits based on the Waste Load Allocation in the TMDL for mercury.
(ii) The interim limit for cyanide shall remain in effect until May 18, 2003, or until the Board amends the limit based on additional background data or site-specific objectives for cyanide.
(iii) However, during the next permit reissuance, Board staff may re-evaluate the interim limits.

C. RECEIVING WATER LIMITATIONS

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at levels that cause nuisance or adversely affect beneficial uses:
   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 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 anyone place within one foot of the water surface:

   a. Dissolved Oxygen: 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 provides that the discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the 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 Board may reopen and revise or modify this Order in accordance with such more stringent standards.

4. Because the Regional Monitoring Program (RMP), which the discharger is participating in, is collecting receiving water samples, the discharger is relieved of taking any receiving water samples as part of this permit unless directed for some other reason by the Executive Officer. However for those constituents required to be sampled by the SIP and not sampled by the RMP, the discharger is responsible for providing

that data to the Board. This may occur either through participation in new RMP special studies or through equivalent studies conducted jointly with other dischargers.

D. SLUDGE MANAGEMENT PRACTICES

1. a. The discharger presently disposes of all stabilized, dewatered biosolids (sewage sludge) from the discharger's wastewater treatment plant either the Redwood Sanitary landfill in Novato or to Synagro agricultural reuse site on Lakeville Highway in Sonoma County.

   b. This disposal practice is regulated by the USEPA under the 40 CFR 503 regulations (Standards for the Use or Disposal of Sewage Sludge; February 19, 1993 final rule), and the 40 CFR 258 regulations.

   c. All the requirements in 40 CFR 503 are enforceable by USEPA whether or not they are stated in an NPDES permit or other permit issued to the discharger.

2. The discharger is required to submit an annual report to the USEPA regarding its sewage sludge disposal practices in accordance with the requirements of 40 CFR 503. The discharger shall include a summary of this information in the Self Monitoring Program Annual Report submitted to the Board.

3 Sludge treatment, storage, and disposal or reuse shall not create a nuisance, such as objectionable odors or flies, or result in groundwater contamination.

4. The treatment and temporary storage of sewage sludge at the discharger's wastewater treatment facility shall not cause waste material to be in a position where it will be carried from the sludge treatment and storage site and deposited in the waters of the State.

5. Permanent on-site storage or disposal of sewage sludge at the discharger's wastewater treatment facility is not authorized by this permit. A report of Waste Discharge shall be filed and the site brought into compliance with all applicable regulations prior to commencement of any such activity by the discharger.

6. The Board may amend this permit 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 starting October 1, 2001.

2. **Rescission of Previous Waste Discharge Requirements.** Requirements prescribed by this Order supersede the requirements prescribed by Order No. 96-034. Order No. 96-034 is rescinded after September 30, 2001.

3. **Self-Monitoring Program.** The discharger shall comply with the Self-Monitoring Program (SMP) for this Order as adopted by the Board. The SMP may be amended by the Executive Officer pursuant to the U. S. EPA regulations 40 CFR 122.62, 122.63 and 124.5.

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* (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**
   a. The discharger shall maintain and operate the collection system owned by the discharger as described in the permit in a manner to optimize control and conveyance of wastewater flows to the treatment plant facility and minimize collection system overflows.

   b. The discharger shall maintain and operate the treatment plant facility in a manner to optimize treatment performance.

   c. 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 to August 31, 2002:
   (1) Compliance with the acute toxicity effluent limits of this Order shall be evaluated by measuring survival of one test organism exposed to 96 hour continuous flow-through bioassays.
   (2) The test organism shall be 3-spine stickleback unless specified otherwise in writing by the Executive Officer.
   (3) All bioassays shall be performed according to the "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms," 3rd Edition, with exceptions granted to the Discharger by the Executive Officer and the Environmental laboratory Accreditation Program (ELAP).

   b. From September, 1 2002 on:
   (1) Compliance with the acute toxicity effluent limits 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, they must submit a technical report by June 30, 2002, identifying the reasons why flow-through bioassay is not feasible using the approved EPA protocol (4th edition).
   (2) Test organisms shall be fathead minnows or rainbow trout unless specified otherwise in writing by the Executive Officer.
   (3) All bioassays shall be performed according to the "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms,"4th Edition, with exceptions granted to the Discharger by the Executive Officer and the Environmental laboratory Accreditation Program (ELAP).

7. **Whole Effluent Chronic Toxicity Requirements:**
   The discharger shall monitor and evaluate effluent discharged to the Central San Francisco Bay outfall for chronic toxicity in order to demonstrate compliance with the Basin Plan narrative toxicity objective. Compliance with this requirement shall be achieved in accordance with the following.
   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, then the discharger shall conduct accelerated chronic toxicity monitoring. Accelerated monitoring shall consist of monitoring at frequency intervals of one half the interval given for routine monitoring in the SMP of this Order.
   c. Chronic toxicity evaluation parameters:
      (1) a three sample median value of 10 TU_c [(3)]; and
      (2) a single sample maximum value of 20 TU_c [(3)].
      (3) 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 TUc). NOEL is the no observed effect level determined from IC, EC, or NOEC values [(c)].

(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).

f. The TRE shall be conducted in accordance with the following:

(1) The discharger shall prepare and submit to the Board for Executive Officer approval a TRE work plan. An initial generic workplan shall be submitted within 120 days of the date of adoption of this Order. The workplan shall be reviewed and updated as necessary in order to remain current and applicable to the discharge and discharge facilities.

(2) The TRE shall be initiated within 30 days of the date of completion of the accelerated monitoring test observed to exceed either evaluation parameter.

(3) The TRE shall be conducted in accordance with an approved work plan.

(4) The TRE needs to be specific to the discharge and discharger facility, and be in accordance with current technical guidance and reference materials including US EPA guidance materials. TRE shall be conducted as a tiered evaluation process, such as summarized below:

(a) Tier 1 consists of basic data collection (routine and accelerated monitoring).

(b) Tier 2 consists of evaluation of optimization of the treatment process including operation practices, and in-plant process chemicals.

(c) Tier 3 consists of a toxicity identification evaluation (TIE).

(d) Tier 4 consists of evaluation of options for additional effluent treatment processes.

(e) Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.

(f) Tier 6 consists of implementation of selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.

(5) The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity.

(6) The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies shall be employed. If the TIE shows that ammonia is the sole cause of toxicity, further steps (Tiers 4-6 and further toxicity reduction) are not needed.

(7) 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.

(8) Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention and storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements or recommended efforts of such programs may be acceptable to comply with TRE requirements.

(9) The Board recognizes that chronic toxicity may be episodic and identification of causes of and reduction of sources of chronic toxicity may not be successful in all cases. Consideration of enforcement action by the Board will be based in part on the discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

g. Chronic Toxicity Monitoring Screening Phase Requirements, Critical Life Stage Toxicity Tests and definitions of terms used in the chronic toxicity monitoring are identified in Attachment C of this Order. The discharger shall comply with these requirements as applicable to the discharge.

h. Board staff are in the process of evaluating data from previous ETCP chronic toxicity testing, and may revise the above chronic toxicity requirements based on the results of this evaluation.

8. **Mercury Mass Loading Reduction Study and Schedule**

Mercury Source Control and Reduction Program.

The discharger shall develop a source control and pollution prevention program to identify sources and evaluate options for control and reduction of mercury loadings. 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 Board and other North Bay dischargers in identifying cross media watershed-wide sources of mercury impacting the receiving water, and potential control measures. This program shall be developed in accordance with the following time schedule.

Task	Compliance Date
(1) Mercury Source Identification and Reduction Study Plan (MSIRS)	60 days after violation of mass emission limit

Submit a proposed Study Plan, to be approved by the Executive Officer, to investigate mercury sources and reduction measures. The investigation shall include 1) sampling and characterizing mercury at representative locations in the collection system over a reasonable period of time, 2) evaluating possible means by which any significant sources can be reduced 3) investigating means of optimizing mercury removal by treatment plant processes, 4) 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. This Study Plan shall include proposed actions and a time schedule for their implementation.

(2) Interim report (MSIRS)	6 months after Study commencement.

Submit an interim report, to be approved by the Executive Officer, documenting the initial findings of source reduction options, and past and proposed efforts to encourage minimization of mercury discharges to the treatment system and to the environment.

(3) Final Report (MSIRS) and Mercury Loading Control Plan.	12 months after Study commencement

Submit a final report and Mercury Loading Control Plan, acceptable to the Executive Officer, documenting the findings of source reduction work and efforts made to minimize mercury in the collection system, treated effluent, and the sludge. This report shall include two elements: **First,** assessment of the feasibility of 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. **Second,** develop a plan and time schedule (Mercury Loading Control Plan) based on the results of the source identification and reduction plan (MSIRS) , to implement all reasonable actions to maintain mercury mass loadings at or below the current performance.

(4) Annual Report	Annually, after study commencement

In the annual self monitoring report, the discharger shall provide continuous documentation of (a) source reduction progress and (b) past and proposed efforts to encourage minimization of mercury discharges to the treatment system and to the environment.

9. **Pollutant Minimization Program (PMP)**

a. The discharger shall continue its existing Pollution Prevention Program to address at least mercury, copper, and zinc, in order to reduce pollutant loadings to the treatment plant and therefore to the receiving waters.

b. The discharger shall submit an annual report, acceptable to the Executive Officer, no later than February 28th of each year. Annual reports shall cover the preceding calendar year.
Annual report shall include at least the following information:
   i. A brief description of its treatment plant, treatment plant processes and service area.
   ii. A discussion of the current pollutants of concern. Periodically, the discharger shall analyze its own situation to determine which pollutants are currently a problem and/or which pollutants may be potential future problems. This discussion shall include the reasons why the pollutants were chosen.
   iii. Identification of sources for the pollutants of concern. This discussion shall include 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 ability or authority of the discharger to control such as pollutants in the potable water supply and air deposition.
   iv. Identification of tasks to reduce the sources of the pollutants of concern. This discussion shall identify and prioritize tasks to address the discharger's pollutants of concern. Tasks can target its industrial, commercial, or residential sectors. The discharger may implement tasks themselves or participate in group, regional, or national tasks that will address its pollutants of concern. The discharger is strongly encouraged to participate in group, regional, or national tasks that will address its pollutants of concern whenever it is efficient and appropriate to do so. A time line shall be included for the implementation of each task.
   v. Continuation of outreach tasks for Agency employees. The discharger shall continue outreach tasks for Agency employees. The overall goal of this task is to inform employees about the pollutants of concern, potential sources, and how they might be able to help reduce the discharge of pollutants of concerns into the treatment plant. The discharger may provide a forum for employees to provide input to the Program.
   vi. Continuation of a public outreach program. The discharger shall implement a public outreach program to communicate pollution prevention to its service area. Outreach may include participation in existing community events such as county fairs, initiating new community events such as displays and contests during Pollution Prevention Week, implementation of a school outreach program, conducting plant tours, and providing public information in newspaper articles or advertisements, radio, television stories or spots, newsletters, utility bill inserts, and web site. Information shall be specific to the target audiences. The discharger should coordinate with other agencies as appropriate.
   vii. Discussion of criteria used to measure the Program's and tasks' effectiveness. The discharger shall establish criteria to evaluate the effectiveness of its Pollution Prevention Program. This shall also include a discussion of the specific criteria used to measure the effectiveness of each of the tasks in item b. (iv), b. (v), and b. (vi).
   viii. Documentation of efforts and progress. This discussion shall detail all of the discharger's activities in the Pollution Prevention Program during the reporting year.
   ix. Evaluation of Program's and tasks' effectiveness. This discharger shall utilize the criteria established in b. (vii) to evaluate the Program's and tasks' effectiveness.
   x. Identification of specific tasks and time schedules for future efforts. Based on the evaluation, the discharger shall detail how it intends to continue or change its tasks in order to more effectively reduce the amount of pollutants to the treatment plant, and subsequently in its effluent.

c. According to Section 2.4.5 of the SIP, when there is evidence that a priority pollutant is present in the effluent 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 limitation 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 limitation is less than the Method Detection Limit, the discharger shall expand its existing Pollution Prevention Program to include the reportable priority pollutant. A priority pollutant becomes a reportable priority pollutant when (1) there is evidence that it is present in the effluent above an effluent limitation and either (c)(i) or (c) (ii) is triggered or (2) 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 Minimum Level.

d. If triggered by the reasons in Provision 9(c), and notified by the Executive Officer, the discharger's Pollution Prevention Program shall, within 6 months, also include:
   i. An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures approved by the Executive Officer when it is demonstrated 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 proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;
   iv. Development of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and
   v. An annual status report that shall be sent to the RWQCB including:
      (1) All Pollution Prevention monitoring results for the previous year;
      (2) A list of potential sources of the reportable priority pollutant(s);
      (3) A summary of all actions undertaken pursuant to the control strategy; and
      (4) A description of actions to be taken in the following year.

e. To the extent where 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).

10. Marine Outfall Maintenance

The discharger shall complete a study to evaluate the continuous maintenance of the marine outfall. CMSA has already identified the mechanisms leading to the accumulation of solids in the outfall. The results of the study must conclusively demonstrate that the disposal options will not result in unacceptable adverse impacts on the beneficial uses of the receiving water and must be approved by the Executive Officer.

Task	Compliance Date
(a) Solids Disposal Feasibility Study	November 15, 2001

Submit a feasibility study, acceptable to the Executive Officer that proposes disposal options for solids currently accumulated in the marine outfall. The feasibility study shall include, but is not limited to, results from chemical testing of the accumulated solids, analysis of different disposal options, cost estimates, and time schedule for implementation of the preferred disposal option.

(b) Outfall Retrofitting and Maintenance Plan	March 30, 2002

Submit a plan, acceptable to the Executive Officer, that (1) discusses and recommends alternatives to preventing future accumulation of solids in the marine outfall (such as, retrofitting the diffuser risers with a check valve type diffuser), (2) proposes a maintenance plan for further accumulation of solids (such as, regular inspections of the diffuser), and (3) time schedule to implement these activities.

(c) Annual Report	annually after adoption of permit

Provide progress reports of effectiveness of continued maintenance efforts to resolve the accumulation of solids in the marine outfall, this information can be submitted in the annual self monitoring report.

(d) Final Report	March 30, 2003

Submit a final report to the executive officer, documenting the results of the disposal of the accumulated solids, and of the retrofitting activities of the marine outfall.

11. Special Study – Cyanide Site-Specific Objective

The Discharger shall participate in a regional discharger-funded effort to 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 participate in the implementation of the proposals. Annual reports shall be submitted by January 31 of each year documenting the progress of the ambient background characterization and site-specific objective studies. 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 ambient background water quality characterization study shall be completed, and include submission of a report of the results.

By June 30, 2003, a report of completion for the site-specific objective study shall be submitted. 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 to include a revised final limit based on the site-specific objective developed.

12. TMDL / SSO Participation Requirement

The Discharger shall participate in the development of a TMDL or SSO for mercury and cyanide. In the annual self monitoring report, the Discharger shall submit an update to the Board to document progress made on source control and pollutant minimization measures and their participation in the development of a TMDL and/or SSO.

<u>Ongoing Programs</u>

13. Regional Monitoring Program.

The discharger shall continue to participate in the Regional Monitoring Program (RMP) for trace substances in San Francisco Bay in lieu of more extensive effluent and receiving water self-monitoring requirements that may be imposed.

14. Pretreatment Program.

Pretreatment Program: The discharger shall implement and enforce its approved pretreatment program in accordance with Federal Pretreatment Regulations (40 CFR 403), pretreatment standards promulgated under Section 307(b), 307(c), and 307(d) of the Clean Water Act, and the requirements in Attachment E, "Pretreatment Requirements." The discharger's responsibilities include, but are not limited to:

a. Enforcement of National Pretreatment Standards in accordance with 40 CFR 403.5 and 403.6;

b. Implementation of its pretreatment program in accordance with legal authorities, policies, procedures and financial provisions described in the General Pretreatment regulations (40 CFR 403) and the discharger's approved pretreatment program;

c. Submission of reports to U.S. EPA, the State Board and the Board, as described in Attachment E "Pretreatment Requirements;"

The discharger shall implement its approved pretreatment program and the program shall be an enforceable condition of this permit. If the discharger fails to perform the pretreatment functions, the Regional Water Quality Control Board (RWQCB), the State Water Resources Control Board (SWRCB), or the United States Environmental Protection Agency (U.S. EPA) may take enforcement actions against the discharger as authorized by the Clean Water Act.

Optional Studies

15. Optional Mass Offset

If the discharger wishes to pursue a mass offset program, a mass offset plan for reducing 303(d)-listed pollutants within the same watershed or drainage basin, needs to be submitted for Board approval. This Order may be modified by the Board to allow an acceptable mass offset program.

16. Optional Copper Translator Study and Schedule

If the discharger desires to develop information that may be used to establish a water quality based effluent limit based on dissolved copper criteria, the discharger shall comply with the following:

First, the discharger shall submit a workplan, acceptable to the Executive Officer, for compilation/collection of data that can be used for establishment of a dissolved to total copper translator, as discussed in the Findings. The study plan shall provide for development of translators in accordance with EPA guidelines and any relevant portions of the State Implementation Plan, as amended.
Second, the discharger shall submit a report, acceptable to the Executive Officer, documenting the results of the copper translator study, which may also include any other site specific information that the discharger would like the Board to consider in development of a water quality based effluent limitation for copper.

As stated in the SIP, Section 4.4.1, the deadline to submit the results of the study shall be specified by the Board staff, and shall not exceed two years from the date of the reissuance of the permit. In the event a translator study is not completed within the specified time, the USEPA conversion factor shall be the default translator.

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

a. The discharger shall operate and maintain its wastewater collection, treatment and disposal facilities in a manner to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary, in order to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the discharger's service responsibilities.
b. The discharger shall regularly review and evaluate its wastewater facilities and operation practices in accordance with section a. above. Reviews and evaluations shall be conducted as an ongoing component of the discharger's administration of its wastewater facilities.
c. Annually, the discharger shall submit to the Board a report describing the current status of its wastewater facility review and evaluation. This report shall include a description or summary of review and evaluation procedures, and applicable wastewater facility programs or capital improvement projects. This report shall be submitted in accordance with Provision E.20 below.

18. Operations and Maintenance Manual, Review and Status Reports.

a. The discharger shall maintain an Operations and Maintenance Manual (O & M Manual) as described in the findings of this Order for the discharger's wastewater facilities. The O & M Manual shall be maintained in useable condition, and available for reference and use by all applicable personnel.

b. The discharger shall regularly review, and revise or update as necessary, the O & M Manual(s) in order for the document(s) to remain useful and relevant to current equipment and operation practices. Reviews shall conducted annually, and revisions or updates shall be completed as necessary. For any significant changes in treatment facility equipment or operation practices, applicable revisions shall be completed within 90 days of completion of such changes.

c. Annually, the discharger shall submit to the Board a report 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 E.20 below.

19. 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 discharge of pollutants in violation of this Order where the discharger has failed to develop and/or adequately implement a contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.

b. The discharger shall regularly review, and update as necessary, the Contingency Plan in order for the plan to remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and updates shall be completed as necessary.

c. Annually, the discharger shall submit to the Board a report describing the current status of its Contingency Plan review and update. This report shall include a description or copy of any completed revisions, or a statement that no changes are needed. This report shall be submitted in accordance with Provision E.20 below.

20. Annual Status Reports.

The reports identified in Provisions E.17.c., E.18.c. and E.19.c. above shall be submitted to the Board annually, by June 30 of each year. Modification of report submittal dates may be authorized, in writing, by the Executive Officer.

21. New Water Quality Objectives.

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

22. 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 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 S*tandard 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.

23. Permit Reopener.
The Board may modify, or revoke and reissue, this Order and Permit 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.

24. NPDES Permit.
This Order shall serve as a National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective on October 1, 2001 provided the USEPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

25. NPDES Permit Compliance
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 USEPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

The effective date of October 1, 2001, which is 10 days after the adoption date, is to accommodate the fact that some of the limits are monthly average limits. It is impractical to calculate compliance with monthly average limits that begin in the middle of a calendar month.

26. Order Expiration and Reapplication.
a. This Order expires on August 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 permit 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 September 19, 2001.

Loretta K. Barsamian
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. Pretreatment Requirements
F. Fact Sheet
Attachments to Fact Sheet

1. Salinity Analysis
2. Ambient Background Concentrations
3. Flow, BOD, TSS, Toxicity
4. Metals Effluent Summary
5. Mass Emission Calculations
6. Reasonable Potential Analysis
7. Effluent Limitations Calculations

G. Statistical Analysis of Pooled Data from Regionwide Ultraclean Mercury Sampling

H. Standard Provisions

I. August 6, 2001 letter entitled, "*Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy*"

ATTACHMENT A

Location Map

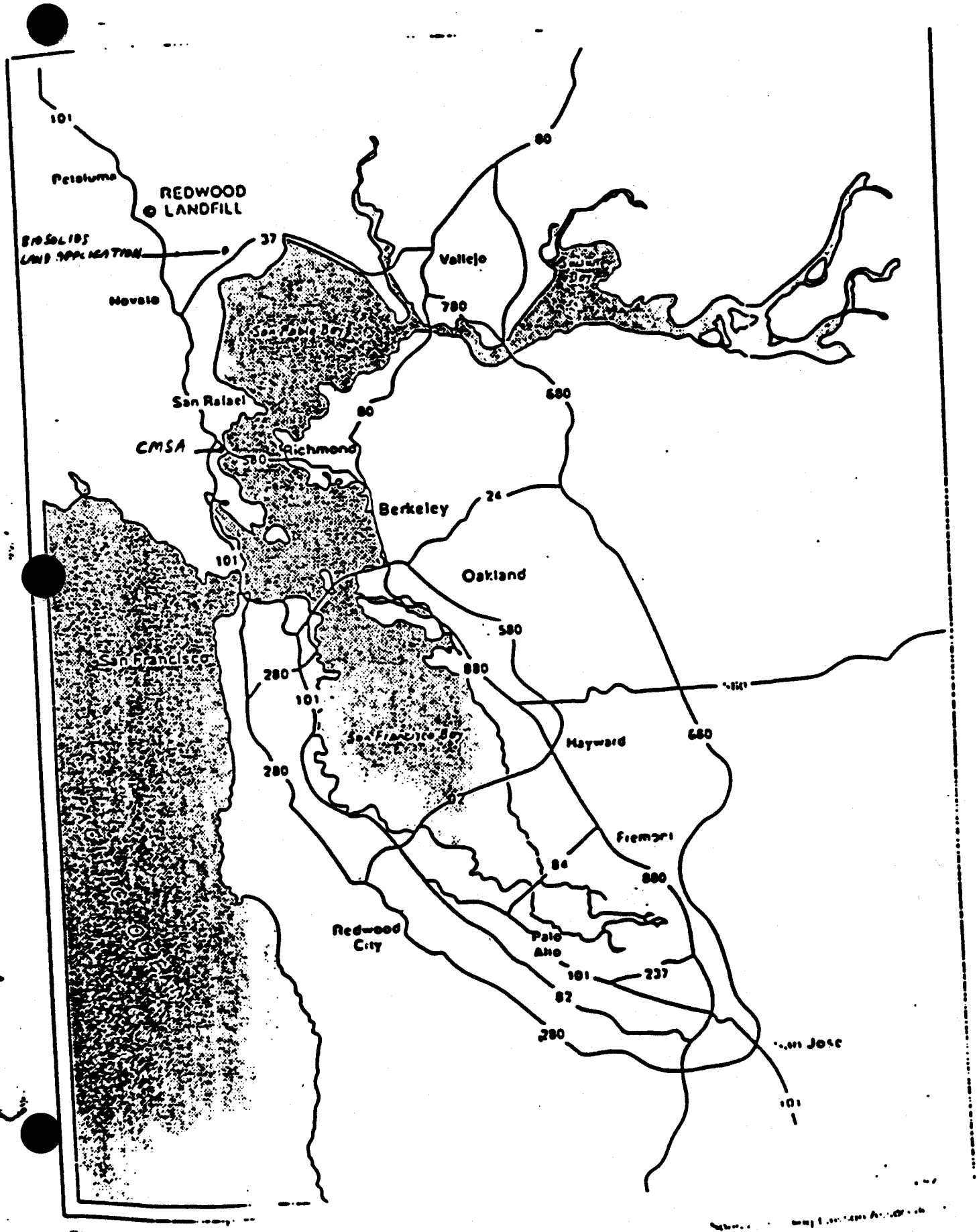
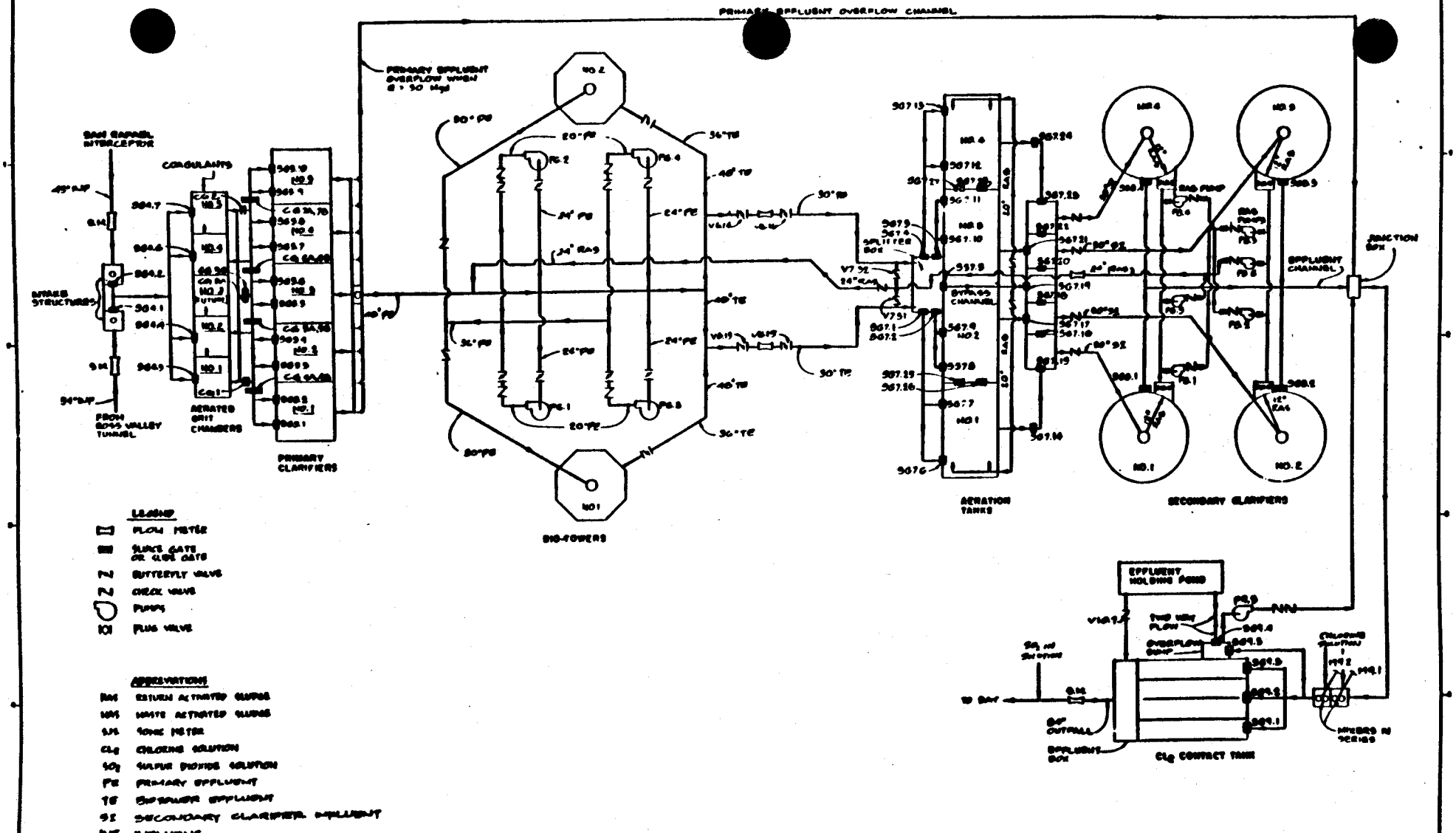

101
Petaluma
REDWOOD
LANDFILL
BIOSOLIDS
LAND APPLICATION
37
Novato
Vallejo
80
780
San Pablo Bay
San Rafael
680
80
CMSA
580
Richmond
Berkeley
24
101
Oakland
San Francisco
580
280
880
101
San Francisco Bay
Hayward
680
280
92
Fremont
84
880
Redwood
City
Palo
Alto
101
237
82
280
San Jose
101

Figure 1

ATTACHMENT B

Treatment Plant Schematic

[redacted]



Central Marin Sanitation Agency
Marin County California
Sewer Grant Project C-06-2000

WASTEWATER FACILITIES

TREATMENT PLANT
FLOW DIAGRAM
MAIN PROCESS

G1.9

[redacted]

ATTACHMENT C

Chronic Toxicity

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-Karber. 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	(Skeletonema costatum) (Thalassiosira pseudonana)	growth rate	4 days	1
red alga	(Champia parvula)	number of cystocarps	7-9 days	5
Giant kelp	(Macrocystis pyrifera)	percent germination; germ tube length	48 hours	3
abalone	(Haliotis rufescens)	abnormal shell development	48 hours	3
oyster mussel	(Crassostrea gigas) (Mytilus edulis)	{abnormal shell development; {percent survival	48 hours	2
Echinoderms (urchins - (sand dollar -	Strongylocentrotus purpuratus, S. franciscanus); Dendraster excentricus)	percent fertilization	1 hour	)
shrimp	(Mysidopsis bahia)	percent survival; growth; fecundity	7 days	5
silversides	(Menidia beryllina)	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. Neiheisel, 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	(Pimephales promelas)	survival; growth rate	7 day	6
water flea	(Ceriodaphnia dubia)	survival; number of young	7 days	6
alga	(Selenastrum capricornutum)	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
(Part A and Part B)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

CENTRAL MARIN SANITATION AGENCY
WASTEWATER TREATMENT PLANT

SAN RAFAEL, MARIN COUNTY

NPDES PERMIT NO. CA0038628

ORDER NO. 01-105

Consists of

PART A, August 1993

and

PART B, Adopted September 19, 2001

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 monitorig 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 Regiional 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 according to 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 isdirectly responsible for analytical work performed shall supervise all analytical work including appropriate quality assurance/quality contro1procedures 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 sides 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 compositesampling of effluent.

b. Receiving water samples shall be collected at each 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 macroinvertibrates.
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, andother 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 ard/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 andbacterial 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

ATTACHMENT F

Fact Sheet

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622 – 2300 ◊ Fax: (510) 622 - 2460

FACT SHEET
for

NPDES PERMIT and WASTE DISCHARGE REQUIREMENTS for

CENTRAL MARIN SANITATION AGENCY

Wastewater Treatment Plant
San Rafael, Marin County
(NPDES Permit No. CA0038628)

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NOTICE:

Written Comments

o Interested persons are invited to submit written comments concerning this draft permit.

o Comments shall be received by the Regional Board no later than:
Tuesday, September 4, 2001,5:00 p.m.

Public Hearing

o 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 Office Building, 1515 Clay Street, Oakland, CA; 1st floor Auditorium.

o This meeting will be held on: September 19, 2001, starting at 9:00 am.

Additional Information`

o For additional information about this matter, interested persons should contact Regional Board staff member: Ms. Gina Kathuria, Phone: (510) 622-2378; email: gk@rb2.swrcb.ca.gov

I. DISCHARGER and PERMIT APPLICATION

A. Discharger.

Central Marin Sanitation Agency (CMSA) owns and operates a wastewater treatment plant, which comprises the wastewater collection, treatment and disposal facilities for the discharges regulated by this permit. CMSA is the discharger for this permit.

B. Permit Application.

CMSA 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 the United States.

II. DISCHARGE DESCRIPTION

A. Discharge Facility.

a. The Central Marin Sanitation Agency Wastewater Treatment Plant, is located at 1301 Anderson Drive, San Rafael, Marin County, California.

b. The plant provides secondary level treatment for domestic wastewater from its four member agencies: San Rafael Sanitation District, Sanitary Districts No. 1 and 2 of Marin County, and the City of Larkspur. The discharger also transports and treats sewage from four other sewerage agencies pursuant to separate agreements with member agencies. The four other sewerage agencies are: City of San Rafael, Murray Park Sewer Maintenance District, San Quentin Sewer Maintenance District, and California Department of Corrections (San Quentin Prison). The discharger's service area has a present population of approximately 70,000.

c. The treatment plant has a design capacity of 10.0 million gallons per day (mgd) average dry weather flow. The plant was designed to provide secondary treatment for flows up to 30 mgd, primary treatment for flows up to 90 mgd, and has a hydraulic capacity of 125 mgd. The plant presently discharges an average dry weather flow of 8.0 mgd, and an annual average effluent flow of 11.1 mgd (based on the year 2000 flow data).

d. Prior to discharge to San Francisco Bay, raw sewage passes through comminuters at remote pump stations and is pumped through force mains to the plant. Influent is metered and passes through bar screens and grit removal prior to primary treatment using clarifiers. During high wet weather flows, a portion of primary effluent is routed around biological treatment to the disinfection facility, providing for blending of primary and secondary effluent during wet weather periods when the secondary capacity is exceeded. Flows processed through biological units are treated by high-rate trickling filters followed by conventional activated sludge and secondary clarification. The combined flows are chlorinated and dechlorinated. The dechlorinated flow is discharged through a submarine outfall.

B. Discharges and Locations.

1. ***Central San Francisco Bay Discharge outfall (E-001).***

a. Treated municipal wastewater is discharged 8,000 feet offshore at a depth between 12 feet and 28 feet through a submerged diffuser, at the location identified below.

b. Location: Latitude 37 degrees, 56 minutes, 54 seconds; Longitude 122 degrees, 27 minutes, 23 seconds.

c. The discharge receives an effluent to receiving water initial dilution of about 70:1, and is classified by the Board as a deepwater discharge.

2. ***Wastewater Collection System.***

a. The discharger's wastewater collection system consists of force mains, gravity lines and pump stations, as described below.

i. Force Mains. The discharger owns and operates approximately 3,784 feet of force mains.

ii. Gravity Lines. The discharger does not own or operate any gravity sewer systems with the exception of a few hundred feet of gravity sewers which serve the discharger's administration and maintenance facilities at the wastewater treatment plant site in San Rafael.

iii. Pump Stations. The discharger does not own any pump stations. All collection system and force main pump stations are owned by the discharger's member agencies. The discharger operates and maintains pumps stations for one member agency, Sanitary District No. 2 of Marin County. The discharger also operates pump stations for the Town of Belvedere, which sends its flows to another wastewater treatment facility not owned or operated by the discharger.

b. Wastewater is conveyed to the discharger's system from six satellite collection systems, which include San Rafael Sanitation District, Sanitary District No.1 of Marin County, Sanitary District No.2 of Marin County, and City of Larkspur. Each of the satellite collection systems is operated independently from the discharger and collects wastewater from their respective service area.

3. ***Solids Disposal.***

Wastewater solids are digested in an anaerobic digester, centrifuged and currently disposed of at the Redwood Sanitary Landfill in wet weather, and land-applied to the Lakeville site in Sonoma County in dry weather. Grit is hauled to Marin Sanitary and disposed of at the same landfill. The discharger currently generates about 1,800 dry tons of biosolids per year.

C. Discharge Receiving Waters.

The receiving waters for the subject regulated discharge are the waters of Central San Francisco Bay . The receiving water is estuarine with salinity regimes generally marine in character (See Attachment 1: Salinity Analysis). Effluent limitations are based on marine water quality objectives and ambient background concentrations collected by the RMP from Central Bay Stations at Yerba Buena Island and Richardson Bay from 1992-1998 (See Attachment 2 , Ambient Background Concentrations for inorganics and organics).

D. Discharge Characteristics to Central San Francisco Bay, June 1998- May 2001

See **Attachment 3: Flow, CBOD, TSS, and Toxicity**
Attachment 4: Metals
Attachment 5: Mass Emission Limit Calculations

III. BASIS FOR PERMIT CONDITIONS - GENERAL

A. Permit conditions are based on plans and policies of the California Regional Water Quality Control Board, San Francisco Bay Region (Board), applicable state and federal laws and regulations, regulatory and technical support documents and Best Professional Judgment (BPJ), as defined in the

Basin Plan, of Board staff.

B. The general basis for requirements contained in the draft permit includes the following documents:

1. *Federal Water Pollution Control Act*, as amended (hereinafter referred to as the Clean Water Act).

2. *Code of Federal Regulations*, Title 40 - Protection of Environment, Chapter 1, Environmental Protection Agency, Subchapter D, Water Programs, Parts 122-129 ('40 CFR, specific part').

3. *Water Quality Control Plan for San Francisco Bay Basin*, dated 1986 and 1995 ('Basin Plan'). The Basin Plan includes beneficial uses for waters in the region, water quality objectives and effluent limitations intended to achieve water quality objectives set forth in the Basin Plan.

4. Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (the State Implementation Plan, SIP) adopted on March 2, 2000.

5. Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (CTR);. Federal Register, Volume 65, Number 97, Thursday May 18, 2000, 40 CFR Part 131

6. *Quality Criteria for Water*, EPA 440/5-86-001, 1986 ('Gold Book').

7. *National Toxics Rule*, Federal Register, Volume 57, Number 246, 22 December 1992, pages 60848+, and 40 CFR Part 131.36(b); and *National Toxics Rule Amendment* , Federal Register, Volume 60, Number 86, 4 May 1995, pages 22229-22237 (collectively, 'NTR').

8. *Technical Support Document for Water Quality-Based Toxics Control*, EPA/505/2-90-001, March 1991 ('TSD').

C. All effluent and receiving water limitations of this Order are based on the Basin Plan, other State plans and policies, the SIP, CTR, current plant performance, and BPJ. The limitations are considered to be those attainable by best available technology, and are protective of water quality.

D. In addition to the documents listed in part B above, other USEPA guidance documents upon which BPJ was developed may include in part:

1. Region 9 Guidance For NPDES Permit Issuance, February 1994;
2. Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria, October 1, 1993;
3. Whole Effluent Toxicity (WET) Control Policy, July 1994;
4. Draft National Guidance for the Permitting, Monitoring, and Enforcement of Water Quality-Based Effluent Limitations set Below Analytical Detection/Quantitation Levels, March 18, 1994;
5. National Policy Regarding Whole Effluent Toxicity Enforcement, August 14, 1995;
6. Clarifications Regarding Flexibility in 40 CFR Part 136 Whole Effluent Toxicity (WET) Test Methods, April 10, 1996;
7. Interim Guidance for Performance - Based Reductions of NPDES Permit Monitoring Frequencies, April 19, 1996;
8. Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Programs Final, May 31, 1996;
9. Draft Whole Effluent Toxicity (WET) Implementation Strategy, February 19, 1997.

IV. BASIS FOR PERMIT CONDITIONS - Specific Rationale

Section 402(o) of the 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 existing permit. Therefore, some of the requirements in the proposed Order are based on limits specified in the existing Order. The proposed Order uses the term "Maximum Daily Limit" in lieu of "Daily Average" in specifying the effluent limitations. The term "Maximum Daily Limit" is consistent with the SIP which implements the USEPA TSD guidance.

A. DISCHARGE PROHIBITIONS

1. **Discharge Prohibition A.1** (no discharges other than as described in permit):
   This condition prohibits discharging treated wastewater in a manner different from that described in the finding of this Order. It is based on the previous permit.

2. **Discharge Prohibition A.2** (no discharge receiving less than 10:1 dilution):
   The Basin Plan prohibits discharges not receiving 10:1 dilution (Chapter 4, Discharge Prohibition No. 1).

3. **Discharge Prohibition A.3** (no bypass or overflow of partially treated and untreated wastewater):
   The Basin Plan prohibits discharge of partially treated and untreated wastes (Chapter 4, Discharge Prohibition No.15). This prohibition is based on general concepts contained in Sections 13260 through 13264 of the California Water Code that relate to the discharge of waste to State waters without filing for and being issued a permit. Under certain circumstances, as stated in 40 CFR 122.41 (m), the treatment plant may bypass waste streams in order to prevent loss of life, personal injury, or severe property damage, or if there were no feasible alternatives to the bypass and the discharger submitted notices of the anticipated bypass.

4. **Discharge Prohibition A.4** (average dry weather flow not to exceed 10.0 mgd):
   This prohibition is based on the reliable treatment capacity of the plant. Exceedance of the treatment plant's average dry weather flow design capacity of 10.0 mgd may result in lowering the reliability of achieving compliance with water quality requirements. This prohibition is based on 40 CFR 122.41(l).

5. **Discharge Prohibition A.5** (no discharges other than storm water to storm drains): This prohibition is based on storm water regulations intended to protect beneficial uses of receiving waters from storm water pollutants.

B. EFFLUENT LIMITATIONS

1. Effluent Limitations B.1 and B.2 (listed below):

Permit Limit	Parameter	Units	Monthly Average	Weekly Average	Daily Maximum	Instantaneous Maximum
B.1.a.	Biochemical Oxygen Demand (BOD)	mg/L	30	45	60	--
	or Carbonaceous BOD (CBOD)	mg/L	25	40	--	--
B.1.b.	Total Suspended Solids (TSS)	mg/L	30	45	--	--
B.1.c.	Oil & Grease	mg/L	10	--	20	--
B.1.d.	Settleable Matter	ml/L-hr	0.1	--	0.2	--
B.1.e.	Chlorine Residual	mg/L	--	--	--	0.0
B.2.	BOD and TSS Removal	%	Monthly average, minimum 85% removal			

a. These limits are technology-based limits representative of and intended to ensure adequate and reliable secondary level wastewater treatment. These limits are based on the Basin Plan (Chapter 4, page 4-8, and Table 4-2, at page 4-69). These limits are unchanged from the existing permit, except for the addition of Oil & Grease limits.

b. BOD & TSS, 30 mg/L monthly average, 45 mg/L weekly average, and 60 mg/L daily maximum: These are standard secondary treatment requirements, and existing permit effluent limitations. Basin Plan requirement, derived from federal requirements (40 CFR 133.102). Compliance has been demonstrated by existing plant performance.

c. CBOD, 25 mg/L monthly average and 40 mg/L weekly average:
CBOD is a parameter similar to BOD that is used to measure the potential oxygen demand of wastewater. The CBOD analytical procedure is a modification of the BOD test procedure. The use of CBOD instead of BOD is allowed by the Basin Plan (Table 4-2, footnote b), based on federal regulations (40 CFR 133.102 (a)(4)). The Basin Plan and federal regulations specify that when CBOD is used instead of BOD, the associated limits are 25 mg/L monthly average and 40 mg/L weekly average.

d. BOD and TSS monthly average 85% removal:
Standard secondary treatment requirement, and existing permit effluent limitation. Basin Plan requirement, derived from federal requirements (40 CFR 133.102; definition in 133.101). Compliance has been demonstrated by existing plant performance for ordinary flows (dry weather flows and most wet weather flows). If CBOD analyses are used instead of BOD analyses, the CBOD results are used for determining compliance with this 85 % removal limit.

e. Oil & Grease, Settleable Matter and Total Chlorine Residual:
Standard secondary treatment requirements based on Basin Plan requirements.

2. **Effluent Limitation B.3 (Fecal Coliform Bacteria):**

The purpose of this effluent limitation is to ensure adequate disinfection of the discharges in order to protect beneficial uses of the receiving waters. The Basin Plan's Table 4-2 and its footnotes allow fecal coliform limitations to be substituted for total coliform limitations provided that the discharger conclusively demonstrates "through a program approved by the Regional Board that such substitution will not result in unacceptable adverse impacts on the beneficial uses of the receiving waters". In 1996, the discharger conducted chlorination reduction and receiving water impact monitoring studies, to support substitution of fecal for total coliform effluent limits, this resulted in applying the Basin Plan's five day geometric mean fecal coliform water quality objectives of 200 MPN/100mL and 90th percentile limits of 400 MPN/100mL as effluent limits.

3. **Effluent Limitation B.4 (Whole Effluent Acute Toxicity):**
The Basin Plan specifies a narrative objective for toxicity, requiring that all waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental response on aquatic organisms. Detrimental response includes but is not limited to decreased growth rate, decreased reproductive success of resident or indicator species, and/or significant alternations in population, community ecology, or receiving water biota. These effluent toxicity limits are necessary to ensure that this objective is protected. The acute toxicity limit is based on the Basin Plan. Due to the many difficulties that were encountered during its trial tests of run-through type bioassays using stickleback in accordance with the 4th edition of the USEPA protocols, a 12-month compliance schedule is allowed in the proposed Order to resolve the problems associated with the full

implementation or to come up with a modified version of the 4th edition of the USEPA protocols.

4. **Effluent Limitation B.5 (Whole Effluent Chronic Toxicity):**
In accordance with the SIP, Section 4, this Permit includes requirements for chronic toxicity monitoring based on the Basin Plan narrative toxicity objective. The SIP states "A chronic toxicity effluent limitation is required in all permits for all discharges that will cause, have reasonable potential to cause, or contribute to chronic toxicity in receiving waters. These limits apply to all discharges.

5. **Effluent Limitation B.6 (Mass Emission Limit for Mercury):** See discussion at Fact Sheet Item B.10 (Mercury), below. Additionally, see Attachment 5: Mass Emission Limit Calculations.

   a. Mass Emission Limit. Mercury is identified in the 303(d) list as constituents contributing to impairment of Central San Francisco Bay. To prevent further impairment of receiving water by this constituent, a mass-based loading limit (mass emission limit) for Mercury is proposed in the permit. This limit is established at the 99.7 percentile value (or average + 3* standard deviation) of the calculated total mass loadings from discharges to Central San Francisco Bay, based on effluent data from June 1998 through May 2001. The loadings were calculated using a 12-month moving average of the monthly total mass load..

   b. Compliance with this limit is evaluated on a monthly basis, using 12-month moving average of the total mass load for discharges to Central San Francisco Bay.

   d. The total mass load to be used for evaluating compliance with the mass emission limit shall be calculated as follows:

      (a) Monthly Moving Average of Total Mass Load = Average of the monthly total mass loads from the past 12 months.

      (b) Monthly Total Mass Load (kg/month) = monthly plant effluent flow in mgd from Central San Francisco Bay Outfall (E-001) x monthly effluent concentration measurements in µg/L corresponding to the above flow, (samples taken at E-001) x 0.1151.

      (c) If more than one measurement is obtained in a calendar month, the average of these measurements is used as the monthly value for that month. If test results are less than the method detection limit used, the measurement value is assumed to be equal to the method detection limit.

6. **Effluent Limitation B.7 (pH):**
This effluent limit is a standard secondary treatment requirement and is unchanged from the existing permit. The limit is based on the Basin Plan (Chapter 4, Table 4-2), which is derived from federal requirements (40 CFR 133.102). This is an existing permit effluent limitation and compliance has been demonstrated by existing plant performance. Pursuant to 40 CFR 401.17, excursions of the pH effluent limitations are permitted, provided that both of the following conditions are satisfied: (i) 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 (ii) No individual excursion from the range of pH values shall exceed 60 minutes.

7. **Effluent Limitation B.8 (Toxic Substances):**

a. *General*
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, 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. Summaries of the RPA, water quality objectives and their sources, are provided as attachments (Attachment 6: RPA, Attachment 7: Effluent Limitations Calculations) in this fact sheet.

b. *Water Quality Objectives*
Effluent limitations are derived from the Basin Plan, based on water quality objectives given in the Basin Plan, CTR, and NTR. The Basin Plan directs that prior to formal adoption or promulgation of applicable WQOs, BPJ will be used in deriving numerical effluent limitations that will ensure attainment of narrative WQOs.

The Basin Plan (Table 3-3) and CTR provide numeric objectives for some constituents. The CTR includes a comprehensive list of numeric WQOs for inorganics and organics. The CTR numeric WQOs will apply to discharges except when there are applicable Basin Plan objectives. Where numeric objectives are not specified, 40CFR122.44(d) provides that water quality based effluent limitations may be set based on USEPA criteria and supplemented where necessary by other relevant information to attain and maintain narrative water quality criteria and to fully protect the designated beneficial uses. The Basin Plan also establishes a narrative objective for toxicity: "all waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms, effects on human health due to bioconcentration will be considered".

c. *Dilution*
For discharges to Central San Francisco Bay, effluent limitations were calculated from water quality objectives using a dilution ratio of 10:1. Although the subject discharge achieves initial dilution greater than 10:1, this cautious approach to calculating effluent limitations has been taken based on BPJ for the following reasons. First, due to concern over the cumulative effects of multiple sources of pollutants to the estuary, it is reasonable to limit the mass loading of pollutants by limiting dilution credit. Second, it is difficult to predict actual dilution in an estuary due to tidal circulation.

This conservative approach of setting a maximum dilution credit of 10:1 is also justified by recent monitoring of ambient estuary waters, which have indicated exceedances of certain water quality criteria and sporadic episodes of ambient toxicity. These exceedances and episodes have been documented in technical reports including: "*Trace Elements in San Francisco Estuary: Results from a Preliminary Study in 1989-1990*" (Flegal et al., 1991), prepared by researchers from the University of California at Santa Cruz, "*Ambient Toxicity Characterization of San Francisco Bay and Adjacent Wetland Ecosystems*" (Anderson et al., 1990), prepared by researchers from Lawrence Berkeley Laboratory, University of California, and *"San Francisco Estuary Regional Monitoring Program for Trace Substances*" (1995+), by San Francisco Estuary Institute.

Mercury is listed as a pollutant causing waterbody impairment in the *List of Impaired Water Bodies and Priorities for Development of Total Maximum Daily Loads for the San Francisco Bay Region*, dated March 9, 1998 was approved by State Board and USEPA on May 27, 1998 and May 12, 1999, respectively. For this constituent, the interim effluent limit is based on performance (as determined

by effluent monitoring) data or previous permit limits, whichever value is more stringent. 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 Region-wide Ultra-clean 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. The discharger operates a secondary-level treatment plant, therefore the value of the interim concentration-based limit is 87 ng/L.

d. *Effluent Limit Derivation.*
Effluent limitations are calculated from water quality objectives using the simple steady-state model as described in the SIP (Section 1.4), as follows (see Attachment 7 for Effluent Calculations):

Step 1
For each priority pollutant identified , identify the applicable water quality criteria/objectives for the pollutant. Adjust the criterion or objective, if applicable (hardness, pH, translator). If data are insufficient to calculate the effluent limitation, the RWQCB shall establish interim requirements.

Step 2
For each water quality criterion/objective, calculate the effluent concentration allowance (ECA) using the following steady state mass balance equation:

$ECA = C + D(C-B)$ when $C>B$, and
$ECA = C$ when $C \leq B$

where:

- C = the priority pollutant criterion/objective, adjusted, if necessary for hardnes, pH, and translators (ug/l)
- D = the dilution credit; and
- B = the ambient background concentration(ug/l). The ambient background concentration shall be the observed maximum with the exception that an ECA is calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the ambient concentration as an arithmetic mean.

Step 3
For each ECA based on aquatic life criterion /objective, determine the long-term average discharge condition (LTA) by multiplying the ECA with a factor (multiplier), that adjusts for effluent variability. The multiplier can be calculated (as detailed in the SIP) or can be found in Table 1of the SIP.

$LTA_{acute} = ECA_{acute} * \text{ECA multiplier}_{acute99}$ (from Table 1 or calculated)
$LTA_{chronic} = ECA_{chronic} * \text{ECA multiplier}_{chronic99}$ (from Table 1 or calculated)

Step 4
Select the lowest (most limiting) of the LTAs for the pollutant derived in Step 3.

Step 5
Calculate water quality-based effluent limitations (an average monthly effluent limitation, AMEL, and a maximum daily effluent limitation, MDEL) by multiplying the most limiting LTA (as selected in Step 4) with a factor (multiplier) that adjusts for the averaging periods and exceedance frequencies of the criterion/objective and the effluent limitations, and the effluent monitoring frequency as

follows:
$AMEL_{aquatic\ life}$ = LTA * $AMEL_{multiplier95}$ (from Table 2 or as calculated below)
$MDEL_{aquatic\ life}$ = LTA * $MDEL_{multiplier99}$ (from Table 2 or as calculated below)
The AMEL and MDEL multipliers can be calculated (as detailed in the SIP) or can be found in Table 2 of the SIP.

Step 6
For the applicable human health criterion/objective, set the AMEL equal to the ECA (from Step 2)
$AMEL_{human\ health}$ = ECA
To calculate the MDEL for human health criterion/objective, multiply the ECA by the ratio of the MDEL multiplier to the AMEL multiplier.

MDEL/AMEL multiplier = $MDELmultiplier_{99}$ / AMEL $multiplier_{95}$
$MDEL_{human\ health}$ = ECA * MDEL/AMEL multiplier

Step 7
Identify the lower of (1) the AMEL and MDEL calculated based on the aquatic life criterion/objectives; and (2) the AMEL and MDEL calculated based on human health criterion/objective. *This step was not utilized in the calculation of effluent limits for Zinc and Lead. Human health WQOs are not available for these constituents.*

e. *Constituents of Concern.*
Constituents of concern in this category (Toxic Substances), based on the Basin Plan, include the following: Arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, cyanide. Constituents of concern based on the CTR include numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants.

f. *Effluent Limits Proposed to be Included in the Permit.*
Based on Reasonable Potential Analysis (discussed below), copper, mercury, nickel, cyanide, and zinc have been found to have reasonable potential to cause or contribute to exceedance of water quality objectives.

The existing permit includes effluent limits for these constituents. Based on the RPA, effluent limits will remain for these constituents in this reissued permit.

g. *Effluent Limits Proposed to be Deleted from the Permit.*
Based on RPA (discussed below), arsenic, cadmium, chromium, silver, lead, and selenium have been found to <u>not</u> 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. Continued effluent monitoring for these constituents will be conducted, as identified in the self-monitoring program of the permit.

8. Reasonable Potential Analysis for Effluent Limitation B.8:

a. *Reasonable Potential Analysis.* As specified in 40 CFR 122.44(d) (1) (i), permits are required 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." Using the method described in the SIP, Board staff have analyzed the effluent monitoring and ambient background data to determine if the discharges which are the subject of this Permit have a reasonable potential to cause or contribute to an excursion above a State water

quality standard ("Reasonable Potential Analysis" or "RPA"). See Attachment 6: Reasonable Potential Analysis.

b. *Water Quality Objectives.* The RPA compares the effluent data with numeric and narrative WQOs in the Basin, and numeric WQOs from the CTR, and the NTR.

c. *Ambient Background Concentrations (B).* The RPA includes a comparison of B to the WQO. As stated in the SIP, ambient background concentrations shall be the observed maximum in the water column concentration or the arithmetic mean of observed ambient water concentrations. In setting the ambient background concentrations, it was determined the Central Bay is most representative of ambient background conditions within the San Francisco Bay. The RMP stations at Yerba Buena Island and Richardson Bay located in Central Bay have been sampled for inorganics and organics.

d. *Reasonable Potential Determination.* The RPA involves determining the Maximum Effluent Concentration (MEC) for each constituent, based on effluent concentration data, and receiving water ambient background concentrations (B). The MEC is then compared with the WQO. If the MEC is greater than the WQO, then there is reasonable potential for that constituent to cause or contribute to an excursion above the WQO. If the MEC is below the WQO than the MEC is compared to B. If B is greater than WQO then there is a reasonable potential for that constituent to cause or contribute to an excursion above the WQO. For constituents that exhibit reasonable potential, numeric WQBELs are required.

e. *Effluent Limits.* For all parameters that have reasonable potential to cause or contribute to an exceedance of a WQO, numeric water quality-based effluent limitations (WQBELs) or interim limits are established. The WQBELs are based on CTR water quality criteria or the Basin Plan objectives and are calculated using the methodology described in the SIP.

f. *RPA Data*

(i) ***Effluent Monitoring Data:*** The RPA was based on effluent monitoring data from June 1998 through May 2001. Review of the data found that the following constituents have been observed in the discharged effluent at concentrations greater than respective analytical detection limits: arsenic, cadmium, cyanide, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc. The RPA was conducted for these inorganic constituents.

For organics, in general there was insufficient effluent monitoring data to determine reasonable potential, as a result provisions are included in the permit to expand the analytical list for effluent monitoring to include organics (Listed in Table 2 of the SMP).

(ii) ***Receiving Water Data:*** For constituents where there was available information, ambient background concentrations were determined by using RMP data from 1992-1998 for inorganics and organics collected from Central Bay Stations at Yerba Buena Island and Richardson Bay.

g. *Constituents Identified in 303 (d) List*

Constituents of concern identified in the 303 (d) list as contributing to the impairment of Central San Francisco Bay include copper, mercury, selenium, DDT, diazinon, PCBs and exotic species. For constituents identified in the 303 (d) list, final determination of reasonable potential and the need for effluent limits requires additional considerations. For some of these constituents, current analytical data is insufficient to be able to assess reasonable potential. Constituents for which RP determinations are made for this permit are copper, mercury, and selenium.

h. *Discharges to Central San Francisco Bay*

(1) *Reasonable Potential.* Based on the RPA, the following constituents have been found to have reasonable potential to cause or contribute to excursion above water quality objectives: copper, mercury, nickel ,cyanide, and zinc. Based on the RPA, water quality-based effluent limits or interim limits are required to be included in the permit for these constituents.

(2) *No Reasonable Potential.* Based on the RPA, the following constituents have been found to not show reasonable potential to cause or contribute to excursion above applicable water quality objectives: arsenic, cadmium, chromium, silver, nickel, lead, and selenium. Based on the RPA and continued consistent plant performance, effluent limits for these constituents are not needed and are not included in this permit.

(3) For some of the organics (CTR compound 16-126), there is insufficient effluent monitoring data, so the comparison of MEC to WQO cannot be performed. Provisions are included in this permit requiring the discharger to monitor the effluent for these constituents. Upon completion of the required monitoring, the Board shall use the gathered data to complete the RPA.

i. *Summary of Reasonable Potential Analysis (RPA) Determinations for Inorganics*

The WQOs, Maximum Effluent Concentrations (MECs), Ambient Background Value (B) and reasonable potential conclusions from the RPA are listed in the following table for each constituent analyzed.

Constituent	WQO (µg/L)	Basis for WQO	MEC (µg/L)	B (ug/L)	RP
Arsenic	36	Basin Plan	1.9	2.22	No
Cadmium	9.3	Basin Plan	0.6	0.13	No
Chromium	50	Basin Plan	2.3	4.4	No
Copper	3.7	CTR	6.9	2.45	Yes
Lead	5.6	Basin Plan	2.7	0.8	No
Mercury	0.025	Basin Plan	0.09	0.006	Yes
Nickel	7.1	Basin Plan	11.0	3.5	Yes
Selenium	5.0	CTR	1.7	0.19	No
Silver	2.3	Basin Plan	1.3	0.068	No
Zinc	58	Basin Plan	82.0	4.6	Yes
Cyanide	1	NTR	16.0	<1	Yes

NA: Background concentration not available

j. *Phenols.* This Order implements the policy and regulations of the CTR and SIP in regard to phenolic compounds. The previous permit contained an effluent limit for total phenols of 500 ug/l, based on a technology based effluent limit established in the Basin Plan. The CTR specifies criteria for individual phenolic compounds which are a subset of total phenols. The previous total phenols limit may be more restrictive for several phenolic compounds (e.g. phenol, and 2,4-dimethylphenol) than the water quality based limits calculated from the SIP owing to their high CTR criteria. However, for most of the phenolic compounds in the CTR, the water quality based limits would be more restrictive. Retaining limits for both total and individual phenolics would potentially limit and count the same pollutant twice. Therefore, this Order follows the requirements of the CTR and SIP in lieu of the Basin Plan technology limit because 1) the water quality considerations of the CTR and SIP are generally more restrictive, and 2) the low historic concentrations of total phenols in the discharge. At this time, there is no effluent data from the Discharger upon which to conduct a RPA for specific phenolic compounds. This Order requires

the Discharger to collect the necessary data, with a permit re-opener to establish limits if new data show that there is a reasonable potential and limits are necessary.

k. *Summary of Reasonable Potential Analysis (RPA) Determinations for organics*
First RPA trigger (MEC > WQO): As stated in (b) , there is insufficient effluent monitoring data for organics, so the comparison of WQO to MEC cannot be performed for all constituents ***Second RPA trigger (B > WQO):*** There are ambient background concentrations (B) for 23 organic constituents are available from the RMP (Central Bay Station at Yerba Buena Island (1992-1998)). This comparison was performed and the RP conclusions from the RPA are in the following table:

CTR Number	Constituent	WQO (µg/L)	MEC (µg/L)	B	RP
56	Acenaphthene	2700	3.00	0.0015	I
58	Anthracene	110000	3.00	0.0005	I
60	Benzo(a)Anthracene	0.049	3.00	0.0053	I
61	Benzo(a)Pyrene	0.049	3.00	0.0025	I
62	Benzo(b)Fluoranthene	0.049	3.00	0.0046	I
64	Benzo(k)Fluoranthene	0.049	3.00	0.0015	I
73	Chrysene	0.049	3.00	0.0041	I
74	Dibenzo(a,h)Anthracene	0.049	3.00	0.0006	I
86	Fluoranthene	370	3.00	0.007	I
87	Fluorene	14000	3.00	0.002078	I
92	Indeno(1,2,3-cd) Pyrene	0.049	3.00	0.004	I
100	Pyrene	11000	3.00	0.0051	I
107	Chlordane	0.00059	NA	0.00018	I
108	4,4-DDT	0.00059	NA	0.000066	I
109	**4,4-DDE**	**0.00059**	**NA**	**0.00069**	**Yes, (a)**
110	4,4-DDD	0.00084	NA	0.000313	I
111	**Dieldrin**	**0.00014**	**NA**	**0.000264**	**Yes, (a)**
112	alpha-Endosulfan	0.0087	NA	0.000031	I
113	beta-Endosulfan	0.0087	NA	0.000069	I
114	Endosulfan Sulfate	240	NA	0.000011	I
115	Endrin	0.0023	NA	0.000016	I
117	Heptachlor	0.00021	NA	0.000019	I
118	Heptchlor Epoxide	0.00011	NA	0.000094	I

* WQO based on the numeric WQO for protection of human health through consumption of organisms only.
** NA = Effluent monitoring data not available
*** I = The RPA, for this constituent, is incomplete pending effluent characterization, as specified in Provision 12.

(a) No effluent concentration data exist to calculate a WQBEL using Section 1.4 of the SIP. Effluent characterization study required by provisions in this Order

l. *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 annual sampling from 1998 to 2000. All of the concentrations were reported as non-detected with detection limits higher that the WQOs. Background concentrations were all below the WQOs. Based on the SIP, there is insufficient data to determine reasonable potential. A provision

requires the discharger to characterize the effluent for individual PAH constituents listed in Table 2 of the SMP 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.

m. *(i)* A MEC could not be determined for 4,4 DDE and Dieldrin because the discharger has not sampled for these constituents in the effluent. The RPA was based on comparing the WQO with ambient background concentrations. According to the RPA methodology described in the SIP, 4,4 DDE and Dieldrin have reasonable potential to cause or contribute to an excursion above a WQO and a numeric WQBEL is required. An interim limit cannot be established because there is no effluent data. As a result provisions are included in the permit requiring the discharger to conduct effluent monitoring and ambient background monitoring to characterize 4,4 DDE and Dieldrin.

(ii) Upon completion of the required monitoring, the RWQCB shall use the gathered data to establish interim limits.

(iii) The Central Bay is listed as impaired for DDT (4,4 DDE is chemically linked to the presence of DDT) and Dieldrin. The Board intends to work toward derivation of a TMDL that will lead towards overall reduction of this constituent. Based on these studies, the final limit will be based on the derived TMDL/WLA.

n. *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 but continued monitoring is required as identified in the self-monitoring program of 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 pose a threat to water quality.

o. *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.

9. Basis for Calculation of Water Quality Based Effluent Limitations

Water-quality based effluent limitations (WQBELs) were calculated using Section 1.4 of the State Implementation Plan (SIP). The methodology is described in 7(d) of the Fact Sheet. The WQBELs calculations are attached. WQBELs were calculated because there was reasonable potential for these constituents to cause, or contribute to an excursion above a State water quality standard, as determined by the reasonable potential analysis.

To calculate the final WQBELs, the following parameters and assumptions were used:

- Background (B): The maximum or average background value, as appropriate, from the Regional Monitoring Program (RMP) Central Bay Stations, Yerba Buena Island and Richardson Bay. The RMP data set includes information gathered from 1992-1998.
- Coefficient of Variation (CV): CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values. When calculating the CV, if an effluent data point is below the detection limit, one-half of the detection limit is used as the value in the calculation. The three most recent years of effluent data (June 1998- May 2001) is used to calculate the CV.
- In response to the State Board's recommendation (SB Order # WQ 2001-06), staff has

evaluated the assimilative capacity of the receiving water for 303(d) listed pollutants. 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 representiveness of the appropriate ambient background data to conclusively quantify the assimilative capacity of the receiving water. However in calculating the final WQBEL for non-bioaccumulative 303(d)-listed constituents, it is assumed there is assimilative capacity, and a 10:1 dilution is granted.

- Dilution (D):
  i. 10:1 dilution is given to non-bioaccumulative constituents, such as Cu, and Ni;
  ii. 10:1 dilution is not given to 303(d)-listed bioaccumulative constituents, such as Hg; and

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 July 3, 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 compliance schedule of May 18, 2010 for final limits based on the Basin Plan objectives (e.g., mercury). The May 18, 2010 compliance schedule exceeds the length of the permit, therefore, these calculated 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 mercury will very likely be based on the TMDL/WLA as described in other findings.

Pursuant to SIP (Section 2.2.2, Interim Requirements for Providing Data), in the case where available data are insufficient (e.g., cyanide), a data collection period 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 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 final limit, the permit revision will establish a maximum five-year compliance schedule. During the data collection period, 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: FEASIBILITY ANALYSIS TO COMPLY WITH WQBELs

CONSTITUENT	AMEL (ug/L)	MEC (ug/L)	IS MEC > AMEL	FEASIBILITY TO COMPLY (Y/N)
Copper	13.1	6.9	N	Y
Nickel	34.4	11	N	Y
Zinc	482	82	N	Y
Mercury	0.016	0.09	Y	N

11. Copper - Further Discussion and Rationale for Effluent Limits

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. 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 can immediately comply with the calculated WQBELs. In addition, CMSA 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.

12. Mercury - Further Discussion and Rationale for 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 Gold Book, the freshwater objective is based on the Final Residual Value of 0.012 µg/L which was derived from the bioconcentration factor of 81,700 for methylmercury with the fathead minnow, and which assumes that essentially all discharged mercury is methylmercury. The saltwater objective of 0.025 µg/L was similarly derived using the bioconcentration factor of 40,000 obtained for methylmercury with the eastern oyster and the criterion is listed in the 1986 Basin Plan. The CTR adopted a dissolved mercury water quality objective of 0.05 ug/L for protection of human health. However, according to Footnote b in the CTR's Table of Criteria for Priority Toxic Pollutants, "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 Water Resources Control Board, approved by USEPA, and which continue to apply. This criterion is below levels that have produced acute and chronic toxicity in salt-water aquatic species.

b. *Ambient Receiving Water Concentrations.* Ambient water quality monitoring conducted by the Regional Monitoring Program (RMP) includes sampling for both total and dissolved mercury. Sampling stations in the vicinity of the discharge include five stations in Central San Francisco Bay (Yerba Buena Island, Golden Gate, Richardson Bay, Point Isabel, and Red Rock). For the five stations in Central San Francisco Bay, total mercury concentrations ranged from 0.003 µg/L to 0.0067 µg/L (n= 90 samples).

c. *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. At present, it appears that the appropriate course of action is to apply mass loading limits to these discharges, and focus mercury reduction efforts on more significant and controllable sources. While a Total Maximum Daily Load (TMDL) is being developed, ambient receiving water conditions should be maintained. As part of the effort to achieve this goal, the permit includes effluent concentration and mass emission loading limit for mercury, as described below. In addition to these limits, the permit requires the discharger to maximize control over influent

mercury sources, with consideration of relative costs and benefits. The discharger is encouraged to 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.

d. *Performance-based 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 secondary, and based on the final statistical analysis; the Discharger's interim regionwide mercury effluent limit is 0.087 ug/L, taken as the monthly average mercury concentration. For further information, see attached staff report entitled "Statistical Analysis of Pooled Data from Regionwide Ultraclean Mercury Sampling".

e. *Water Quality Based Effluent Limit.* As discussed above, the discharger cannot meet the calculated WQBELs, so a compliance schedule has been granted until May 18, 2010. To satisfy the conditions of a compliance schedule, there is a provision requiring a source control program, along with interim performance-based effluent limits.

f. *Mass Emission Limit.* The permit includes a mass-based loading limit (mass emission limit) for mercury of 0.010 kilograms per month. This limit is the 99.7 percentile value, moving-average value of mass loading from discharges to Central San Francisco Bay, based on effluent data from June 1998 through May 2001. The calculation of the Mercury Mass Emission Limit is shown on Attachment 5.

g. *Source Control and Special Studies.* As a prerequisite to be granted a compliance schedule and interim limit, the discharger committed to implement source control and pollution prevention activities in its infeasibility analysis, submitted July 3, 2001. 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 this 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. Cyanide

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 Beuna Island stations. 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 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 final limit, the permit revision will establish a maximum five-year compliance schedule.

c. In the meantime, the SIP requires an interim numeric effluent limit for the pollutant based on current treatment plant performance, or previous permit limitations, whichever is more stringent. This Order establishes interim concentration-based effluent limit for cyanide of 25 µg/L, based on the previous permit limit. The performance-based limit of 31 ug/L, which was calculated using a valid statistical probit analysis, was higher than the previous permit limit of 25 ug/L. The probit analysis is utilized when the data set is predominately non-detects. The cyanide data set contained only 33% detectable values, the majority of the samples were non-detects.

14. Zinc - Further Discussion and Rationale for Effluent Limits

a. *Treatment Plant Performance and Compliance Attainability.* Effluent concentrations during the past three years (1998-2000) range from <10 to <250 µg/L (36 samples). The effluent (detected concentrations) discharged to Central San Francisco Bay has been in consistent compliance with the previous permit limit of 580 µg/L.

b. *Final Water Quality Based Effluent Limitation (WQBEL) Calculations.* The final WQBEL is set at the lower of (1) the previous permit limit (average daily = 580 ug/L) or (2) at the values calculated by the methodology described in the SIP (average monthly = 482 ug/L and maximum daily = 750 ug/L). In both cases, to determine the final WQBEL the same water quality objectives were used [58 ug/L for chronic toxicity and 170 ug/L for acute toxicity]. However the methodology to calculate final WQBELs has significantly changed.

   i. *Basin Plan.* The following equation is used $C_e = C_o + D(C_o - C_b)$. This methodology determined the WQBEL to equal 580 ug/L.

   ii. *SIP.* The SIP describes a more complex steady-state statistical approach , the detailed methodology is described in 7d. of the Fact Sheet. The SIP methodology projects the zinc WQOs (both acute and chronic) as a maximum daily limit and average monthly limit while incorporating site specific data variability. This methodology determined the WQBEL to equal: Average Monthly Limit= 482 ug/L and Maximum Daily Limit = 750 ug/L.

c. *Selection of Zinc WQBEL.* Upon evaluation of the previous permit limit and the limits derived from the SIP methodology, it was determined the SIP limits are more stringent. As a result the final zinc WQBELs are Average Monthly Limit= 482 ug/L and Maximum Daily Limit = 750 ug/L.

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 (requiring compliance with Federal and State law):** This limit is in the existing permit, requires compliance with Federal and State law, and is self-explanatory.

D. SLUDGE MANAGEMENT PRACTICES

These requirements come from the Chapter 4 of the Basin Plan, 40 CFR 257 and 40 CFR 503.

E. PROVISIONS

1. **Provision E.1 (compliance starting October 1, 2001):** This provision is based on 40 CFR 122.

2. **Provision E.2 (rescinding existing order):** This order supercedes and rescinds the existing permit order as of September 30, 2001. This provision is based on 40 CFR 122.46.

3. **Provision E.3 (self-monitoring program):** The discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are given in the Self Monitoring Program (SMP) of the Permit. This provision requires compliance with the SMP, and is based on 40 CFR 122.62, 122.63 and 124.5.

4. **Provision E.4 (standard provisions and reporting requirements):** The purpose of this provision is to require compliance with the standard provisions and reporting requirements given in this Board's document titled, *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993*, or any amendments thereafter. This document is included as part of the permit as an attachment of the permit. Where provisions or reporting requirements specified in the permit are different from equivalent or related provisions or reporting requirements given in '*Standard Provisions*', the specifications given in the permit shall apply. The standard provisions and reporting requirements given in the above document are based on various state and federal regulations with specific references cited therein.

5. **Provision E.5 (Facility Operations during Wet Weather Conditions):** The purpose of this provision is to ensure that wastewater collection system and treatment facilities are operated in a manner to provide optimal control and treatment of wastewater during wet weather conditions.

6. **Provision E.6 (compliance with whole effluent acute toxicity effluent limits):** This provision establishes conditions by which compliance with permit effluent limits for acute toxicity will be demonstrated. Conditions include the use of 96-hour bioassays; flow-through bioassays for discharges to Central San Francisco Bay. These conditions are based on the effluent limits for acute toxicity given in the Basin Plan, Chapter 4, and BPJ. In addition, a schedule is established for the discharger to initiate approved EPA protocol (4th edition) by September 1, 2002.
7. **Provision E.7 (Whole Effluent Chronic Toxicity Requirements):**

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 Central 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.

Chronic Toxicity Program History.
The Basin Plan contains a narrative toxicity objective 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." The Board initiated the Effluent Toxicity Characterization Program (ETCP) in 1986 with the goal of developing and implementing toxicity limits for each discharger based on actual characteristics of both receiving waters and waste stream. Two rounds of effluent characterization were conducted by selected dischargers beginning in 1988 and in 1991. A second round was completed in 1995. Board guidelines for conducting toxicity tests and analyzing results were published in 1988 and last updated in 1991.

The Board adopted Order No. 92-104 in August 1992 amending the permits of eight dischargers to include numeric chronic toxicity limits. However, due to the court decision which invalidated the California Enclosed Bays and Estuaries Plan and Inland Surface Waters Plan, on which Order No. 92-104 was based, the SWRCB stated, by letter dated November 8, 1993, that the Board will have to reconsider the order. This letter also committed to providing the regional boards with guidance on issuing permits in the absence of the State Plans (Guidance for NPDES Permit Issuance, February 1994).

SWRCB Toxicity Task Force Recommendations.
The Toxicity Task Force provided several consensus-based recommendations in their October 1995 report to the SWRCB for consideration in redrafting of the State Plans. A key recommendation was that permits should include narrative rather than numeric limits, with numeric test values used as toxicity "triggers" to first accelerate monitoring, then to initiate Toxicity Reduction Evaluations (TREs).

Regional Board Program Update and BPJ.
The Board intends to reconsider Order No. 92-104 as directed by the SWRCB, and to update, as appropriate, the Board's Whole Effluent Toxicity (chronic and acute) program guidance and requirements. This will be done based on analysis of discharger routine monitoring and ETCP results, and in accord with current USEPA and SWRCB guidance. Decisions regarding the need for and scope of chronic toxicity requirements for individual dischargers will be consistent with the SIP and Basin Plan.

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), USEPA and SWRCB Task Force guidance, applicable federal regulations [40 CFR 122.44(d)(1)(v)], and BPJ.

8. Provision E.8 (Mercury Mass Loading Reduction Study and Schedule)
This provision identifies actions to be taken by the discharger in the event that mass loading of mercury from the treatment plant discharges exceeds the mercury mass emission limit identified in the Permit. Actions identified include notification of the Board of such exceedance, re-sampling to verify exceedance, and development of a mercury source control and reduction program. The source control

and reduction program requirements include time-scheduled tasks for a study to investigate sources and potential reduction measures, status reports to the Board, a final report of study conclusions and feasible mercury control options, and a plan for development of all reasonable control measures based on study conclusions.

9. **Provision E.9 (Pollutant Minimization Plan (PMP))**
The discharger shall continue to implement and improve its existing Pollution Prevention Program in order to reduce pollutant loadings to the treatment plant and therefore to the receiving waters.

The PMP is required by the SIP (Section 2.4.5.1). The goal of the PMP shall be shall be to reduce all potential sources of priority pollutant(s) through pollutant minimization (control) strategies to maintain the effluent concentration at or below a WQBEL. If the discharger using the new or improved methods finds pollutants present at levels above the new detection limits but below the former analytical quantification limit established, and it is determined the pollutant has reasonable potential to cause or contribute to exceedance of State water quality standards; then in the absence of effluent limits, the Discharger shall implement a pollutant minimization plan to achieve the water quality standards.

To the extent where 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

10 **Provision E.10 (Marine Outfall Maintenance)**
The discharger shall complete a study to evaluate the continuous maintenance of the marine outfall. CMSA has already identified the mechanisms leading to the accumulation of solids in the outfall. The results of the study must conclusively demonstrate that the disposal options of the accumulated solids will not result in unacceptable adverse impacts on the beneficial uses of the receiving water. In addition, the discharger shall perform continued maintenance and retrofitting of the marine outfall to prevent future accumulation of solids.

In the event a translator study is not completed within the specified time, the USEPA conversion factor shall be the default translator.

11. **Provision E. 11 (Special Study – Effluent Characterization for Selected Constituents)**
Review of effluent monitoring data from June 1998 through May 2001 found that there was insufficient effluent monitoring data to determine reasonable potential for some constituents listed in the SIP. As a result provisions are included in the permit to expand the analytical list for effluent monitoring (Listed in Table 2 of the SMP).

12. **Provision E. 12 (Special Study – Dioxin Study)**
The SIP states whether or not an effluent limitation is required for 2,3,7,8 – TCDD, each RWQCB shall require major and minor POTWs and industrial dischargers in its region to conduct effluent monitoring for the 2,3,7,8 TCDD congeners. The purpose of the 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.

13. **Provision E. 13 (Special Study – Ambient Background Concentration Determination)**
Review of the ambient background concentrations found that there was insufficient receiving water data to determine reasonable potential and calculate numeric WQBELs for some constituents listed in the SIP. As a result provisions are included in the permit to expand the analytical list for

receiving water monitoring (Listed in Table 2 of the SMP). This may occur either through participation in new RMP special studies or through equivalent studies conducted jointly with other dischargers.

14. **Provision E. 14 (Special Study – Cyanide Site-Specific Objective)**
This provision requires 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 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 final limit, the permit revision will establish a maximum five-year compliance schedule.

15. **Provision E.15 (TMDL/SSO Participation Requirement)**
This provision requires the Discharger to participate in the development of a TMDL or SSO for mercury and cyanide. In the annual self monitoring report, the Discharger shall submit an update to the Board to document progress made on source control and pollutant minimization measures and their participation in the development of a TMDL and/or SSO.

Ongoing Programs

16. **Provision E.16 (Regional Monitoring Program)**
This provision, which requires the Discharger to continue to participate in the Regional Monitoring Program, is based on the previous order and Basin Plan.

17. **Provision E.16 (Pretreatment Program)**
This provision is based on the Basin Plan and General Pretreatment Regulations in 40 CFR 403.

Optional Studies

18. **Provision E.18 (Optional Mass Offset)**
This optional provision is provided to encourage the discharger to develop and implement means by which mass loads of mercury and selenium to Central San Francisco Bay could be more effectively reduced.

19. **Provision E.19 (Optional Copper Translator Study and Schedule)**
This optional provision is based on the need to gather site-specific information in order to use the dissolved criterion for copper. If the Board decides to apply the national dissolved water quality objective for copper to the discharge, then it will be in the discharger's best interest to provide site-specific data that can be used to translate the dissolved criteria into a total recoverable limit. Without site-specific data, a translator conversion factor of 0.83 may be used.

    As stated in the SIP, Section 4.4.1, an interim deadline to submit the results of the study shall be specified by the Board, and shall not exceed two years from the date of the reissuance of the permit.

20. **Provisions E.20, E.21, E.22, and E.23 (wastewater facilities review and evaluation, operation and maintenance manual, contingency plan, 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, and BPJ.

21. **Provision E.24 (modification of the permit to reflect the 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.

22. **Provision E.25 (change in control or ownership):** This provision is based on 40 CFR 122.61.

23. **Provision E.26 (reopener; modification or revocation and reissuance of the permit):** This provision is based on 40 CFR 123.

24. **Provision E.27 and E. 28 (NPDES Permit and USEPA concurrence):** This provision is based on 40 CFR 123.

25. **Provision E.29 (permit expiration and re-application):** This provision is based on 40 CFR 122.46(a).

V. SELF-MONITORING PROGRAM REQUIREMENTS

A. The Self-Monitoring Program (SMP) 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 Regional Board policy. The basis and purpose of the SMP are described in the SMP. The contents of the SMP are restated here for reference:

Contents:

SMP Title Page
I. Description of Sampling and Observation Stations
II. Schedule of Sampling, Analyses and Observations (Table 1)
Legend for Table 1 and Footnotes for Table 1
III. Specifications for Sampling, Analyses and Observations
IV. Selected Constituents Monitoring (Table 2)
V. Reporting Requirements
VI. Recording Requirements - Records to Be Maintained
VII. Self-Monitoring Program Certification

B. The SMP defines the sampling 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). The monitoring frequency proposed is based on consideration of the following factors: past monitoring results and experience, monitoring programs for other similar discharges regulated by the Board, and 40 CFR 122.44(I).

VI. ADDITIONAL INFORMATION

For additional information about this matter, interested persons should contact the following Regional Board staff member: Ms. Gina Kathuria, Phone number: (510) 622-2378, or by email at gk@rb2.swrcb.ca.gov.

ATTACHMENT 1

Salinity Analysis

CENTRAL MARIN SANITATION AGENCY
SALINITY ANALYSIS

Station	Date	Salinity (by SCT) o/oo
Richardson Bay	1/29/98	22.6
Yerba Buena Island	1/29/98	21.1
Richardson Bay	4/21/98	17.6
Yerba Buena Island	4/20/98	16.7
Richardson Bay	7/22/98	26.8
Yerba Buena Island	7/22/98	25
Richardson Bay	1/23/97	14.7
Yerba Buena Island	1/23/97	12.1
Yerba Buena Island	4/14/97	25
Richardson Bay	4/14/97	26
Richardson Bay	7/31/97	29.3
Yerba Buena Island	7/30/97	29.9
Richardson Bay	2/7/96	14
Yerba Buena Island	2/7/96	22
Richardson Bay	4/29/96	24
Yerba Buena Island	4/30/96	23.2
Richardson Bay	7/25/96	29.5
Yerba Buena Island	7/26/96	29.2
Average		22.70556
Stnd Deviation		5.642431
Maximum*		29.9
>10 ppt		100%
>5 ppt		100%

As represented above, SASM meets
the saltwater definition of salinity.
The CTR states "saltwater criteria apply at salinities of 10 parts per thousand and above at locations where this occurs 95% more of the time."

ATTACHMENT 2

Ambient Background Concentrations

CMSA

REGIONAL MONITORING PROGRAM WATER DATA TOTAL METALS (UG/L)

Station Code	Station Name	Region	Collection Date	Tot Ag ppb	Tot As ppb	Tot Cd ppb	Tot Cr ppb	Tot Cu ppb	Tot CN ppb	Tot Hg ppb	Tot Ni ppb	Tot Pb ppb	Tot Se ppb	Tot Zn ppb
BC10	YERBA BUE IS	Central Bay	4/1/92	0.01		0.06	0.27	1.67			1.87	0.13		1.35
BC10	YERBA BUE IS	Central Bay	3/1/93	0.00		0.03	0.86	2.45	<1	0.0040	2.74	0.24		1.86
BC10	YERBA BUE IS	Central Bay	6/1/93	0.05		0.07	1.42	1.61	<1	0.0035	1.79	0.24		1.87
BC10	Yerba Bue Is	Central Bay	9/13/93	0.01		0.06	0.90	1.66	<1	0.0039	1.46	0.27		1.76
BC10	YERBA BUE IS	Central Bay	2/3/94	0.01		0.06	1.07	1.68		0.0042	2.13	0.28		3.26
BC10	YERBA BUE IS	Central Bay	4/20/94	0.02		0.10	1.78	2.34		0.0064	3.21	0.80		3.22
BC10	YERBA BUE IS	Central Bay	8/17/94	0.01		0.13	1.17	2.02		0.0029	2.06	0.19		1.77
BC10	YERBA BUE IS	Central Bay	2/8/95	0.00		0.03	0.85	2.27		0.0025	2.81	0.15		2.01
BC10	YERBA BUE IS	Central Bay	6/17/95	0.00		0.05	1.64	1.80		0.0034	2.63	0.35		2.23
BC10	YERBA BUE IS	Central Bay	8/16/95	0.01		0.09	0.58	1.33		0.0022	1.43	0.18		1.48
BC10	YERBA BUE IS	Central Bay	2/7/96	0.00		0.07	1.19	2.12		0.0045	2.32	0.34		4.39
BC10	Yerba Bue Islar	Central Bay	4/30/96	0.00	1.61	0.05	0.70	1.24		0.0018	1.24	0.12	0.11	1.24
BC10	Yerba Bue Islar	Central Bay	7/26/96	0.01	2.13	0.10	4.40	1.75		0.0037	2.53	0.27	0.09	2.41
BC10	Yerba Bue Islar	Central Bay	1/23/97		1.47	0.03	3.28	1.80		0.0001	2.40	0.28	0.11	2.40
BC10	Yerba Bue Islar	Central Bay	4/14/97		2.11	0.07	1.41	1.80		0.0038	1.90	**	0.11	2.80
BC10	Yerba Bue Islar	Central Bay	7/30/97		2.22	0.10	1.39	1.50		0.0026	2.30	**	0.14	1.70
BC10	Yerba Buena Island		1/29/98	0.01	1.98	0.04	3.05	2.20		0.0055	3.50	0.67	0.15	4.20
BC10	Yerba Buena Island		4/20/98	0.00	1.52	0.02	2.69	2.10		0.0030	2.40	0.35	0.19	2.60
BC10	Yerba Buena Island		7/22/98	0.00	1.92	0.07	0.71	1.30		0.0023	1.60	0.16	0.12	2.00
BC30	RICHARDSON	Central Bay	4/1/92	0.00		0.04	0.85	1.71			1.41	0.15		2.26
BC30	RICHARDSON	Central Bay	3/1/93	0.00		0.03	0.76	2.41	<1	0.0038	2.00	0.23		1.61
BC30	RICHARDSON	Central Bay	6/1/93	0.07		0.07	1.27	2.02	<1	0.0044	1.80	0.35		2.89
BC30	Richardson Bay	Central Bay	9/14/93	0.01		0.07	1.46	1.48	<1	0.0048	1.74	0.39		2.06
BC30	RICHARDSON	Central Bay	2/2/94	0.01		0.04	1.80	1.50		0.0064	2.42	0.49		3.01
BC30	RICHARDSON	Central Bay	4/21/94	0.01		0.06	0.51	1.35		0.0026	1.38	0.15		1.54
BC30	RICHARDSON	Central Bay	8/17/94	0.01		0.10	1.21	1.81		0.0033	1.85	0.29		1.47
BC30	RICHARDSON	Central Bay	2/9/95	0.00		0.02	0.84	2.27		0.0024	2.76	0.16		1.99
BC30	RICHARDSON	Central Bay	6/17/95	0.00		0.05	0.78	1.57		0.0025	1.96	0.21		1.63
BC30	RICHARDSON	Central Bay	8/17/95	0.00		0.10	0.94	1.42		0.0027	1.71	0.21		1.63
BC30	RICHARDSON	Central Bay	2/8/96	0.00		0.04	1.40	2.14		0.0032	2.39	0.45		4.01
BC30	Richardson Bay	Central Bay	4/29/96	0.01	1.72	0.03	1.00	1.66		0.0028	1.47	0.12	0.11	1.74
BC30	Richardson Bay	Central Bay	7/25/96	0.00	2.02	0.09	1.20	1.55		0.0025	1.70	0.28	0.08	2.90
BC30	Richardson Bay	Central Bay	1/23/97		1.67	0.04	3.31	2.00		0.0044	2.60	0.45	0.11	4.60
BC30	Richardson Bay	Central Bay	4/14/97		1.99	0.08	1.42	1.50		0.0032	2.00	**	0.12	3.10
BC30	Richardson Bay	Central Bay	7/31/97		2.09	0.09	1.59	1.30		0.0020	2.20	**	0.09	1.40
BC30	Richardson Bay		1/29/98	0.01	1.73	0.03	1.57	2.10		0.0031	2.10	0.28	0.10	2.70
BC30	Richardson Bay		4/21/98	0.01	1.71	0.02	2.15	1.90		0.0046	2.30	0.34	0.16	2.50
BC30	Richardson Bay		7/22/98	0.00	1.86	0.07	1.30	1.30		0.0021	1.80	0.23	0.09	2.30
Average				0.00939	1.85938	0.06048	1.43956	1.77968	<1	0.00336	2.10339	0.28837	0.11731	2.36551
Maximum				0.06828	2.22000	0.12679	4.40000	2.45466	<1	0.00640	3.50000	0.80353	0.19000	4.60000

Central Bay (YBI & RB) (92-98)

Background Concentrations for Organics

# in CTR	ORGANICS	lowest WQO	Max Observed bckgrnd (RMP, YBI stn, '93-'98)	average bckgrnd (RMP, YBI stn, '93-'98)
16	2,3,7,8-TCDD (Dioxin)	1.4E-08	NA	
17	Acrolein	780	NA	
18	Acrylonitrile	0.66	NA	
19	Benzene	71	NA	
20	Bromoform	360	NA	
21	Carbon Tetrachloride	4.4	NA	
22	Chlorobenzene	21000	NA	
23	Chlordibromomethane	34	NA	
24	Chloroethane		NA	
25	2-Chloroethylvinyl Ether		NA	
26	Chloroform		NA	
27	Dichlorobromomethane	46	NA	
28	1,1-Dichloroethane		NA	
29	1,2-Dichloroethane	99	NA	
30	1,1-Dichloroethylene	3.2	NA	
31	1,2-Dichloropropane	39	NA	
32	1,3-Dichloropropylene	1700	NA	
33	Ethylbenzene	29000	NA	
34	Methyl Bromide	4000	NA	
35	Methyl Chloride		NA	
36	Methylene Chloride	1600	NA	
37	1,1,2,2-Tetrachloroethane	11	NA	
38	Tetrachloroethylene	8.85	NA	
39	Toluene	200000	NA	
40	1,2-Trans-Dichloroethylene	140000	NA	
41	1,1,1-Trichloroethane		NA	
42	1,1,2-Trichloroethane	42	NA	
43	Trichloroethylene	81	NA	
44	Vinyl Chloride	525	NA	
45	Chlorophenol	400	NA	
46	2,4-Dichlorophenol	790	NA	
47	2,4-Dimethylphenol	2300	NA	
48	2-Methyl-4,6-Dinitrophenol	765	NA	
49	2,4-Dinitrophenol	14000	NA	
50	2-Nitrophenol		NA	
51	4-Nitrophenol		NA	
52	3-Methyl-4-Chlorophenol		NA	
53	Pentachlorophenol	7.9	NA	
54	Phenol	4600000	NA	
55	2,4,6-Trichlorophenol	6.5	NA	
56	Acenaphthene	2700	0.0015	0.0015
57	Acenephthylene		0.00053	0.000306
58	Anthracene	110000	0.0005	0.000189
59	Benzidine	0.00054	NA	
60	***Benzo(a)Anthracene***	***0.049***	***0.0053***	0.00117
61	***Benzo(a)Pyrene***	***0.049***	***0.0025***	0.00095
62	***Benzo(b)Fluoranthene***	***0.049***	***0.0046***	0.00173

63	Benzo(ghi)Perylene		0.006	0.00247
64	***Benzo(k)Fluoranthene***	***0.049***	***0.0015***	0.00063
65	Bis(2-Chloroethoxy)Methane		NA	
66	Bis(2-Chloroethyl)Ether	1.4	NA	
67	Bis(2-Chloroisopropyl)Ether	170000	NA	
68	Bis(2-Ethylhexyl)Phthalate	5.9	NA	
69	4-Bromophenyl Phenyl Ether		NA	
70	Butylbenzyl Phthalate	5200	NA	
71	2-Chloronaphthalene	4300	NA	
72	4-Chlorophenyl Phenyl Ether		NA	
73	***Chrysene***	***0.049***	***0.0041***	0.004
74	***Dibenzo(a,h)Anthracene***	***0.049***	***0.0006***	0.00028
75	1,2 Dichlorobenzene	17000	NA	
76	1,3 Dichlorobenzene	2600	NA	
77	1,4 Dichlorobenzene	2600	NA	
78	3,3[1]-Dichlorobenzidine	0.077	NA	
79	Diethyl Phthalate	120000	NA	
80	Dimethyl Phthalate	2900000	NA	
81	Di-n-Butyl Phthalate	12000	NA	
82	2,4-Dinitrotoluene	9.1	NA	
83	2,6-Dinitrotoluene		NA	
84	Di-n-Octyl Phthalate		NA	
85	1,2-Diphenylhydrazine	0.54	NA	
86	Fluoranthene	370	0.007	0.00378
87	Fluorene	14000	0.002078	0.0015
88	Hexachlorobenzene	0.00077	NA	
89	Hexachlorobutadiene	50	NA	
90	Hexachlorocyclopentadiene	17000	NA	
91	Hexachloroethane	8.9	NA	
92	***Indeno(1,2,3-cd) Pyrene***	***0.049***	***0.004***	0.00148
93	Isophorone	600	NA	
94	naphthalene		0.00229	0.00088
95	Nitrobenzene	1900	NA	
96	N-Nitrosodimethylamine	8.1	NA	
97	N-Nitrosodi-n-Propylamine	1.4	NA	
98	N-Nitrosodiphenylamine	16	NA	
99	Phenanthrene		0.0061	0.00307
100	Pyrene	11000	0.0051	0.0022
101	1,2,4-Trichlorobenzene		NA	
102	Aldrin	0.00014	NA	
103	alpha-BHC	0.013	NA	
104	beta-BHC	0.046	NA	
105	gamma-BHC	0.063	NA	
106	delta-BHC		NA	

Background Concentrations for Organics

107	Chlordane	0.00059	0.00018	0.000125
108	4,4-DDT	0.00059	0.000066	0.000036
109	4,4-DDE	0.00059	0.00069	0.000132
110	4,4-DDD	0.00084	0.000313	0.000141
111	Dieldrin	0.00014	0.000264	0.000096
112	alpha-Endosulfan	0.0087	0.000031	0.000031
113	beta-Endosulfan	0.0087	0.000069	0.000069
114	Endosulfan Sulfate	240	0.000011	0.000011
115	Endrin	0.0023	0.000016	0.0000009
116	Endrin Aldehyde	0.81	NA	
117	Heptachlor	0.00021	0.000019	7.75E-06
118	Heptchlor Epoxide	0.00011	0.000094	0.000037
119-1	PCBs	0.00017	NA	
126	Toxaphene	0.0002	NA	

ATTACHMENT 3

Flow, cBOD, TSS, Toxcity Summary

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 samplecollected 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 o f 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_i" 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.

PART B

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I. 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.

Station	Description
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	At any point in the outfall between the point of discharge and the point at which all waste tributary to the outfall is present.
E-001-S	At any point in the outfall following dechlorination.

II. 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-S		E-001	
			Influent			Effluent to Central San Francisco Bay	
Type of Sample:			C-24	G	C-24	G	C-24
Parameter	**Units**	**Notes**	[1]				
Flow Rate	mgd	[2]	Cont/D				Cont/D
Turbidity	NTU	[4]			Cont		
PH	pH units	[3,4]		D	Cont	3/W	
Temperature	°C	[3]		D			
Dissolved Oxygen	mg/L	[3]		D		3/W	
Ammonia Nitrogen	mg/L	[3,5]			M	W	
$BOD_5$20°C/CBOD	mg/L		W				W
TSS	mg/L		W				D
Oil & Grease	mg/L	[6]				M	
Settleable Matter	ml/l-hr	[7]				M	
Fecal Coliform	MPN / 100 ml					3/W	
Chlorine Residual	mg/L	[8]		Cont./2h			
Acute Toxicity	% Surv'l	[9]			M		
Chronic Toxicity		[10]					2/Y
Copper, Zinc, Nickel,	ug/L						M
Cyanide	ug/L					M	
Mercury	ug/L & kg/mo	[12]				M	
Metals	ug/L	[11]					M
Pretreatment Requirements (see Table 3)	ug/L	[13]					
Standard Observations						M	

II. SCHEDULE of SAMPLING, ANALYSES and OBSERVATIONS (continued)

LEGEND FOR TABLE 1

Sampling Stations:

A = treatment facility influent
E = treatment facility effluent

Types of Samples:

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

Frequency of Sampling:

Cont. = continuous
Cont/D = continuous monitoring & daily reporting
D = once each day
E = each occurrence
H = once each hour (at about hourly intervals)
M = once each month
Q = once each calendar quarter (at about three month intervals)
W = once each week
Y = once each calendar year
2/Y = twice each calendar year (at about 6 months intervals)
3/W = three times each calendar week (on separate days)
5/W = five times each calendar week (on separate days)

Parameter and Unit Abbreviations:

BOD_5 20°C = Biochemical Oxygen Demand, 5-day, at 20 °C
D.O. = Dissolved Oxygen
Est V = Estimated Volume (gallons)
Metals = multiple metals; See SMP Section VI.G.
PAHs = Polynuclear Aromatic Hydrocarbons; See SMP Section VI.H.
TSS = Total Suspended Solids
UV = ultra violet light
mgd = million gallons per day
mg/L = milligrams per liter
ml/L-hr = milliliters per liter, per hour
µg/L = micrograms per liter
kg/d = kilograms per day
kg/mo = kilograms per month
MPN/100 ml = Most Probable Number per 100 milliliters
mw-sec/sq cm = milliwatt-seconds per square centimeter

FOOTNOTES FOR TABLE 1

[1] Additional details regarding sampling, analyses and observations are given in Section VI of this SMP, *Specifications for Sampling, Analyses and Observations* (SMP Section VI).
[2] Flow Monitoring. See SMP Section: III. B.
[3] These parameters shall be tested for only the sample stream used for the flow-through bioassays, beginning at the start of the bioassay and then daily for the duration of the test (i.e. 0,24,48,72,and 96 hours). Ammonia Nitrogen shall be tested once during the bioassay.
[4] An in-line turbidmeter and pH meter shall continuously monitor effluent quality at the facility. The pH meter shall be equipped with an alarm relayed to a central station.
[5] Ammonia Nitrogen will continue to be monitored weekly during the months of July, August, and September. Monthly monitoring may occur during the remaining months.
[6] Oil & Grease Monitoring. See SMP Section: III. C.
[7] Settleable Matter Option of either grab or composite sampling protocol
[8] Disinfection Process. See SMP Section: III. D.
[9] Acute Toxicity Monitoring. See SMP Section: III. E.
[10] Chronic Toxicity Monitoring. See SMP Section: III. F.
[11] Metals See SMP Section: III. G.

[12] Use ultra-clean sampling (EPA 1669) to the maximum extent practicable, and ultra-clean analytical methods (EPA 1631) for mercury monitoring. The Discharger may use alternative methods of analysis (such as EPA 245), if that alternate method has a detection limit of 2 ng/l or less.

[13] Pretreatment Requirements: See Table 3.

III. SPECIFICATIONS for SAMPLING, ANALYSES and OBSERVATIONS

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.

A. 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 Pollution Prevention/Source Control Program requirements.

B. 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:

1. *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.

2. *Effluent (E-001):*
   a. Daily: Total daily flow (mgd)
   b. Monthly: The same values as given in a., above, for the calendar month

C. Oil & Grease Monitoring.
1. Each Oil & Grease sample event shall consist of a composite sample comprised of four grab samples taken at equal intervals during the sampling date, with each grab sample being collected in a glass container. The grab samples shall be mixed in proportion to the instantaneous flow rates occurring at the time of each grab sample, within an accuracy of plus or minus 5 %. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsing as soon as possible after use, and the solvent rinsing shall be added to the composite sample for extraction and analysis.
   If the plant is not staffed 24 hours per day, then the three grab samples may be taken at approximately equal intervals during the period that the plant is staffed.
2. If there are no violations of the Oil & Grease effluent limitation from October 1, 2001 through September 30, 2002, the discharger may submit a request to reduce sampling frequency, to the Executive Officer.

D. 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 for sampling points both prior to and following dechlorination and reported for the sampling point following dechlorination Chlorine residual data shall be maintained by the discharger. Total chlorine dosage (kg/day) shall be recorded on a daily basis.

When an exceedance of the chlorine residual effluent limit of 0.0 mg/L has been detected, to demonstrate a false-positive detection of chlorine residual the following parameters are required at the time of detection: continuous flow, chlorine dosage (mg/L), and chlorine residual (mg/L).

E. 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, and dissolved oxygen. Ammonia nitrogen shall be tested once during the bioassay.

F. Chronic Toxicity Monitoring: See also, Provision E.16. and Attachment C of this Order.

1. *Chronic Toxicity Monitoring Requirements*

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 utilizing recent results from previous testing conducted under the ETCP. Alternate 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: To be determined based on results of initial chronic toxicity screening. If the discharger demonstrates chronic toxicity other than ammonia, routine monitoring will be required. If ammonia is the cause of chronic toxicity, the discharger must demonstrate that the ammonia is not expected to cause toxicity to the receiving waters. This is done by calculating the unionized fraction of ammonia from total ammonia concentrations and comparing the unionized ammonia to Basin Plan objectives.

(2) Accelerated Monitoring: Quarterly, or as otherwise specified by the Executive Officer.

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 40%, 20%, 10%, 5%, and 2.5%. The "%" represents percent effluent as discharged.

2. *Chronic Toxicity Reporting Requirements*

a. 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_{15}, IC_{25}, IC_{40}, and IC_{50} values (or EC_{15}, EC_{25} ... etc.) in percent effluent
7. TUc values (100/NOEC, $100/IC_{25}$, and $100/EC_{25}$)
8. Mean percent mortality (±s.d.) after 96 hours in 100% effluent (if applicable)
9. NOEC and LOEC values for reference toxicant test(s)
10. IC_{50} or EC_{50} value(s) for reference toxicant test(s)
11. Available water quality measurements for each test (ex. pH, D.O., temperature, conductivity, hardness, salinity, ammonia)

b. 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 the most recent samples. The information in the table shall include the items listed above under Section F.2.a, item numbers 1, 3, 5, 6(IC_{25} or EC_{25}), 7, and 8.

G. Metals: The parameter 'Metals' in this SMP means all of the following constituents:

1. Arsenic
2. Cadmium
3. Lead
4. Silver.
5. Selenium
6. Chromium

IV. SELECTED CONSTITUENTS MONITORING

A. Table 2 - Selected Constituents: For compliance monitoring, 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 the Minimum Levels given below.

CTR #	Constituent (a)	Minimum Level (µg/l) (b,e)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGF AA	HYD RIDE	CVAA	DCP
6.	Copper (c)					25	5	10	0.5	2			1000
8.	Mercury (d)								0.5			0.2	
9.	Nickel					50	5	20	1	5			1000
13.	Zinc					20		20	1	10			
14.	Cyanide				5								

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.) 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.

d.) Use ultra-clean sampling (EPA 1669) to the maximum extent practicable, and ultra-clean analytical methods (EPA 1631) for mercury monitoring. The Discharger may use alternative methods of analysis (such as EPA 245), if that alternate method has a detection limit of 2 ng/l or less.

e.) If no ML value is below the effluent limitation, the discharger shall select the lowest ML, listed in Appendix 4 of the SIP.

B. Table 3: Pretreatment Monitoring Requirements

Constituents / EPA Method	Influent	Effluent	Sludge
VOC / 624	2/Y	2/Y	
BNA / 625	A	A	
Metals [a]	M	M	
Sludge [b]			2/Y

M = once each month
Q = once each calendar quarter (at about three month intervals)
2/Y = twice each calendar year (at about 6 month intervals, once in the dry season, once in the wet season)
VOC = volatile organic compounds
BNA = base/neutrals and acids extractable organic compounds

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

V. 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. Modifications to Self-Monitoring Program, Part A (Part A):

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

2. The following sections of Part A: C.3., C.4., C.5. are satisfied by participation in the Regional Monitoring Program.

3. The following sections of Part A: D.4., and E.3, are exclusions to the Self- Monitoring Program.

4. Section C.2.a of Part A, shall be modified as follows:

   If additional influent or effluent sampling beyond that required in Table 1 of Part B is done voluntarily or to fulfill any requirements in this permit other than those specified in Table 1 or Part B, corresponding collection of effluent or influent samples is not required by this section. The Executive Officer may approve an alternative sampling plan if it is demonstrated to be representative of plant discharge flow and in compliance with all other requirements of this permit.

5. Section C.2.b of Part A shall be modified as follows:

   Grab samples of effluent shall be collected during periods of maximum peak flows at a frequency specified in Table 1 of Part B, shall coincide with effluent composite sample days, and shall be analyzed for the constituents specified in Table 1.

6. Section C.2.c of Part A shall be modified as follows (C.2.c(1) and (2) are unchanged):

   Effluent sampling will occur on at least one day of any multiple-day flow-through bioassay test required by Table 1 in Part B.

7. Section C.2.d. of Part A shall be modified as follows:

   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 repeated once within 24 hours after results are received that indicate an exceedance of the monthly average effluent limit for that parameter. Repeat sampling shall occur in this way until the additional sampling shows two consecutive samples are in compliance with the monthly average limit

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

   h. When any type of bypass occurs (except for bypasses caused by high wet weather inflow), 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.

   When bypassing occurs from any treatment process (primary, secondary, chlorination, dechlorination, etc.) in the treatment facilities during high wet weather inflow, the self-monitoring program shall include the following sampling and analyses:

   i. When bypassing occurs from any primary or secondary treatment unit(s), composite samples for the duration of the bypass event for BOD and TSS analyses, and continuous monitoring of flow. If BOD or TSS , exceed the effluent limits, the bypass monitoring shall be expanded to include all constituents that have effluent limits for the duration of the bypass, until the BOD and TSS values stabilize to compliance with effluent limitations.

   ii. When bypassing the chlorination process, grab samples at least daily for Fecal Coliform analyses; and continuous monitoring of flow.

   iii. When bypassing the dechlorination process, grab samples hourly for chlorine residual; and continuous monitoring of flow.

9. Section D.1 of Part A, insert the following:

   The requirements of this section only apply when receiving water standard observations are specified in table 1 of Part B. Receiving water standard observations are not specified in Table 1 of Part B of this permit. Therefore, the requirements of this section do not apply.

10. Section D.3 of Part A, insert the following:

    The requirements of this section only apply when beach and shoreline standard observations are specified in Table 1 of Part B. Beach and shoreline standard observations are not specified in Table 1 of Part B of this permit. Therefore, the requirements of this section do not apply.

11. Section D.5 of Part A, insert the following:

The requirements of this section only apply when facility periphery standard observations are specified in Table 1 of Part B. Facility periphery standard observations are not specified in Table 1 of Part B of this permit. Therefore, the requirements of this section do not apply.

12. Section G. of Part A, Definition of Terms, amend as follows:

a. *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.

b. *Composite Sample.* A composite sample is defined as a sample composed of individual grab samples collected manually or by an autosampling device on the basis of time and/or flow as specified in Table 1 of Part B. For flow-based compositing, the proportion of each grab sample included in the composite sample shall be within plus or minus five percent from the representative flow rate of the waste stream being sampled measured at the time of grab sample collection. Alternately, equal volume grab samples may be individually analyzed and the flow-weighted average calculated by averaging flow-weighted ratios of each grab sample analytical result. Grab samples forming time-based composite samples shall be collected at intervals not greater than those specified in Table 1 of Part B. The quantity of each grab sample forming a time-based composite sample shall be a set or flow proportional volume as specified in Table 1 of Part B. For Oil and Grease a minimum of four grab samples, one every six hours over a 24-hour period shall be used. If a particular time or flow-based composite sampling protocol is not specified in Table 1 of Part B, the discharger shall determine and implement the most representative sampling protocol for the given parameter subject to approval by the Executive Officer.

c. *Average.* Average values for daily and monthly values are obtained by taking the sum of all daily values divided by the number of all daily values measured during the specified period. In calculating the monthly average, when there is more than one value for a given day, all the values for that day shall be averaged and the average value used as the daily value for that day.

C. <u>Monthly Self-Monitoring Report (SMR).</u>

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 specified in Table 1 of Part B 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, after results are available.

7. *Reporting Data in Electronic Format.* The discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. The discharger is currently submitting SMRs electronically in a format approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS). The ERS format includes, but is not limited to, a transmittal letter, summary of violation details and corrective actions, and transmittal receipt. If there are any discrepancies between the ERS requirements and the "hard copy" requirements listed in the SMP, then the approved ERS requirements supercede.

D. <u>Self-Monitoring Program Annual Report (Annual Report).</u>
An Annual Report shall be submitted for each calendar year. The report shall be submitted to the Board by February 15th 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, if locations change.

4. The discharger may submit the annual report electronically in the format approved by the Executive Officer in a letter dated, December 17, 2000. If there are any discrepancies between the ERS reporting requirements and the "hard copy" reporting requirements listed in the SMP, then the approved ERS reporting requirements supercede.

E. 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. Spills shall be reported by telephone as follows:

   (1) During weekdays, during office hours of 8 am to 5 pm, to the Regional Board:
   Current phone number: (510) 622 - 2300.
   Current Fax number: (510) 622 – 2460.

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

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.

F. Reports of Collection System Overflows.

Overflows of sewage from the collection system owned by the discharger, 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 inspector, by phone call or message, or by facsimile:
   [current staff inspector: 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.

G. <u>Reports of Treatment Plant Process Bypass* or Significant Non-Compliance.</u>

**except for bypasses under the conditions stated in 40 CFR 122.41 (m)(4) in Standard Provision A.13.*

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.

VI. 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 (eg, 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 (eg, moving median or geometric mean for number of samples or sampling period identified in waste discharge requirements).

2. For chlorination process, record at the time of sample collection:
   a. Chlorine residual in contact basin (mg/L)
   b. Contact time (minutes)
   c. Chlorine dosage (kg/day and/or mg/L)

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. Description of, or reference to other report(s) describing, bypass event, cause, corrective actions taken, and any additional monitoring conducted.

F. Collection System Overflows (owned by the discharger)

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.

VII. 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. 01-105.

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 October 1, 2001.

Loretta K. Barsamian

LORETTA K. BARSAMIAN
Executive Officer

ATTACHMENT E

Pretreatment Requirements

Pretreatment Program Provisions

1. 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.

2. 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.

3. 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.

4. 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.

5. 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 31st (for the period January through June) and January 31st (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.

6. 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 31st of each year.

7. 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 of any trends, 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 31st 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/ District/Agency, 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 Order (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

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.

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**

(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 31st (for pretreatment program activities conducted from January through June) and January 31st (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 3 in 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 3 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 grab sample shall be used for volatile organic compounds, cyanide and phenol. In addition, any samples for oil and grease, polychlorinated biphenyls, dioxins/furans, and polynuclear aromatic hydrocarbons shall be grab samples. 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. For effluent monitoring, 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 analysis 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.

CMSA FLOW, BOD, TSS AND TOXICITY SUMMARY FROM JUNE 1998 THROUGH MAY 2001

	MONTH	FLOW (mgd) Avg.Monthly	BOD (% removal)	TSS (% removal)	Toxicity (SB) (%survival, daily)
1998	JUN	9.70	96	95	100
	JUL	8.40	98	98	100
	AUG	8.10	98	97	100
	SEP	7.90	97	96	100
	OCT	7.80	98	97	100
	NOV	11.20	96	97	100
1998	DEC	11.50	97	95	95
1999	JAN	13.60	95	92	100
	FEB	23.90	91	91	95
	MAR	14.40	98	96	100
	APR	13.10	98	97	100
	MAY	9.10	99	99	100
	JUN	8.40	98	99	100
	JULY	8.00	98	99	100
	AUG	7.80	99	98	100
	SEP	7.70	98	98	100
	OCT	7.90	98	98	95
	NOV	8.90	98	98	100
1999	DEC	8.50	98	98	100
2000	JAN	14.40	98	98	95
	FEB	25.60	94	85	95
	MAR	14.30	93	90	100
	APR	10.30	98	97	100
	MAY	10.10	98	98	95
	JUN	8.30	98	98	100
	JUL	8.10	99	98	100
	AUG	7.90	99	98	100
	SEP	7.90	99	98	100
	OCT	8.50	99	99	100
	NOV	8.60	98	98	100
2000	DEC	9.00	98	98	80
2001	JAN	12.60	95	97	100
	FEB	18.60	96	96	100
	MAR	12.30	96		100
	APR	8.70	99	99	100
2001	MAY	8.50	99	98	100

Average 10.82

ATTACHMENT 4

Effluent Summary

Central Marin Sanitation Agency
Effluent Data June 1998
through May 2001

Date		Arsenic, ug/l		Cadmium, ug/l		Chromium, ug/l		Copper, ug/l		Lead, ug/l		Mercury, ug/l		Nickel, ug/l		Selenium, ug/l		Silver, ug/l		Zinc, ug/l		Cyanide, ug/l		PAHs ug/l		Phenols ug/l
1998																										
Jun	<	0.50		0.12		0.8		4.7	<	0.6		0.015		3.9		0.019	<	0.1		58	<	10.00			<	50
Jul	<	0.50	<	0.10		0.84		2.80	<	0.50		0.084		4.20		0.37	<	0.50		53	<	10.00				
Aug		0.75	<	0.20		1.10		4.40		1.00	<	0.01		3.60		0.34	<	0.50		48	<	10.00				
Sep		0.61	<	0.20		1.10		5.00	<	1.00	<	0.01		3.80		0.35	<	0.50		43	<	10.00	<	5.00	<	50
Oct		1.00	<	0.20		0.80		2.90	<	0.80	<	0.01		3.30		0.54	<	0.50		50	<	10.00				
Nov		1.50	<	0.20		0.59		2.50	<	0.50	<	0.01		4.10	<	1.00	<	0.50		67	<	10.00				
Dec	<	1.00		0.40		2.30		6.80		1.10		0.094		8.00		1.20	<	0.50		82	<	10.00			<	50
1999																										
Jan		0.60	<	0.10		1.10		6.90	<	0.60		0.046		5.10	<	1.00		1.10		64	<	10.00				
Feb		1.90		0.60	<	0.50		3.60		0.92		0.057		4.00	<	1.00	<	0.50		54		14.00				
Mar		0.68		0.37		0.77		4.10		2.70		0.019		6.00	<	1.00	<	0.50		41	<	10.00			<	50
Apr		0.88	<	0.20		0.74		3.90	<	0.50		0.032		3.50	<	1.00	<	0.50		35	<	10.00				
May		0.88	<	0.50		0.76		3.90	<	1.50	<	0.2		7.30	<	1.00	<	0.50		42	<	10.00			<	50
Jun		1.00		0.10		2.00		3.00	<	1.01		0.02		4.00	<	0.82		0.40		40	<	3.00				
Jul		1.10		0.12		1.00		3.00	<	1.30		0.01		6.00	<	0.35		0.24		30	<	3.00				
Aug		1.80		0.20		0.87		2.00	<	1.30	<	0.0096		7.00	<	0.35		0.37		40		5.00				
Sep	<	0.75		0.04	<	0.60		4.00	<	1.30		0.01		4.00	<	0.35		0.40		40	<	3.00	<	5.00	<	5
Oct		1.70		0.10		2.00		4.00	<	2.00		0.01		4.00	<	0.35		0.60		80		6.00				
Nov		1.00		0.05		0.50		3.00	<	1.30	<	0.0096		4.00	<	0.35		1.20		50		4.00				
Dec	<	0.75	<	0.04		1.00		4.00	<	1.30	<	0.0096		2.90		0.60		0.70		50	<	3.00			<	5
2000																										
Jan		1.30		0.20		0.83		4.00	<	1.30		0.0055		4.00	<	0.35		1.00		80	<	3.00	<	5.00		
Feb		0.97		0.05		1.00		4.00	<	1.30		0.0067		4.00		0.60		0.60		50		5.00				
Mar	<	0.75	<	0.04		2.00		4.00	<	1.30		0.0141		2.50	<	0.35		0.40		40	<	3.00				8
Apr	<	0.75	<	0.04	<	0.60		3.00	<	1.30		0.0097		3.00	<	0.35		0.80		60		5.00				
May		0.90		0.07		1.00		5.00	<	1.30		0.0083		4.00		0.56		0.80		30		16.00				
Jun		0.88	<	0.04		0.92		1.40	<	1.30		0.0060		11.00	<	0.35		0.50		30		8.00				9
Jul		1.50	<	0.04		1.00		1.30	<	1.30		0.0045		2.63	<	0.35		0.45		20	<	3.00				
Aug		1.30		0.08		1.00		4.00	<	1.30		0.0038		4.00	<	0.35		0.46		30		5.00				
Sep		0.82		0.04		0.84		2.00	<	1.30		0.0042		2.10	<	0.35		0.60		40	<	3.00	<	5.00		7
Oct	<	0.75	<	0.04		2.00		2.00	<	1.30		0.0037		4.00	<	0.35		0.35		40		5.00				
Nov	<	0.75	<	0.04		0.72		3.00	<	1.30		0.0122		2.90	<	0.35		1.30		40	<	3.00				
Dec		0.99	<	0.04		2.00		4.00	<	1.30		0.0093	<	2.10		0.63		1.00		30		4.00				12
2001																										
Jan	<	1.30	<	0.05		0.72		3.00	<	0.90		0.0056		4.00	<	0.70		0.60		40	<	0.60				
Feb		1.90	<	0.05		0.66		1.40	<	0.90		0.0050		4.00	<	0.70		0.60		30		3.00				
Mar	<	1.30	<	0.05		0.70		1.50	<	0.90		0.0044		3.00	<	0.70	<	0.44		40	<	0.60			<	0.8
Apr		1.00		0.04		1.40		2.50		0.22		0.0042		3.70		1.70		0.70		35		6.00				
May		1.1	<	0.10		0.80		2.2		0.22		0.0072		3.50		1.90		0.50		25		4.00				
avg (mg/l)		1.05		0.14		1.06		3.41		1.15		0.02		4.29		0.61		0.61		45.43		6.30		5		22.4364
SD		0.379		0.141		0.506		1.336		0.444		0.038		1.810		0.333		0.250		15.147		3.839		0		22.0258
coef var		0.36		1.03		0.48		0.39		0.39		1.44*		0.42		0.55		0.41		0.33		0.74*				0.9817
MEC		1.90		0.60		2.30		6.90		2.70		0.09		11.00		1.70		1.30		82.00		16.00		NA		NA
min		0.50		0.04		0.50		1.30		0.22		0.00		2.10		0.34		0.24		20.00		0.60		5		0.8
max		1.90		0.60		2.30		6.90		2.70		0.20		11.00		1.70		1.30		82.00		16.00		5		50

ATTACHMENT 5

Mass Emission Limits Calculations

Calculation of Mass Emission Limits

(Based on effluent flow and mercury concentration 12-month moving averages, June 1998 to May 2001)

		All-Year Discharges			
Year	Month	Q1	C1, calc	ML1	**ML MvAv**
Notes --->		1	3	5	4
Units ---->		mgd	µg/L	kg/mo	kg/mo
1998	Jun.	9.70	0.015	0.017	-
	Jul.	8.40	0.084	0.081	-
	Aug.	8.10	0.01	0.009	-
	Sep.	7.90	0.01	0.009	-
	Oct.	7.80	0.01	0.009	-
	Nov.	11.20	0.01	0.013	-
1998	Dec.	11.50	0.094	0.124	-
1999	Jan.	13.60	0.046	0.072	-
	Feb.	23.90	0.057	0.157	-
	Mar.	14.40	0.019	0.031	-
	Apr.	13.10	0.032	0.048	-
	May	9.10	0.2	0.209	0.07
	Jun.	8.40	0.02	0.019	0.07
	Jul.	8.00	0.01	0.009	0.06
	Aug.	7.80	0.0096	0.009	0.06
	Sep.	7.70	0.01	0.01	0.06
	Oct.	7.90	0.01	0.01	0.06
	Nov.	8.90	0.0096	0.01	0.06
1999	Dec.	8.50	0.0096	0.01	0.05
2000	Jan.	14.40	0.0055	0.01	0.04
	Feb.	25.60	0.0067	0.02	0.03
	Mar.	14.30	0.0141	0.02	0.03
	Apr.	10.30	0.0097	0.01	0.03
	May	10.10	0.0083	0.01	0.01
	Jun.	8.30	0.0060	0.006	0.01
	Jul.	8.10	0.0045	0.004	0.01
	Aug.	7.90	0.0038	0.003	0.01
	Sep.	7.90	0.0042	0.004	0.01
	Oct.	8.50	0.0037	0.004	0.01
	Nov.	8.60	0.0122	0.012	0.01
2000	Dec.	9.00	0.0093	0.010	0.01
2001	Jan.	12.60	0.0056	0.008	0.01
	Feb.	18.60	0.0050	0.011	0.01
	Mar.	12.30	0.0044	0.006	0.01
	Apr.	8.70	0.0042	0.004	0.01
2001	May	8.50	0.0072	0.007	0.01
Count, n		24	24	24	25
Maximum		25.60	0.20	0.21	0.07
99.7 %tile		25.44	0.19	0.20	0.07
Average		10.91	0.02	0.03	0.03
Std Dev		4.45	0.04	0.05	0.02
Avg + 3SD		24.27	0.14	0.17	0.10

MERCURY MASS EMISSION LIMIT = 0.10 kg/month.

Limit is maximum value of total mass load for discharges to Central San Francisco Bay

Total mass load is equal to (flow) x (concentration).

The monthly moving average of mass load is equal to the average of the monthly total mass loads from the past 12 months.

ATTACHMENT 6

Reasonable Potential Analysis

CMSA

Reasonable Potential
Summary for Inorganics

	As	Cd	Cr(T)	Cu	CN	Hg	Pb	Ni	Se	Ag	Zn
Max conc (ppb)	1.90	0.60	2.30	6.90	16.00	0.09	2.70	11.00	1.70	1.30	82.00
Bkground conc[3] (BP)	2.22	0.13	4.4	2.45	1	0.006	0.8	3.5	0.19	0.068	4.6
Basin Plan WQO[6,7]											
1-hr avg (WQO1)	69	43	1100	4.9	5	2.1	140				
4-day avg (WQ4)	36	9.3	50			0.025	5.6				
Instant. max (WQOi)								140		2.3	170
24-hr avg (WQO24)								7.1			58
Objectives for (HH)[8]											
CTR											
Criterion Max Conc	69	42	1100	5.78	1		220	74	5	2.24	95
Criterion Continous Conc	36	9.3	50	3.7	1		8.5	8.3	5		85
Objectives for (HH)[8]					220000	0.051					
Is B> any WQO	N	N	N	N	Y	N	N	N	N	N	N
Is C> any BP WQO	N	N	N	Y	Y	Y	N	Y		N	Y
Is C> any CTR WQO	N	N	N	Y	Y	Y	N	Y	N	N	N
Reasonable Potential	**N**	**N**	**N**	**Y**	**Y**	**Y**	**N**	**Y**	**N**	**N**	**Y**

Note:

1. Maximum observed effluent from CMSA discharge from 1998-2001
2. 303(d) listed metals impairing San Francisco Bay include copper, mercury, and selenium.
3. The background concentration is the maximum observed value from Central Bay Stations, Yerba Buena Island and Richardson Bay. The data set is obtained from RMP data from 1992 through 1998.
4. NA= Not Available. The RMP have not sampled for this constituent. Therefore background cannot be determined. Future sampling to determine background for this constituent is needed to determine reasonable potential and if appropriate calculate effluent limitations.
5. Data from DWR and the Discharger showed that the salinity of the receiving water exceeds 5 ppt more than 75% of the time.
6. Salt water quality objectives (WQOs) are obtained from Basin Plan and USEPA's California Toxics Rule. When these documents contain WQOs or objectives for human health protection (HH), Basin Plan's values are always used preferably.
7. HH : for human health protection, 30-day average, based on aquatic organism consumption only.

Summary of Reasonable Potential Analysis for Organics

# in CTR	ORGANICS	CMC	CCC	Water & Orgs	Organisms only	lowest WQO	Effluent Data range; (if NA, RP det by bckgrd)	bckgrnd (RMP, YBI stn, '93-'98)	Is B > WQO	Is MEC> WQO	RP (Y or N)
56	Acenaphthene			1200	2700	2700	3	0.0015	no	yes	I
58	Anthracene			9600	110000	110000	3	0.0005	no	yes	I
60	Benzo(a)Anthracene			0.0044	0.049	0.049	3	0.0053	no	yes	I
61	Benzo(a)Pyrene			0.0044	0.049	0.049	3	0.0025	no	yes	I
62	Benzo(b)Fluoranthene			0.0044	0.049	0.049	3	0.0046	no	yes	I
64	Benzo(k)Fluoranthene			0.0044	0.049	0.049	3	0.0015	no	yes	I
73	Chrysene			0.0044	0.049	0.049	3	0.0041	no	yes	I
74	Dibenzo(a,h)Anthracene			0.0044	0.049	0.049	3	0.0006	no	yes	I
86	Fluoranthene			300	370	370	3	0.007	no	yes	I
87	Fluorene			1300	14000	14000	3	0.002078	no	yes	I
92	Indeno(1,2,3-cd) Pyrene			0.0044	0.049	0.049	3	0.004	no	yes	I
100	Pyrene			960	11000	11000	3	0.0051	no	yes	I
107	Chlordane	0.09	0.004	0.00057	0.00059	0.00059	NA	0.00018	no	NA	N
108	4,4-DDT	0.13	0.001	0.00059	0.00059	0.00059	NA	0.000066	no	NA	N
109	***4,4-DDE***			***0.00059***	***0.00059***	***0.00059***	***NA***	***0.00069***	***yes***	NA	***Y***
110	4,4-DDD			0.00083	0.00084	0.00084	NA	0.000313	no	NA	N
111	***Dieldrin***	***0.71***	***0.0019***	***0.00014***	***0.00014***	***0.00014***	***NA***	***0.000264***	***yes***	NA	***Y***
112	alpha-Endosulfan	0.034	0.0087	110	240	0.0087	NA	0.000031	no	NA	N
113	beta-Endosulfan	0.034	0.0087	110	240	0.0087	NA	0.000069	no	NA	N
114	Endosulfan Sulfate			110	240	240	NA	0.000011	no	NA	N
115	Endrin	0.037	0.0023	0.76	0.81	0.0023	NA	0.000016	no	NA	N
117	Heptachlor	0.053	0.0036	0.00021	0.00021	0.00021	NA	0.000019	no	NA	N
118	Heptchlor Epoxide	0.053	0.0036	0.0001	0.00011	0.00011	NA	0.000094	no	NA	N

ATTACHMENT 7

Effluent Limitations Calculations

Including Interim and Water Quality-Based Effluent Limitations

Effluent Limitations Calculations

Constituent	C, ug/L	B, ug/L	B >C	CV	D	ECA, ug/L	ECA Mult.	LTA	Lowest LTA	AMEL Mult.	MDEL Mult.	AML Limit	MDL Limit	Final* AML Limit	Final* MDL Limit
METALS															
Zinc															
acute	170	4.6	No	0.33	9	1658.6	0.501	830.9586	373.2498	1.29	2.01	481.49	750.23	482	750
chronic	58	4.6	No	0.33	9	538.6	0.693	373.2498							
Copper															
acute	5.8	2.45	No	0.4	9	35.95	0.44	15.818	9.61285	1.36	2.27	13.07	21.82	13.1	21.8
chronic	3.7	2.45	No	0.4	9	14.95	0.643	9.61285							
Nickel															
acute	140	3.5	No	0.42	9	1368.5	0.427	584.3495	24.9245	1.38	2.35	34.396	58.573	34.4	58.8
chronic	7.1	3.5	No	0.42	9	39.5	0.631	24.9245							
Mercury															
acute	2.1	0.006	No	1.44	0	2.1	0.149	0.3129	0.00685	2.35	6.71	0.016	0.046	0.016	0.046
chronic	0.025	0.006	No	1.44	0	0.025	0.274	0.00685							

Notes

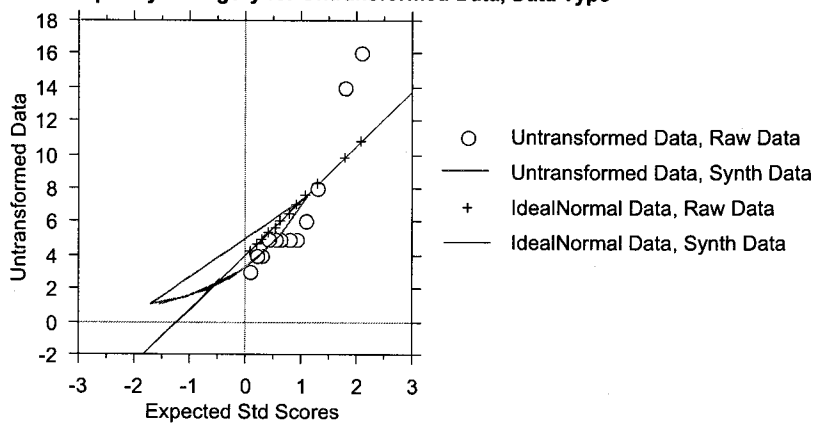
* Final Effluent limits modified according to the number of signficant digits as dictated by the number of signficant digits in the water quality objective

CMSA **CALCULATION OF INTERIM PERFORMANCE BASED LIMIT for CYANIDE**
(using Probit Analysis)

Run ID	**CN_total**
n	**36**
Percent detected	**33.3%**
Mean	3.983777736
Standard Deviation	3.484938495
Coefficient of Variation	0.874782361
Lower 95% Confidence Limit of me:	2.845364495
Upper 95% Confidence Limit of me	5.122190978
Lower Quartile (25th percentile)	1.827024076
Median (50th percentile)	3.064768052
Upper Quartile (75th percentile)	5.141039648
Inter Quartile Range	3.314015572
Minimum Detected Value	**3**
Maximum Detected Value	**16**
Minimum Reporting Limit	**0.6**
Maximum Reporting Limit	**10**
Regression Equation	ln(y) = 1.11997189005705 + 0.767267528230045*
Note:	Bolded values are exact calculations. Unbolded values are estimated using regression on ordered statistics (ROS).

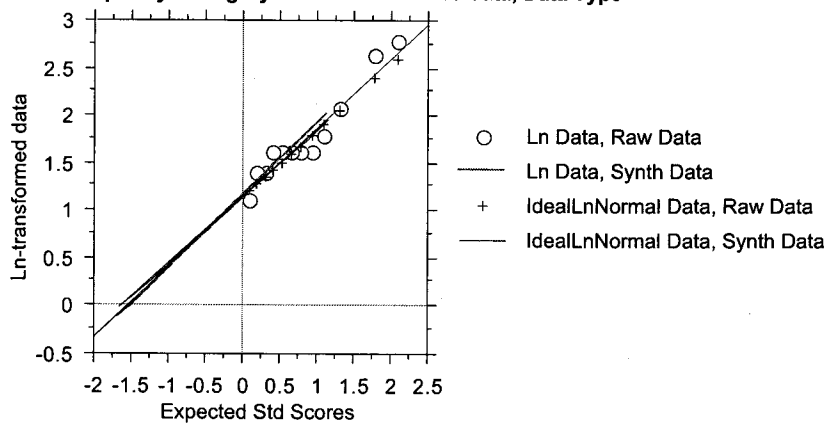
mean LnY	1.12
SD LnY	0.77
exp(mean + 3 * SD)	30.6

Bivariate Line Chart with Regression
Split By: Category for Untransformed Data, Data Type



Untransformed Data = 3.957 + 3.249 * Expected Std Scores; R^2 = 0.885

Bivariate Line Chart with Regression
Split By: Category for Ln-transformed data, Data Type



Ln-transformed data = 1.126 + 0.733 * Expected Std Scores; R^2 = 0.992

Kolmogorov-Smirnov Test for Untransformed K-S Data
Grouping Variable: Category for Untransformed K-S Data

DF	2
Count, Uncensored Data	12
Count, IdealNormal Data	12
Maximum Difference	.417
Chi Square	4.167
P-Value	.2490

2976 cases were omitted due to missing values.

Kolmogorov-Smirnov Test for K-S Ln-transformed data
Grouping Variable: Category for K-S Ln-transformed data

DF	2
Count, Uncensored LnData	12
Count, IdUncensored Ideal LnNormal Data	12
Maximum Difference	.250
Chi Square	1.500
P-Value	.9447

2976 cases were omitted due to missing values.

Cyanide,CMSA Effluent data, April 1998-March 2001:
Total Cyanide results

ATTACHMENT G

Statistical Analysis of Pooled Data from Regionwide Ultraclean Mercury Sampling

Staff Report -

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

Prepared By:
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California Regional Water Quality Control Board
San Francisco Bay Region
June 11, 2001

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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 99.87th 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 99.87th percentile performance for municipal dischargers. The 99.87th 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 99.91st 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 (µg/L). A microgram is 1,000 nanograms. For ease of viewing, the mercury concentration data were converted to 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.

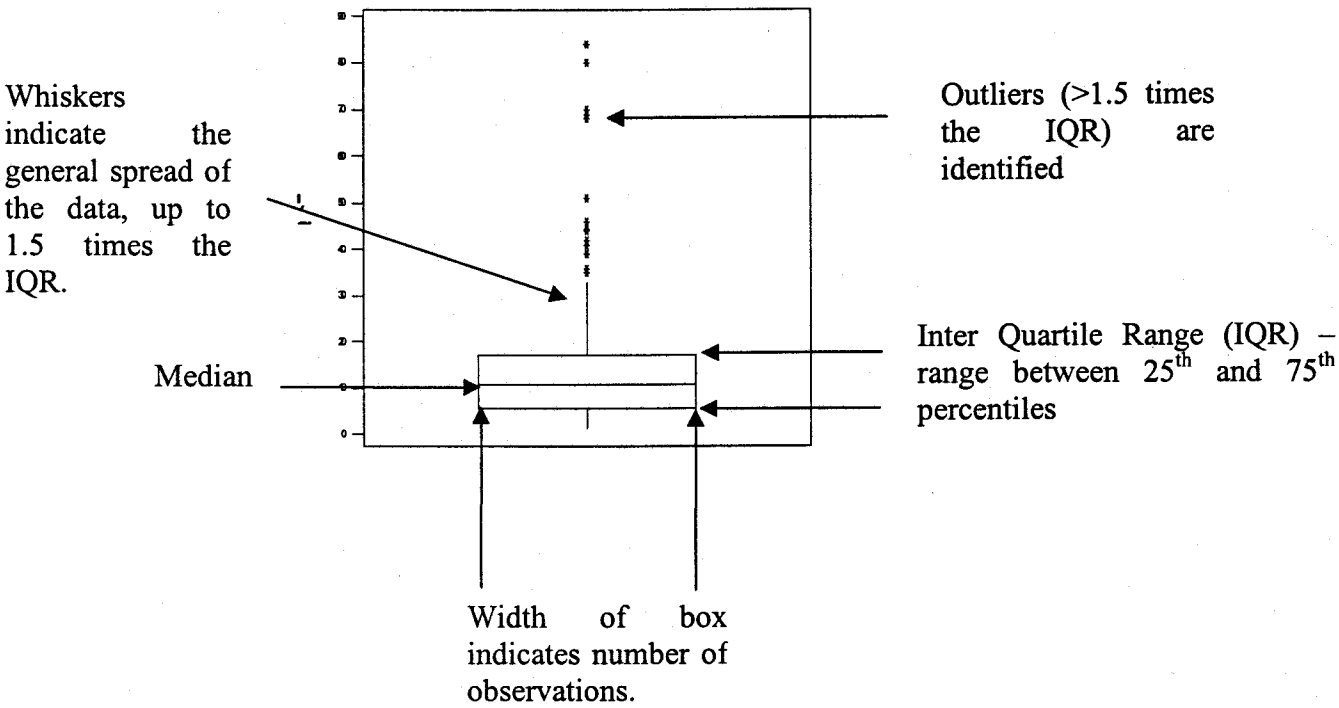
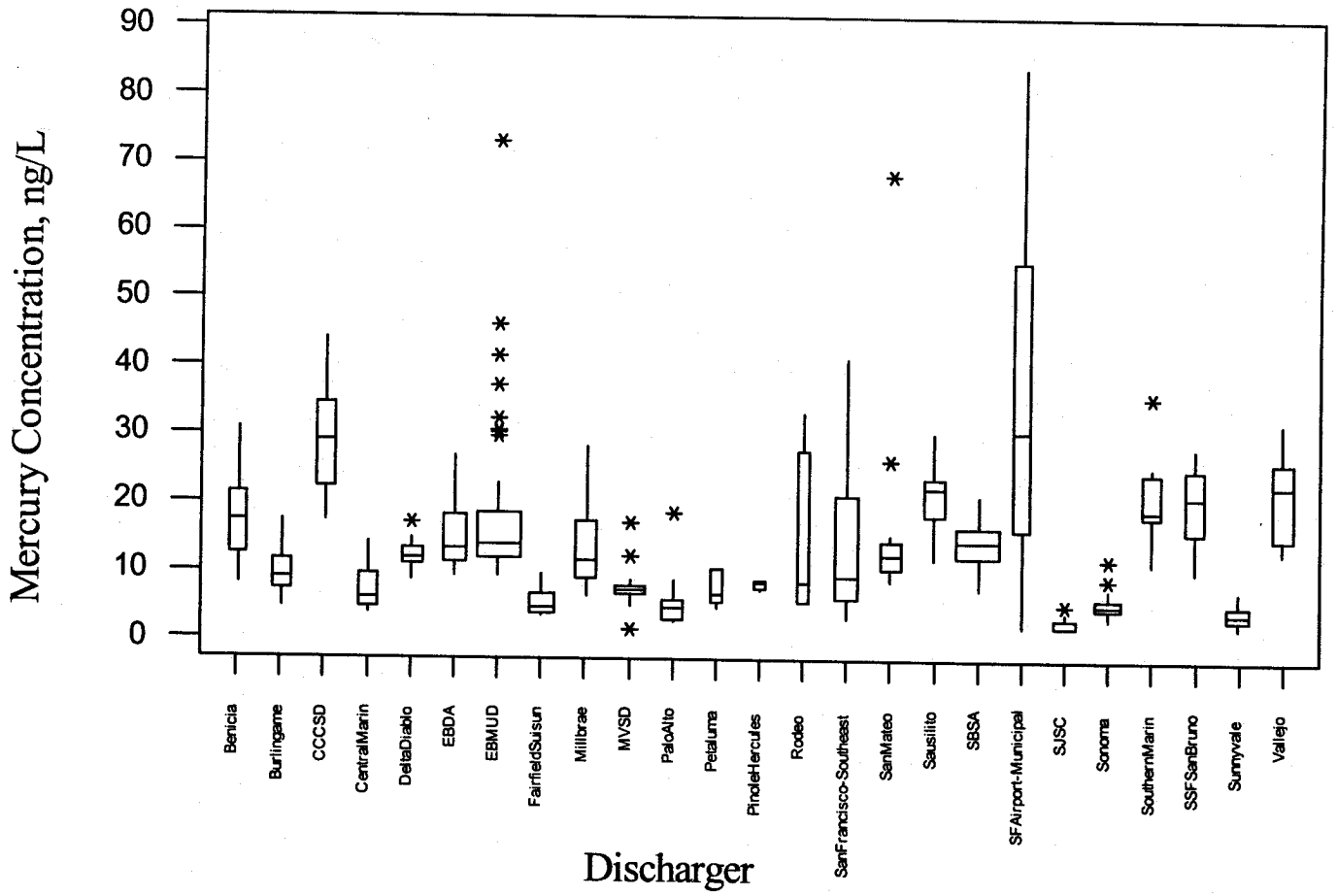


Figure 2. Boxplots of data in preliminary pooled data set, by discharger.



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.

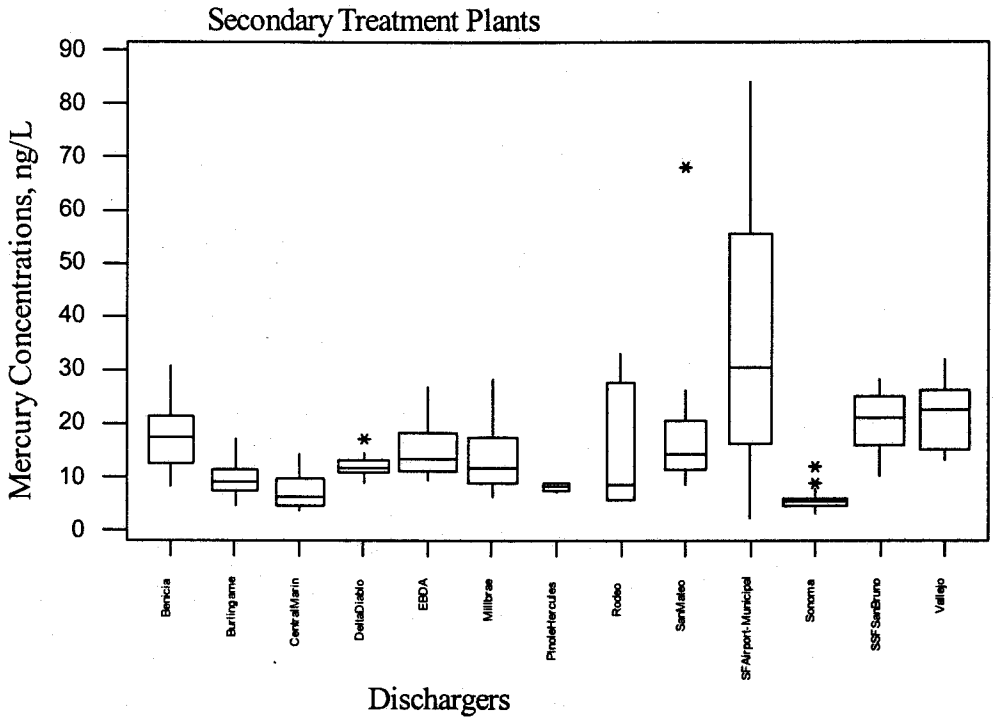
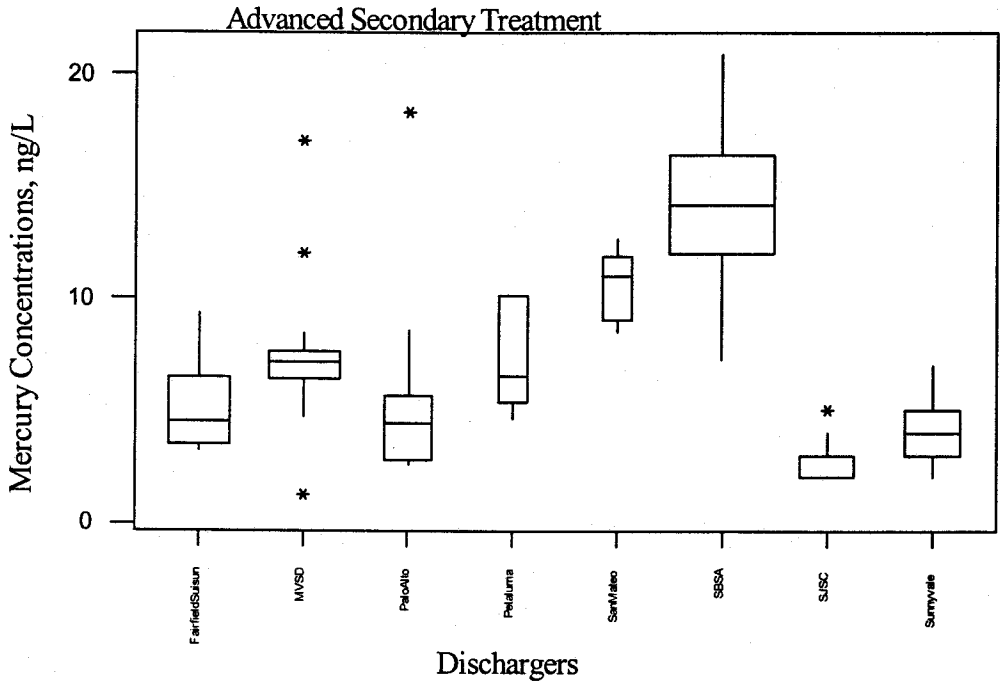
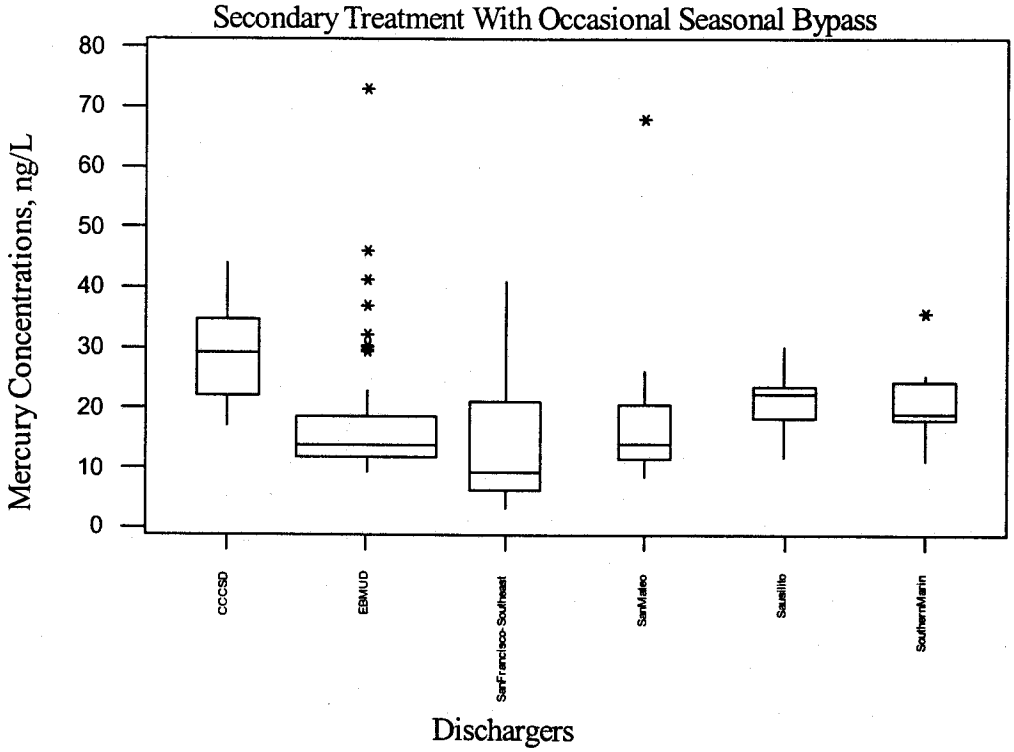


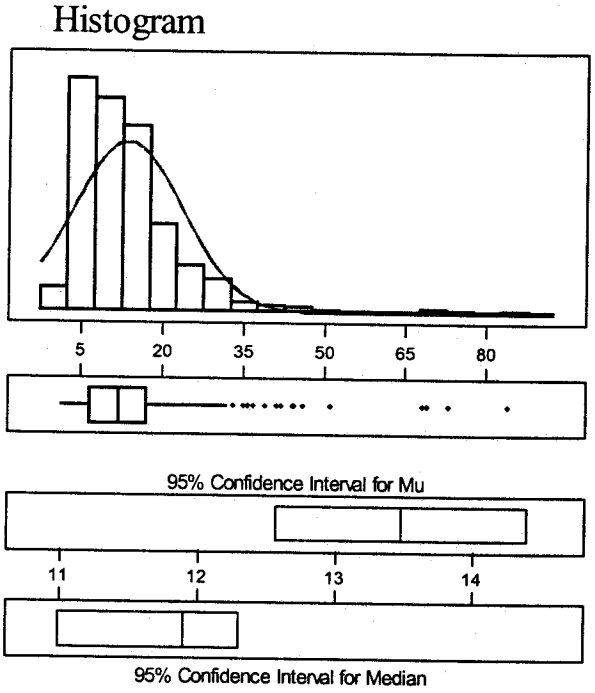
Figure 3. (Continued) Boxplots of preliminary pooled data set, by treatment type.





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.



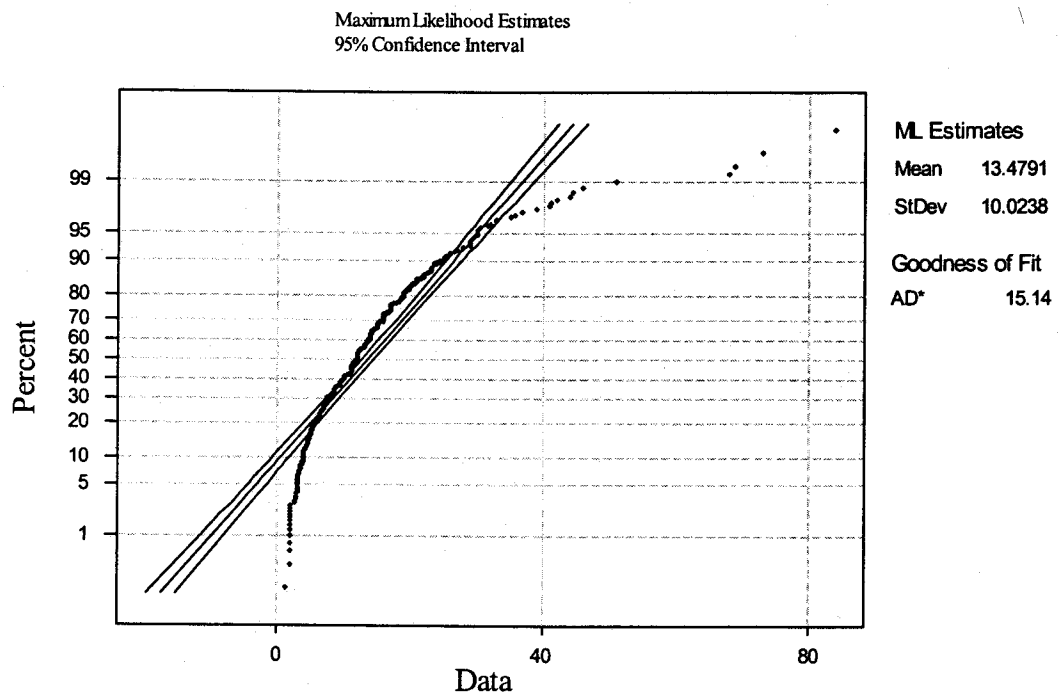
Variable:
Mercury Concentration, ng/L

Anderson-Darling Normality Test	
A-Squared:	15.064
P-Value:	0.000
Mean	13.4791
StDev	10.0346
Variance	100.693
Skewness	2.54042
Kurtosis	11.3088
N	465
Minimum	1.2000
1st Quartile	6.6500
Median	11.9000
3rd Quartile	17.0000
Maximum	84.0000
95% Confidence Interval for Mu	
12.5646	14.3935
95% Confidence Interval for Sigma	
9.4284	10.7247
95% Confidence Interval for Median	
11.0000	12.3000

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.

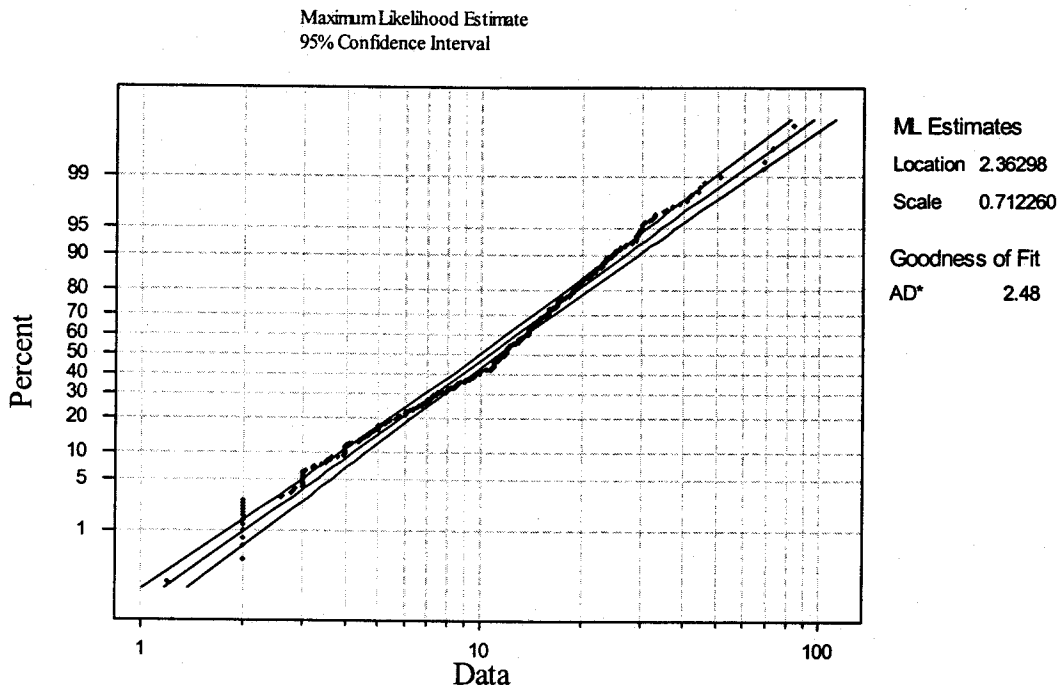
Figure 5. Preliminary probability plot of all data, in original units.



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.

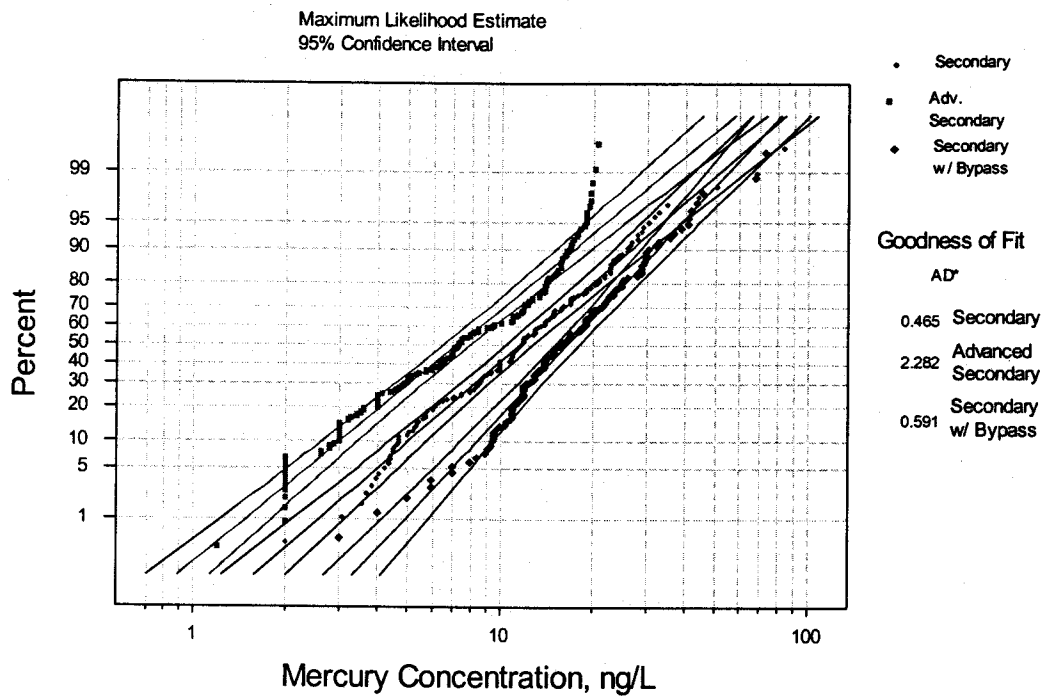
Next, a probability plot of the ln-transformed data (ln-normal probability plot) was produced. This plot is depicted in Figure 6, below. It is much more linear than the probability plot in original units, but the Anderson-Darling statistic is still too high – 2.48 vs. 1.035 – to accept the hypothesis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

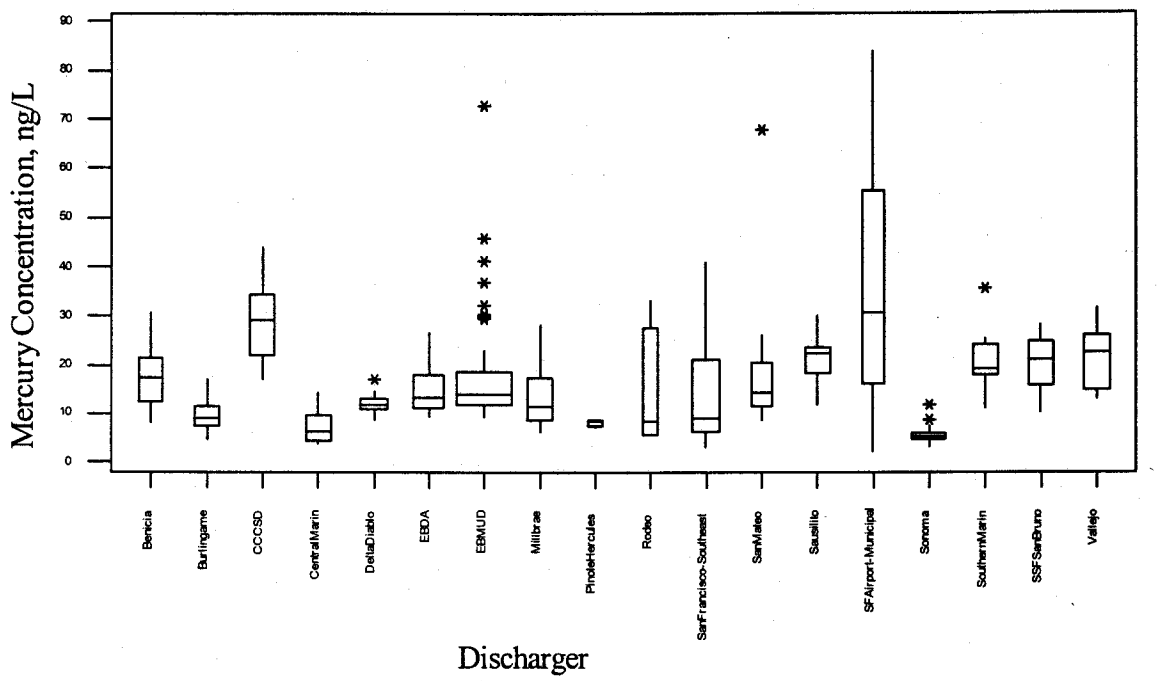


Figure 9. Boxplots of advanced secondary treatment plants in final pooled data set, by discharger.

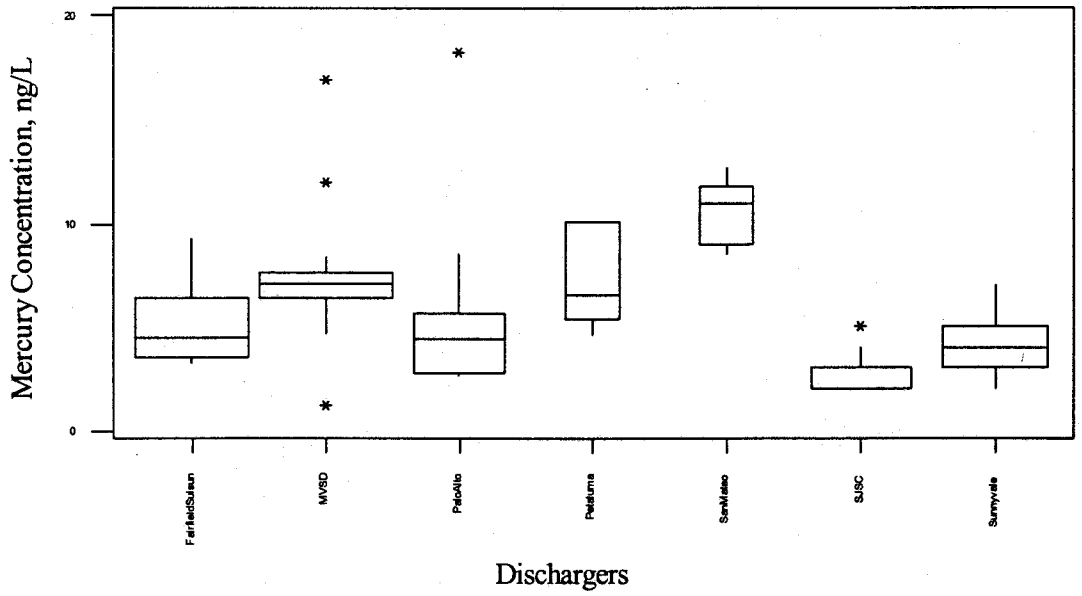


Figure 10. Histogram of final data set, all data.

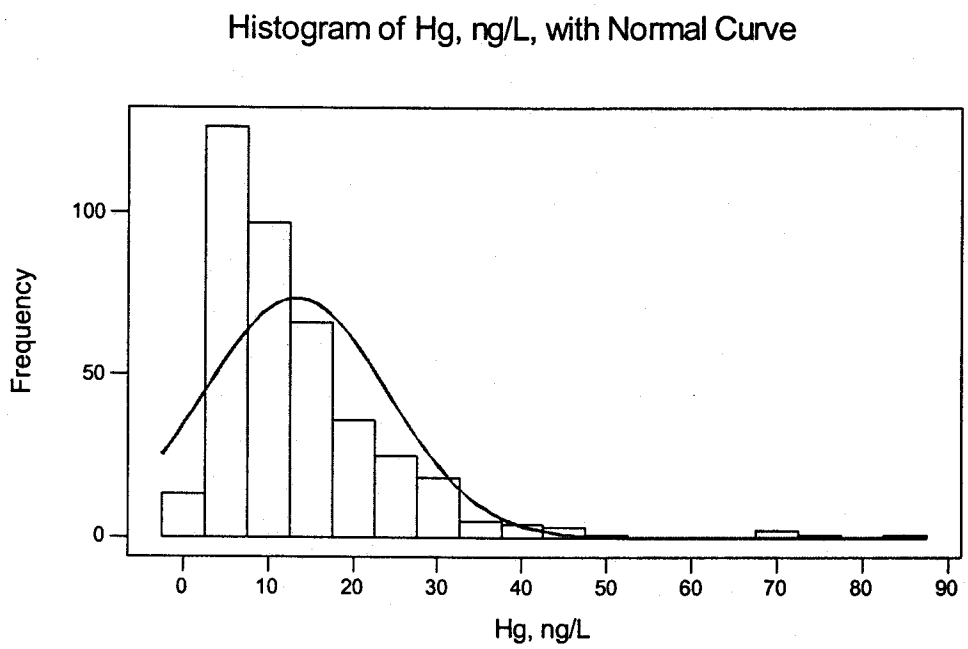
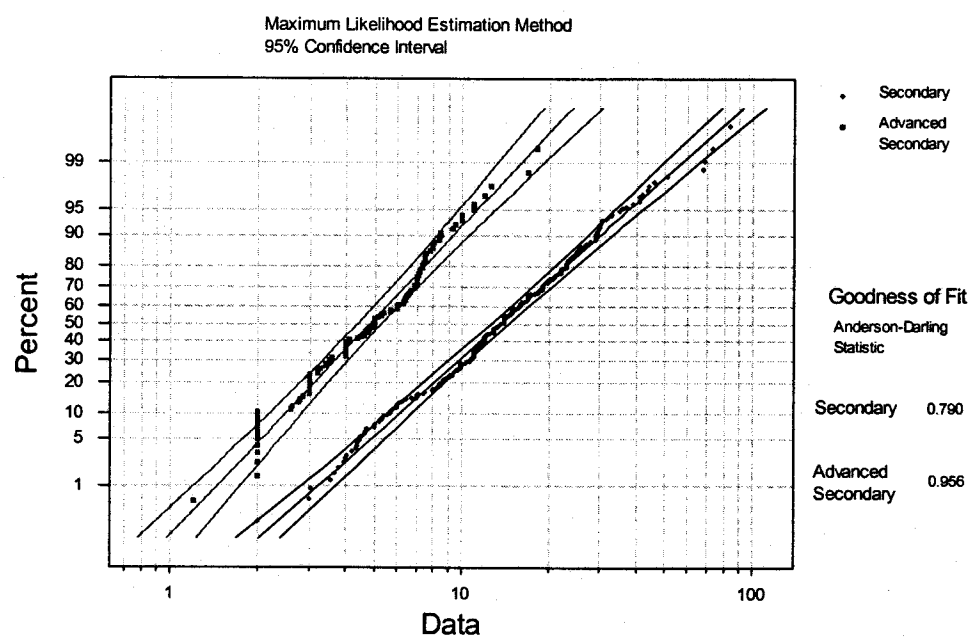


Figure 11. Ln-plotted probability plots of final data, by treatment type.



ATTACHMENT H

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 recorder. 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:

Metric tons sludge/365 days	Frequency
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(l)(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, gama (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_i' and 'C_i' 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_i' is the concentration measured in the composite sample and 'Q_i' 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:

N

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

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_t' 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):

    Removal Efficiency (%) = 100 X [1-(**Effluent Conc./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 I

August 6, 2001 Letter
Entitled
Requirements for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy

California Regional Water Quality Control Board
San Francisco Bay Region

Winston H. Hickox
Secretary for
Environmental
Protection

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Gray Davis
Governor

August 6, 2001

TO: **Permitted Wastewater Dischargers** (attached list)

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

This letter is a requirement for technical information pursuant to Section 13267 of the California Water Code. The information we request you to submit is effluent and receiving water data on priority pollutants (Enclosure A), and a sampling plan to collect those data. The sample plan is due by October 1, 2001. An interim report presenting the data is due May 18, 2003, with a final report due 180 days prior to expiration of your permit. The remainder of this letter describes the reason and justification for the request, and further details about this requirement. Due to its length, a table of contents is provided.

Please direct your questions to Chris Moore at 1-800-404-8919, or by e-mail at camonitoringquestions@tetratech-ffx.com, or Lila Tang at (510) 622-2425.

You should be aware that this is a formal requirement for technical information pursuant to California Water Code Section 13267. Failure to respond or late response may subject you to civil liability imposed by the Board to a maximum amount of $1,000 per day. Any revisions of the request set forth must be confirmed in writing by Board staff.

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priority pollutants and tributyltin were previously established in the San Francisco Bay Water Quality Control Plan (Basin Plan[4]) and/or the National Toxics Rule.

The Policy stipulates that the Regional Board shall issue letters to all dischargers requiring submittal of data sufficient for the purposes stated above. The Policy further stipulates that data must be submitted no later than May 18, 2003. These data requirements are in section 1.2 of the Policy. Section 3 of the Policy specifically addresses data for dioxins and furans. These requirements are manditory statewide and other Regions in the State have issued similar requirements.

Parameters to Monitor

Data should be collected on all 126 priority pollutants, total solids (SM 2540 B), and the discharge flow rate at the time of the sampling. Additionally, municipal sewage treatment plant effluent dischargers should include tributyltin, diazinon, and chlorpyriphos. Dischargers of cooling tower blowdown should include tributyltin. These pollutants are listed in Enclosure A of this letter.

In some cases, receiving water monitoring should also include pH, hardness, salinity, and stream flow rate measurements at the time of sampling for the toxic pollutants. Factors to consider when these should be measured are described below under Receiving Water Monitoring.

Shortening the List of Pollutants

Dischargers may propose a shorter list of pollutants than the list above, if they can certify to the absence of a pollutant on a pollutant-by-pollutant basis. This certification must be substantiated with both of the following:

- analytical data showing that the pollutant is not present in the influent water at levels above the lowest applicable criterion, or the lowest MLs listed in Enclosure A; and
- if chemicals are used in the treatment process, or other process after the influent point, these chemicals do not add the pollutant to the effluent discharged.

Analytical Methodology

Enclosure A lists the pollutants and parameters to monitor in the effluent and receiving water, along with suggested analytical methods for the 126 priority pollutants, and other toxic pollutants. In summary, the methods are:

- GFAA for antimony, beryllium, nickel, silver and thallium
- ICP for cadmium and zinc
- SPGFAA for copper and lead
- EPA Method 1631 for mercury[5],
- Gas Hydride generation AA for arsenic and selenium
- Standard Methods 3500 (colormetric) for hexavalent chromium. Analysis for total chromium may be substituted if the level measured is below the criterion for hexavalent chromium (11 ug/l).

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[4] The Basin Plan can be downloaded from www.swrcb.ca.gov/~rwqcb2

[5] Please refer to our letters of August 19, 1999, and October 22, 1999, concerning use of ultra-clean techniques for monitoring of effluent and receiving waters. Ultra-Clean techniques minimize contamination of samples from common sampling and analytical practices. The letters are available on our website at www.swrcb.ca.gov/~rwqcb2 under Basin Plan, Current Issues.

This could lead to a finding that the pollutants are not present at levels of concern and thus no need for future monitoring.

We appreciate that development of alternate test procedures may be an involved process. In consideration of this, it will be acceptable to develop procedures for just a subset of pollutants as a pilot project. We suggest the chlorinated pesticides in EPA 608 as this subset, because a few of them are on the list of pollutants impairing the Bay (chlordane, 4,4'DDT, and dieldrin). Such an effort will also contribute to the development of Total Maximum Daily Loads for these impairing pollutants.

If you choose to participate in this pilot project, you will not have to run EPA Methods 625 and 608, but the other methods are required at this time. We will also allow additional time beyond the final report submittal date of 180 days before permit expiration, for submittal of data on these pollutants. However, dischargers with effluent limits for 4,4'-DDE and dieldrin should monitor their effluent with EPA 608 at the minimum frequency of once every five years.

Please note that this pilot project is an option only. You may choose to not pursue it and simply run the standard EPA methods. However, in the interest of furthering discharge characterization and TMDL development, we encourage that you re-direct some of your analytical resources towards pursuing the option of developing a lower detection limit study.

Effluent Monitoring

To fulfill the requirement of this letter for effluent monitoring, the data you submit must be sufficient to characterize the concentration of each toxic pollutant in the effluent at the point of discharge. Please consider the following minimum requirements when preparing your sampling plans for effluent monitoring. These are summarized on Table 1 (attached).

Major Dischargers

- Frequency of monitoring should be determined after considering the variability of the discharge. Factors that can cause variability are influent composition, treatment plant design and operation, and rainfall.
    - For metals and cyanide, we believe the minimum frequency is once each month. If your Permit specifies more frequent monitoring, then that should be the frequency.
    - For organics (including tributyltin), the minimum frequency is twice each year. If your discharge may be influenced by wet weather, the samples should be timed for once in the dry season (May to September) and once in the wet season (October to April).
    - Additionally, we suggest including a provision for accelerating the frequency to collect more data for a pollutant if that pollutant is measured close to or above its applicable criterion (see Enclosure A). The intent of this is to allow characterization of the effluent for the purpose of determining performance based interim limits should that be necessary.
- Type of sample (i.e., grab verses composite), sample preservation and handling should follow U.S. EPA regulations (40 CFR 136.3[7]) and other practices as described in the Standard Methods for the Examination of Water and Wastewater.
    - In determining the type of sample---grab v. composite---you should consider the variability of the effluent during the day.

[7] This can be viewed at http://www.access.gpo.gov/nara/cfr/cfrhtml_00/Title_40/40cfr136_00.html

The frequency of monitoring should consider seasonal variability of the receiving water. Please consider the following minimum requirements when preparing your sampling plan for receiving water monitoring:

Dischargers to Bays through Deep Water Diffusers

- the concentration of each pollutant listed in Enclosure A in the receiving water that provides dilution for the discharge. Because of the dominance of tidal flushing in San Francisco Bay, it would be acceptable to select stations representative of incoming ocean waters.

Dischargers to Estuarine/Tidal Areas of Rivers and Sloughs

- the concentration of each constituent listed in Enclosure A in the receiving water that provides dilution for the discharge. As for dischargers to the Bay, tidal flushing may also be considered in selection of sampling sites. However, the site-specific relative significance of tidal flushing verses riverine outflow should be assess and provided to justify selection of the sampling sites.
- the pH, hardness, and salinity in the receiving water downstream of the point of discharge after the discharge has mixed with the receiving water;

Dischargers to Upland Freshwater Rivers and Streams

- the concentration of each constituent listed in the Enclosure A in the receiving water upstream of the point of discharge.
- the flow rate of the river at the time of sampling upstream of the point of discharge.
- the pH, hardness, and salinity in the receiving water downstream of the point of discharge;

For receiving water monitoring in the Bay and its estuarine fringe, whenever feasible, we encourage the dischargers to participate in a group effort utilizing monitoring mechanisms that are already in place such as the Regional Monitoring Program. For dischargers to upland creeks or streams, you may also coordinate with other dischargers in your area to collect the necessary receiving water data. When a group effort is used, we will accept the sampling plan from the group in lieu of individual plans. This group plan should list the dischargers in the group, and describe the justification for why the receiving water data gathered will be relevant and applicable to each of the listed dischargers.

Applicability of Historic Discharge Data

You may use priority pollutant data that you collected in the past to comply with, or to supplement, the requirements of this letter, provided all the following conditions are met:

- The historic data were based on samples collected and analyzed using approved methodology;
- The quantification limits (or MLs) for the historic data are as low as the lowest MLs in Enclosure B.
- The historic data are representative of current discharge (i.e., treatment system has not changed, and influent sources have not substantially changed).

If you plan to use historic data, please state this intend in the Sampling Plan with a justification of the representativeness of the data. In this case, the requirement for a concurrent total solids (SM 2540 B) analysis is waived for the historic data. You should also present the historic data together with any new data in the final report due 180 days prior to permit expiration.

Loretta K. Barsamian
Executive Officer

Enclosures

Enclosure A

List of Monitoring Parameters and Analytical Methods

CTR No.	Pollutant/Parameter	Criterion Approx.[1] µg/l	Analytical Method[2]	Optional Lower DL Study[3]	Minimum Levels[4] µg/l											
					GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
1.	Antimony	14	204.2						10	5	50	0.5	5	0.5		1000
2.	Arsenic	36	206.3					20		2	10	2	2	1		1000
3.	Beryllium								20	0.5	2	0.5	1			1000
4.	Cadmium	2.2	200 or 213					10	0.5	10	0.25	0.5				1000
5a.	Chromium (III)	180	SM 3500													
5b.	Chromium (VI)	11	SM 3500					10	5							1000
6.	Copper	3.1	200.9						25	5	10	0.5	2			1000
7.	Lead	2.5	200.9						20	5	5	0.5	2			10,000
8.	Mercury	0.025	1631 (note 5)									0.5			0.2	
9.	Nickel	7.1	249.2						50	5	20	1	5			1000
10.	Selenium	5	SM 3114B or C							5	10	2	5	1		1000
11.	Silver	1.2	272.2						10	1	10	0.25	2			1000

[1] The criterion serves only as a point of reference for the selection of the appropriate analytical method.

- Some metals are hardness dependent and are expressed as dissolved values. The above listed criteria have not been translated to total values and may be too low or too high depending on the actual hardness of your receiving water.
- Two criteria are listed for some organics. The value in parentheses are applicable only to those dischargers who discharge to MUN designated receiving waters (Municipal and Domestic Supply).

[2] The suggested method is the U.S. EPA Method unless otherwise specified (SM = Standard Methods). The discharger may use another U.S. EPA approved or recognized method if that method has a level of quantification below the applicable criterion. Where no method is suggested, the discharger has the discretion to use any standard method.

[3] Constituents where this column is asterisked "*" indicates that the currently available analytical technique is not low enough for the stated purpose of this letter requirement. The discharger has the option of 1) going forth with the current U.S. EPA analytical method, or 2) participating in a regional study to investigate the feasibility and reliability of increasing sample volumes to lower the detection limits.

[4] Minimum levels are from the State Implementation Policy. They are the concentration of the lowest calibration standard for that technique based on a survey of contract laboratories. 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. U.S. EPA 200.9); DCP = Direct Current Plasma.

[5] The Minimum level for mercury is 2 ng/l (or 0.002 ug/l) pursuant to Regional Board letters dated August 4, 1999, and October 22, 1999.

CAS No.	Pollutant/Parameter	Criterion Approx.[1] µg/l	Analytical Method[2]	Optional Lower DL Study[3]	Minimum Levels[4] µg/l											
					GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
38.	Tetrachloroethylene	8.85(0.8)	601	(*)	0.5	2										
40.	1,2-Trans-Dichloroethylene	700	601		0.5	1										
41.	1,1,1-Trichloroethane		601		0.5	2										
42.	1,1,2-Trichloroethane	42(0.60)	601		0.5	2										
43.	Trichloroethene	2.7)	601		0.5	2										
44.	Vinyl Chloride	2(525)	601		0.5	2										
45.	2-Chlorophenol	120	604		2	5										
46.	2,4-Dichlorophenol	93	604		1	5										
47.	2,4-Dimethylphenol	540	604		1	2										
48.	2-Methyl-4,6-Dinitrophenol or Dinitro-2-methylphenol	13.4	604		10	5										
49.	2,4-Dinitrophenol	70	604		5	5										
50.	2-Nitrophenol		604			10										
51.	4-Nitrophenol		604		5	10										
52.	4-chloro-3-methylphenol		604		5	1										
53.	Pentachlorophenol	7.9(0.28)	604	(*)	1	5										
54.	Phenol	21,000	604		1	1		50								
55.	2,4,6-Trichlorophenol	2.1	604	*	10	10										
56.	Acenaphthene	1,200	610 HPLC		1	1	0.5									
57.	Acenaphthylene		610 HPLC			10	0.2									
58.	Anthracene	9,600	610 HPLC			10	2									
60.	Benzo(a)Anthracene or 1,2 Benzanthracene	0.0044	610 HPLC	*	10	5										
61.	Benzo(a)Pyrene	0.0044	610 HPLC	*		10	2									
62.	Benzo(b)Fluoranthene or 3,4 Benzofluoranthene	0.0044	610 HPLC	*		10	10									
63.	Benzo(ghi)Perylene		610 HPLC			5	0.1									
64.	Benzo(k)Fluoranthene	0.0044	610 HPLC	*		10	2									
74.	Dibenzo(a,h) Anthracene	0.0044	610 HPLC	*		10	0.1									
86.	Fluoranthene	300	610 HPLC		10	1	0.05									
87.	Fluorene	1,300	610 HPLC			10	0.1									
92.	Indeno(1,2,3-cd)Pyrene	0.0044	610 HPLC	*		10	0.05									
100.	Pyrene	960	610 HPLC			10	0.05									
68.	Bis(2-Ethylhexyl) Phthalate	1.8	606 or 625	*	10	5										
70.	Butylbenzyl Phthalate	3,000	606 or 625		10	10										
79.	Diethyl Phthalate	23,000	606 or 625		10	2										
80.	Dimethyl Phthalate	31,3000	606 or 625		10	2										

CTR No.	Pollutant/Parameter	Criterion Approx.[1] µg/l	Analytical Method[2]	Optional Lower DL Study[3]	Minimum Levels[4] µg/l											
					GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
109.	4,4'-DDE	0.00059	608	*	0.05											
110.	4,4'-DDD	0.00083	608	*	0.05											
111.	Dieldrin	0.00014	608	*	0.01											
112.	Endosulfan (alpha)	0.0087	608	*	0.02											
113.	Endosulfan (beta)	0.0087	608	*	0.01											
114.	Endosulfan Sulfate	110	608		0.05											
115.	Endrin	0.0023	608	*	0.01											
116.	Endrin Aldehyde	0.76	608		0.01											
117.	Heptachlor	0.00021	608	*	0.01											
118.	Heptachlor Epoxide	0.0001	608	*	0.01											
119-125	PCBs: Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260	0.00017	608	*	0.5											
126.	Toxaphene	0.00073	608	*	0.5											
	Tributyltin	0.01	(see note 8)	Tributyltin is only required for sewage treatment plant discharges, and cooling tower blowdown discharges.												
	Chlorpyrifos	0.0056	614	Chloropyrifos and Diazinon are only required for sewage treatment plant discharges												
	Diazinon	0.05	614	Chloropyrifos and Diazinon are only required for sewage treatment plant discharges												
	Total Solids		SM 2540B	Grab sample at the same time as samples for dioxins and furans, and PCBs												
	pH			Required only for discharges to estuarine or fresh water rivers or streams, at a location upstream of the point of discharge.												
	Stream Flow Rate, upstream			Required only for discharges to estuarine or fresh water rivers or streams, at a location upstream of the point of discharge.												
	Hardness			Required only for discharges to estuarine or fresh water rivers or streams, at a location downstream of the point of discharge.												
	Salinity			Required for all discharges at a location downstream of the point of discharge.												

[8] Battelle technical article N-0959-2602, or East Bay Municipal Utilities District method for wastewaters

Enclosure B

Data Reporting Requirements

1. Sample results greater than or equal to the laboratories reported minimum levels (ML), shall be reported as measured by the laboratory.

2. Sample results less than the reported ML, but greater than or equal to the laboratory's method detection limit (MDL), shall be reported as "detected, but not quantified" or DNQ. The estimated concentration of the sample shall be reported and may be qualified by a notation as an estimated value measured below the lowest calibration standard.

3. Sample results less than the laboratory's method detection limit (MDL) shall be reported as "not detected" or ND. The MDL is determined by the procedure in 40CFR136. This MDL value shall be reported.

4. For Chlorinated dibenzodioxin (CDD) and chlorinated dibenzofuran (CDF), report the TEQ for each sample. TEQ = sum of the measured or estimated concentration for each congener multiplied by its respective TEF (shown below). Assume zero for congeners that are below the method detection limit, and use estimated and measured values in the calculation.

Congener	World Health Organization 1998 Toxicity Equivalence Factor (TEF)
2,3,7,8-tetra CDD	1
1,2,3,7,8-penta CDD	1
1,2,3,4,7,8-hexa CDDs	0.1
1,2,3,6,7,8-hexa CDDs	0.1
1,2,3,7,8,9-hexa CDDs	0.1
1,2,3,4,6,7,8-hepta CDD	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-hexa CDFs	0.1
1,2,3,6,7,8-hexa CDFs	0.1
2,3,4,6,7,8-hexa CDFs	0.1
1,2,3,4,6,7,8-hepta CDFs	0.01
1,2,3,4,7,8,9-hepta CDFs	0.01
octa CDF	0.0001

5. If you are submitting self-monitoring data electronically under the Electronic Reporting System, you may submit the effluent data as part of your routine self-monitoring reports. In this case, we waive the requirement to submit a final report of the results on effluent monitoring. However, you must still submit a report of the receiving water monitoring on May 18, 2003.

Enclosure D
Sampling Plan Outline

Introduction

The introduction section should include the information listed below:

- Facility Name
- Discharge Volume
- Description of discharge outfall location(s)
- NPDES Permit Number
- Board Order Number

Certification of Adequacy of Sampling Plan

Based on your assessment of the variability of the effluent, there should be a statement that sampling in accordance with the proposed plan should yield data that adequately characterize the effluent and receiving water for the purposes stated on page 2 of the letter.

Sampling Locations

Include a map of appropriate scale showing the locations of the discharge(s), and the locations of the receiving water sampling stations.

Sampling Logistics

Paragraph one should indicate the dates and times that sampling is expected to take place. This information can be summarized in a table such as, Example Table 1 shown below.

Paragraph two should discuss sampling techniques that will be employed during this sampling effort. Special attention should be given to the ultra clean techniques that will be employed for specific analytes.

Please Note: There are specific requirements for monitoring both effluent and receiving water. Sampling logistics for both of these areas should be noted in this section.

Example Table 1. Sampling Information

Constituent	Sampling Frequency	Sample Type
Mercury (Hg)	Once per month	Grab
Organophosphate pesticides	Twice per year (summer & winter)	24-hr composite
Asbestos	Summer 2002	24-hr composite

Sample Analysis

A brief description of the laboratories involved and their current certifications is sufficient. Any special circumstances concerning specific analytes or laboratories should be noted. An example of this type of

Organics

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