CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO: 01-070 **NPDES PERMIT NO. CA0037711**

WASTE DISCHARGE REQUIREMENTS FOR:
SEWERAGE AGENCY OF SOUTHERN MARIN,
MILL VALLEY, MARIN COUNTY

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

Discharger and Permit Application. The Sewerage Agency of Southern Marin (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 scharge Elimination System (NPDES).

rge Facility. The discharger owns and operates a wastewater treatment plant, located at 450 Sycamore Mill Valley, Marin County, California. The plant provides secondary level treatment for domestic r from the six SASM member agencies: City of Mill Valley, Almonte Sanitary District, Alto strict, Homestead Valley Sanitary District, Richardson Bay Sanitary District, and the Kay Park amalpais Community Sanitary District. The discharger's service area has a present population of 25,000. The treatment plant has an average dry weather capacity of 3.6 million gallons per day eat up to 24.7 mgd during the wet weather flow period with flows in excess of this being ation basins. The two earthen equalization basins have a total volume of 2.21million esently discharges an average dry weather flow of 2.51mgd, and an annual average mgd. SASM's two largest member agencies, the City of Mill Valley and Richardson rrently contribute 51% and 32% respectively of SASM's flow. A location map of s included as Attachment A of this Order.

ter is currently discharged 840 ft. offshore at an 84 foot depth below mean sea ral San Francisco Bay) through a submerged diffuser located at Latitude 37 Longitude 112 degrees, 27 minutes, 5 seconds. The discharge receives an ssified by the Board as a deepwater discharge.

y Waste Discharge Requirements Order No. 95-128, adopted by the

(USEPA) and the Board have classified this discharge as a major

ROCESS DESCRIPTION

ger's wastewater collection system includes about 8.5 The collection system consists of force mains, gravity

es approximately 3.5 miles of force mains, 9 f corrosion-proof polyethylene materi ance manual is maintained for th relief structures as well a

b. *Gravity Lines*. The discharger owns and operates about 5.2 miles of gravity sewer lines. Prior to January, 2001, the discharger owned and operated a small 0.5 mile gravity sewer and that system is only used during periods of extreme wet weather. Maintenance of this system has been minimal. On January 18, 2001, the discharger completed the acquisition of an additional 4.7 miles of gravity sewer from the discharger's member agencies. This system includes the gravity sewer mains that convey wastewater from the Alto, Almonte, and Homestead Valley Sanitary Districts as well as the City of Mill Valley and the Kay Park area of the Tamalpais Community Services District to the discharger's treatment plant. The discharger is currently developing a capital improvement plan and budget as well as a maintenance plan and budget for the newly acquired sewers. The discharger intends to complete and enact this plan no later than January 1, 2002.

c. *Pump Stations*. The discharger owns and operates six pump stations. Operation and maintenance manuals are maintained for each pump station. Equipment maintenance is scheduled through the use of the discharger's Computerized Maintenance Management System. Five of these six pump stations have received major upgrades or expansions over the course of the past five years. No further modifications or upgrades are currently planned.

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 the City of Mill Valley, Almonte Sanitary District, Alto Sanitary District, Homestead Valley Sanitary District, Richardson Bay Sanitary District, and the Kay Park area of the Tamalpais Community Sanitary District. 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 discreet 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 and its member agencies continue to make improvements to the sewer system that help to reduce I/I. The discharger's largest member agency, the City of Mill Valley, has spent approximately $450,000 per year for the past twelve years on sewer system rehabilitation. The City's budget for sewer system rehabilitation continues at this level - $450,000 budgeted in both 2000/2001 and in 2001/2002. The discharger's second largest member agency, the Richardson Bay Sanitary District has also implemented a major sewer system rehabilitation program over the course of the past 10 years. The discharger has also initiated a sewer system rehabilitation program due to the recent acquisition of the trunk sewer system described in finding 6. The discharger has developed a corrective action plan and has budgeted $500,000 for this work in 2000/2001 and anticipates budgeting an additional $500,000 in 2001/2002.

10. *Treatment Process.* The treatment process consists of screening facilities, Pista-Grit grit removal, primary sedimentation clarifiers, biological treatment using trickling filters (bio-towers with synthetic media), secondary clarification, disinfection (chlorination) and dechlorination (sulfonation). Chlorine contact is accomplished in the six-mile effluent force main and dechlorination is accomplished by Sanitary District No. 5 prior to entrance into the outfall. In wet weather conditions when high influent flows exceeds 24.7 MGD (the capacity of the biological treatment processes), a portion of flow is diverted to the equalization ponds. The diverted flow will be pumped back to the headworks after the high influent flow subsides. This operation of the treatment system during wet weather is consistent with the design concepts for the treatment plant and is consistent with the operational approach described in the Operations and Maintenance manual for the plant. A treatment process schematic diagram is included as Attachment B of this Order.

11. *Solids Handling and Disposal.* Solids removed from the wastewater stream are treated by gravity thickening, primary and secondary digestion, and dewatering by belt filter press. Dewatered biosolids are delivered to Redwood Sanitary Landfill in Novato approximately eight months out of the year (from October through May) where it is composted with yard wastes and used for daily cover at the landfill. From June through September, dewatered solids are delivered to the Residuals Processing Inc. agricultural reuse site located on Lakeville Highway in Sonoma County. Residual Processing Inc. operates this site under a Sonoma County permit. The discharger currently generates and reclaims about 375 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 21S000240..

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:
    a. Industrial Service Supply
    b. Industrial Process Supply
    c. Navigation
    d. Water Contact Recreation
    e. Non-contact Water Recreation
    f. Ocean Commercial and Sport Fishing
    g. Wildlife Habitat
    h. Preservation of Rare and Endangered Species
    i. Fish Migration
    j. Fish Spawning
    k. Shellfish Harvesting
    l. 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.

BASIS FOR EFFLUENT LIMITATIONS

18. 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.

19. *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.

20. *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).

21. *Effluent Data for Inorganics.* Effluent data, from January 1998 through December 2000,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.

22. *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. Provision 15 requires the discharger to determine ambient background for those constituents, this may occur either through participation in new RMP special studies or through equivalent studies conducted jointly with other dischargers. Upon completion of the required ambient background monitoring, the Board shall use the gathered data to conduct the RPA and determine if a water-quality based effluent limitation is required.

23. *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 evaluated were total PAHs and total Phenols monitored from January 1998 through December 2000. In addition, an RPA could was conducted on some individual total PAHs, however there is insufficient data to perform any subsequent calculations (e.g. water-quality based effluent limits). Provision 12 requires effluent monitoring of all organics prescribed in the SIP to complete the RPA.

24. *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 and calculation of effluent limitations and are listed in Attachment D.2.

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. Provision 14 requires the discharger to determine ambient background for those constituents, this may occur either through participation in new RMP special studies or through equivalent studies conducted jointly with other dischargers. Upon completion of the required ambient background monitoring, the Board shall use the gathered data to conduct the RPA and determine if a water-quality based effluent limitation is required.

25. *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: Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), settleable matter, oil and grease, 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). The previous permit included limits for BOD only. This permit includes technology based effluent limits for CBOD as well as BOD.

26. *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 WQBELs. Further details about the effluent limitations are given in the associated Fact Sheet for this Permit.

Constituents Identified in the 303(d)-List

27. 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)

28. 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.

29. 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.

30. 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

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

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

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

Reasonable Potential Analysis

32. 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 is compared with the adjusted WQO. If B is greater than the adjusted WQO, then an 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 January 1998 through December 2000. 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 result Provision 12 and 13 are included in the permit to expand the analytical list for effluent monitoring to include organics (Listed in Table 2 of the SMP). In addition, there is effluent monitoring data for total Phenols; however an RPA will be conducted by individual Phenols, once the effluent data becomes available.

(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	2.00	2.22	No
Cadmium	9.3	0.20	0.13	No
Chromium	50	1.00	4.4	No
Copper	3.7	26.00	2.45	Yes
Lead	5.6	2.59	0.8	No
Mercury	0.025	0.04	0.006	Yes
Nickel	7.1	5.00	3.5	No
Selenium	5.0	12.00	0.19	Yes
Silver	2.3	1.5	0.068	No
Zinc	58	250.00	4.6	Yes
Cyanide	1	3.0	<1	Yes
Phenols	500	210.00	NA**	No

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

d. *Phenols.* The MEC is compared with the WQO for total phenol as given in the Basin Plan (500 µg/L). There is no numeric WQO in the CTR for protection of salt water aquatic life. The numeric WQO in the CTR for protection of human health for organism consumption is 4,600,000 µg/L. In this order, the RPA was conducted only for total phenol. Based on Best Professional Judgment (BPJ), it is determined that there is unlikely reasonable potential for the discharge to cause or contribute to the exceedance of total phenol, even though the ambient background concentration is not available. The CTR includes both total and individual phenol constituents. Therefore, the RPA is required for individual and total phenols, pursuant to the SIP and CTR. Provisions in the order require the discharger to monitor the effluent and receiving water for individual phenols for which the WQO is sometimes lower than the total phenol WQO listed in the Basin Plan. Upon completion of the required effluent and ambient background monitoring, the Board shall use the gathered data to complete the RPA for phenol (individual constituents, CTR Constituent Numbers (45-53)) and determine if a water-quality based effluent limitation is required.

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, 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. See Findings 32 and 33.

f. *Polynuclear Aromatic Hydrocarbons (PAHs).* The MEC is compared with the WQO for total PAHs as given in the Basin Plan (15 µg/L). The CTR includes only individual PAHs constituents. Therefore, an RPA is required for both individual and total PAHs, pursuant to the SIP and CTR. Provisions in the order require the discharger to monitor the effluent and receiving water for individual PAHs for which the WQO is sometimes three orders of magnitude lower than the total PAHs WQO listed in the Basin Plan. Upon completion of the required effluent and ambient background monitoring, the Board shall use the gathered data to complete the RPA for PAHs (individual constituents, CTR Constituent Numbers (56-101)) and determine if water-quality based effluent limitations are required.

Based on the RPA for total PAHs, it was determined that there is no reasonable potential, therefore there is no effluent limit for total PAHs in the permit. Based on the RPA for individual PAHs, it was indeterminate if individual PAH constituents have a reasonable potential to cause or contribute to an exceedance of a WQO. Provision 12 requires the discharger to characterize the effluent for individual PAH constituents listed in Table 2 of the SMP. 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 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.

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)

33. 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 final 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 (January 1998- December 2000) 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 and Se;
      - 10:1 dilution is mathematically eliminated for Cyanide because the chronic water quality objective was equal to the maximum observed background value;

    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 (see finding 31).

4,4 DDE

34. 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. As a result provisions are included in the permit requiring 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

35. 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. As a result provisions are included in the permit requiring 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

36. 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 (1998-2000) range from 10.0 to 26.0 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. Interim Effluent Limit. 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. 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 an 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. The SIP requires the interim numeric effluent limit for the pollutant be based on current treatment facility performance or on the existing permit limitation, whichever is more stringent. This order establishes an interim performance-based concentration limit of 29 ug/L since it is less than the prior permit limit of 37 ug/L.

e. *Copper Source Reduction Program.* Due to the uncertainties about the quantities of copper that could be a stress to the ecosystem, particularly in media other than the water column (such as sediments, and/or organisms that take in particulate matter), the discharger is required to initiate efforts to reduce influent copper concentrations and maximize copper removal efficiency by optimizing plant performance. Implementation of a source control program will also provide information that can be used to assess the discharger's ability to comply with the water quality based effluent limit or an alternative water quality based limit.

Mercury

37. 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 as a Persistent, Bioaccumulative Pollutant.* Mercury is on the 303(d) list for impairing the San Francisco Bay due to fish tissue level exceedances. At the same time, municipal dischargers are generally not considered to be significant contributors to the mercury loading to the San Francisco Bay.

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. At present, it appears that the most appropriate course of action is to apply interim mass loading limits to these discharges, and focus mercury reduction efforts on more significant and controllable sources. While Total Maximum Daily Loads (TMDLs) are being developed, the discharger will be held accountable for maintaining ambient conditions to the receiving water by complying with performance-based mass emission limits for mercury. This permit includes interim concentration and mass emission loading limits. The discharger is required to maximize control over influent mercury sources and pollution prevention, with consideration of relative costs and benefits. The discharger 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. *Treatment Plant Performance and Compliance Attainability.* Effluent mercury concentrations during 1998-2000 were consistently 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 0.04 to 0.011 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.

e. *Effluent Concentration 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 Regionwide Ultraclean Mercury Sampling". The objective of the analysis is to provide an interim concentration limit that characterizes regional facility performance using only ultra-clean data and compliance of which will ensure there is no further degradation of the receiving water quality resulting from the discharge. 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 a separate 13267 letter.

f. *Mass Emission Limit.* A mass-based loading limit (mass emission limit) for mercury of 0.13 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 January 1998 through December 2000. 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.

g. *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 May 23, 2001 submittal. This Order specifies time schedules for those proposed activities as well as some additional activities to reduce any significant, controllable sources that may be contributing to mercury impairment in the receiving waters. The Board staff intends to require an objective third party to establish baseline programs, and to review program proposals and reports for adequacy.

Selenium

38. a. *Treatment Plant Performance and Compliance Attainability.* Effluent concentrations during the last three years (1998-2000) range from 4.0 to <100.0 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 50 µg/L.

b. *Detection Limits (<100 ug/L Reported Values).* The effluent data set used to determine the interim limit and mass limit was modified to exclude all <100 ug/L reported values. The <100 ug/L reported values are not considered representative of the effluent as the high detection limits could be a result of significant matrix interference. Including these high values (approximately eight data points) would have set inappropriately high interim and mass limits and therefore were eliminated from the data set. As a result of switching labs, for the past 7 months the discharger has met the minimum level (1 ug/L) as prescribed by the SIP.

c. *Effluent Concentration Limit.* The SIP requires the interim numeric effluent limit for the pollutant be the lower of the current treatment facility performance or the existing permit limitation. This Order establishes interim daily average concentration effluent limit for selenium of 18 µg/L, based on current

facility performance. The interim limit shall apply to the discharges until a TMDL and WLA for selenium are completed. The final limit will be based on the WLA derived from the TMDL.

d. *Mass Emission Limit.* Selenium is on the 303(d) list for impairing the San Francisco Bay. To prevent further impairment of receiving water by these constituents while the TMDL is being developed, a mass emission limit for Selenium is established in this permit. This limit is the 99.87 percentile value (or average + 3* standard deviation) of the calculated total mass loading from discharges to Central San Francisco Bay, based on effluent data from January 1998 through December 2000. The total mass loadings were calculated using a 12-month moving average. The selenium mass emission limit is 2.4 kilograms per month. When a final WLA is approved for the discharger, the permit may be reopened.

e. *Mass Trigger Limit.* A mass trigger limit is established at 0.94 kilograms per month. This value is calculated based on treatment plant performance using flow and selenium concentration data from January 2000 through December 2000. If the mass trigger emission limit is exceeded, the discharger shall initiate a pollutant minimization plan as specified in Provision 10.

f. *Source Control.* Effluent monitoring results since mid-2000 have all been <1 ug/L, which is more typical of domestic wastewater. If results continue at this level, SASM will demonstrate compliance with future potential WQBELs or the effluent would no longer show reasonable potential (since it would be less than the WQO of 5 ug/L) and an effluent limit would not be required in the future. Efforts to control selenium discharge are satisfied by a permit provision requiring a selenium reduction study (prompted when the mass trigger is exceeded), along with interim performance-based concentration and mass effluent limits.

Cyanide

39. 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. The non-detect value (<1 µg/L) is equivalent to the WQO (1 µg/L) and causes the dilution portion of the final effluent limit equation to be eliminated, thereby giving no dilution. The final WQBELs for cyanide, presented in the fact sheet, are a point of reference to conduct a feasibility study for immediate compliance. 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. This Order contains a provision requiring the Discharger to conduct a study for data collection. The Discharger is required to fully implement the study and submit a final report to the Board by May 18, 2003. The Board intends to include, in a subsequent permit revision, a revised final limit based on the study required as an enforceable limit. However, if the discharger requests and demonstrates that it is infeasible to comply with the revised final limit, the permit revision will establish a maximum five-year compliance schedule. In the meantime, an interim limit is established based on the previous permit limit of 25 µg/L

Zinc

40.

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 the previous permit limit (average daily = 580 ug/L) or at the values calculated by the methodology described in the SIP (average monthly = 440 ug/L and maximum daily = 882 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= 449 ug/L and Maximum Daily Limit = 858 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= 440 ug/L and Maximum Daily Limit = 882 ug/L.

Dioxins and Furans

41. a. *Current Limit* The current Permit, Order No. 95-128, 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. These 1998 WHOTEFs for dioxins and furans compounds are shown in Provision 14. 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

[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.

42. a. 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.

b. The discharger conducted an extensive program to reduce infiltration and inflow in the 1980's as part of the discharger's participation in the Clean Water Grant program. In order to receive grant funding, the Discharger was required to achieve a cost-effective balance between treatment of infiltration and inflow and reduction of I/I. The 1980 Sewer System Evaluation Survey (SSES) included a cost effective analysis wherein it was determined that the peak I/I rate could be economically reduced by 28%. The Discharger completed projects to reduce I/I by this amount and by letter dated November 9, 1987, the State Water Resources Control Board stated that SASM "has satisfactorily demonstrated the effectiveness of the sewer rehabilitation in reducing I/I..." and that SASM had "satisfied all conditions of the grant contract. The Discharger and its member agencies continue to expend over $500,000 each year in ongoing sewer rehabilitation efforts in order to "hold the line" and improve the very old sewer system.

Based on the above studies, the discharger believes the 85 % removal requirements for TSS and BOD should be modified when peak wet weather flows cause the influent to the plant to be excessively dilute. In order for Board staff to consider this request, the Discharger intends to review and update the cost-effective analysis referenced above as necessary to determine conformance to current U.S. EPA guidance, Sewer System Infrastructure Analysis and Rehabilitation, (EPA, 1991, EPA/625/6-91/030).

At this time, the Regional Board staff cannot modify the 85% TSS and BOD removal requirements. The Discharger does not satisfy all of the conditions under (40CFR133.103(d)), Special Considerations. Federal regulations (40CFR133.103(d)), Special Considerations, authorizes the Board to substitute a lower percent removal requirement for CBOD and TSS, for facilities with less concentrated influent wastewater, provided certain conditions are met. The additional cost-effectiveness study (cited above) is necessary to further consider the request to modify the 85% removal requirement.

Whole Effluent Acute Toxicity

43. 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 an interim, the Discharger is required to continue using the current test protocols.

The discharger began conducting flow through whole effluent acute toxicity testing in 1989. Since that time the discharger has been in consistent compliance with the permit limits. The average survival rate over the period 1998 through 2000 was 96.9% for fathead minnows and 97.5% for three spine sticklebacks. The discharger has therefore requested a reduction in this monitoring requirement to one species only and has requested that that species be fathead minnow. The primary reason for selecting fatheads is that the discharger has had difficulty in securing a consistently healthy supply of sticklebacks.

Whole Effluent Chronic Toxicity

44. 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.

Pollutant Minimization Program

45. Some constituents listed in Table 2 of the Self Monitoring Plan, have never been monitored. While monitoring, the detection limits may be above WQOs. As a result, the RPA cannot be determined. The discharger should work with its laboratory to lower detection limits . If the discharger using the new or improved methods finds pollutants present at levels above the applicable WQOs, 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 program to achieve the water quality standards. This Order contains Provision 10, which requires the Discharger to submit and implement a pollutant minimization program for these pollutants, if appropriate.

46. The Board staff intends to require an objective third party to establish baseline programs, and to review program proposals and reports for adequacy.

SPECIAL STUDIES

47. The following special studies are required by the SIP and therefore included in the permit: Dioxin Study, Effluent Characterization for Selected Constituents and Ambient Background Concentration Determination.

OTHER DISCHARGE CHARACTERISTICS AND PERMIT CONDITIONS

48. *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 and waste minimization, 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.

49. *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.

50. *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.

51. *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.

52. *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 Sewerage Agency of Southern Marin (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 wastewater to waters of the State, either at the treatment plant or from the discharger's collection system or pump stations tributary to the treatment plant, is prohibited, except as provided under conditions stated in 40 CFR 122.41 (m)(4). The bypass of partially treated

wastewater to waters of the State is also prohibited, except that bypassing of individual treatment processes, for example during periods of high wet weather flow, is allowable provided that the combined discharge of fully treated and partially treated wastewater complies with the effluent and receiving water limitations contained in this Order. Compliance during bypasses shall be demonstrated in accordance with the Self-Monitoring Program.

4. The discharge of average dry weather flows greater than 3.6 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 (via Raccoon Strait) 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	60	
b. Total Suspended Solids (TSS)	mg/L	30	45	60	--
c. Oil & Grease	mg/L	10	--	20	--
d. Settleable Matter	ml/l-hr	0.1	--	0.2	--
e. Total Chlorine Residual (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, by weight of the respective values, for influent samples collected at approximately the same times during the same period.

3. Total 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 moving median value for the Most Probable Number (MPN) of total coliform bacteria in five (5) consecutive samples shall not exceed 240 MPN/100 ml; and,

b. Any single sample shall not exceed 10,000 MPN/100 ml

c. The discharger may use alternate fecal coliform limits of bacteriological quality instead of meeting 3.a. and 3.b. above (total coliform limits) provided that it can be conclusively demonstrated to the satisfaction of the Board that such a substitution will not result in unacceptable adverse impacts on the beneficial uses of the receiving water.

The total coliform limit is exempted for up to 6 months during the demonstration period as long as it can be demonstrated that the total coliform exceedance is due to the coliform study being performed.

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.7. 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

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;

[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.

(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 Limits and Trigger Mass Limits for Mercury and Selenium.
Until TMDL and Waste Load Allocation (WLA) efforts for mercury, and selenium are completed, the discharger shall maintain current total mass loadings for these pollutants discharged to Central San Francisco Bay by complying with the following:

Constituent	Mass emission trigger limit (kg/month)	Mass emission limit (kg/month)
a. Mercury		0.13
b. Selenium	0.94	2.7

c. The total mass loads for the above constituents shall not exceed the respective limits. Compliance with these limits shall be evaluated using monthly moving averages of total mass load.

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

If more than one 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. Pursuant to 40 CFR 401.17, pH effluent limitations under continuous monitoring, the Discharger shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied: (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 Daily Limit	Average Monthly Limit	Maximum Daily Limit	Interim Daily Maximum	Interim Monthly Average	Units	Notes
Copper				29		µg/L	(1), (4)
Mercury				1.0	0.087	µg/L	(1), (2), (4)
Selenium				18		µg/L	(1), (4)
Cyanide				25		µg/L	(1), (3), (4)
Zinc		449	858			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 0.01 µg/L, or lower.

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

(4) (i) The interim limits for copper and selenium shall remain in effect until June 30, 2006, or until the Board amends the limit based on the site-specific objectives or the Waste Load Allocation in the TMDL for copper and selenium.
(ii) The interim limit for mercury shall remain in effect until May 18, 2010, or until the Board amend the limits based on the Waste Load Allocation in the TMDL for mercury.
(iii) 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.
(iv) 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 of 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 the Residual Processing Inc. 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).

   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 July 1, 2001.

2. **Rescission of Previous Waste Discharge Requirements.** Requirements prescribed by this Order supersede the requirements prescribed by Order No. 95-128. Order No. 95-128 is rescinded after June 30, 2001.

3. **Self-Monitoring Program.** The discharger shall comply with the Self-Monitoring Program (SMP) for this Order as adopted by the Board and as amended by the Executive Officer thereafter.

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 its collection system 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 May 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 fathead minnows 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 June 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 Sept 1, 2001, 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. **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)	September 1, 2001

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 through the Annual Self Monitoring Report

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.

(5) The discharger shall participate in the development of a TMDL for mercury. In the annual 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.

8. Copper Source Control and Reduction Study and Schedule

The discharger shall document current copper reduction and control activities, evaluate the feasibility of potential enhancements to those activities, including enhancement of copper corrosion control in the water supply system, and treatment plant performance in comparison with the industry standard. This program shall be aimed at taking all reasonable and economical steps to reduce influent, effluent, and sludge copper concentrations and shall be developed and implemented in accordance with the following time schedule.

Task	Compliance Date
(1) Copper Source Control and Reduction Study Plan.	May 16, 2002

The discharger shall submit a report, acceptable to the Executive Officer, documenting future efforts to reduce influent copper concentrations and to optimize copper removal prior to discharge, including, but not limited to, details of measures taken by the local water agencies to reduce corrosion in the supply system. This report may be prepared and submitted in conjunction with other wastewater facilities served by the same water purveyors. Time schedules for anticipated actions associated with implementing a source reduction plan shall be included

(2) Annual Report — May 16, 2003, and annually thereafter

The discharger shall submit a report, acceptable to the Executive Officer, documenting efforts to identify and reduce any other significant copper sources in the community.

(3) The discharger shall participate in the development of a TMDL for copper. In the annual 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.

9. 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.

10. Submittal and Development of a Pollutant Minimization Program (PMP).

The PMP is required by the SIP (Section 2.4.5.1). The goal of the PMP shall be to reduce all potential sources of priority pollutant(s) through pollutant minimization (control) strategies to maintain the effluent concentration at or below a WQBEL. A PMP can be triggered under the following conditions:

i. **Effluent limitation**. Dischargers shall develop a PMP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:

1. A sample result is reported as DNQ and the effluent limitation is less than the reported ML; or
2. A sample result is reported as ND and the effluent limitation is less than MDL.

ii. **No effluent limitation**. As stated in Finding 42, for pollutants that have reasonable potential to cause or contribute to exceedance of State water quality standards, in the absence of effluent limits, the Discharger shall develope a pollutant minimization PMP and to achieve the water quality standards after reasonable potential has been determined based on effluent data and the discharger has been notified by the Executive Officer.

The program shall include, but not limited to, the following actions and submittals:

Task	Compliance Date
(a) Pollutant Minimization Program Plan	To be determined by the EO

The plan shall include, but is not limited to, (1) an annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures approved by the Executive Officer if it is demonstrated source monitoring is unlikely to produce useful analytical data; (2) quarterly monitoring for the priority pollutant(s) in the influent to the wastewater treatment system, or alternative measures approved by the Executive Officer if it is demonstrated influent monitoring is unlikely to produce useful analytical data; (3)control strategy design to proceed toward the goal of reducing concentrations of the priority pollutant(s) in the effluent, (4) discussion of appropriate cost-effective control measures for the priority pollutant(s), consistent with the control strategy, and (5) annual reporting of results.

11. Receiving Water Beneficial Use Study Program and Schedule

The discharger may conduct a study, to demonstrate that substituting total coliform organisms limitations with fecal coliform organisms will not result in unacceptable adverse impacts on the beneficial uses of the receiving water. The workplan must be approved by the Executive Officer and the results of the study must conclusively demonstrate that such a substitution will not result in unacceptable adverse impacts on the beneficial uses of the receiving water and must be approved by the Board.

Task	Compliance Date
(a) Receiving Water Beneficial Use Study Program	24 months following permit adoption

Submit a proposed program plan, acceptable to the Executive Officer, for data collection and analysis to determine whether the use of fecal coliform as a more specific indicator of human pathogens (instead of total coliform) does not impair beneficial uses in the vicinity of the discharger's outfall.

(b) Study Program Commencement. Commence data collection within 12 months after Executive Officer approval.

Following approval of the program plan by the executive officer , collect data in accordance with the study plan and time schedule. Specific data collection timing is expected to correspond to sequential reductions of chlorine use to determine the proper quantity of chlorine needed to meet fecal coliform criteria.

(c) Final Report 3 months following end of data collection.

Following data collection, analyze data and submit a report to the executive officer, documenting the results found, including chlorine residual measurements and corresponding fecal and total coliform measurements in effluent and in the receiving water. Document whether use of the fecal coliform indicator is expected to impair beneficial uses.

During the study, the discharger is exempt from the total coliform limit for a period not to exceed six months from the start of data collection. If there is a total coliform exceedence during the data collection period, the discharger shall demonstrate the exceedence is solely due to the study in order for the exemption to apply.

12. Special Study - Effluent Characterization for Selected Constituents

The discharger shall monitor and evaluate effluent discharged to Central Bay for the constituents listed in Table 2 of the SMP of this Order (SMP Table 2 Constituents). Compliance with this requirement shall be achieved in accordance with the following:

Task			Compliance Date
(a)	Sampling Plan		February 15, 2003

The effluent monitoring plan shall include, but not limited to, a minimum of six effluent sampling and analysis events, with at least three sampling events conducted in the wet weather season and at least three sampling events conducted in the dry weather season, with the first sampling event no later than August 12, 2002.

(b)	Interim Report:	Submit report no later than:	April 28, 2004.
(c)	Final Report:	Submit report no later than:	November 30, 2005.

The discharger shall submit technical reports acceptable to the Executive Officer documenting status and results of the study in accordance with the following:

(i) This report shall include analytical procedures used and achieved for each constituent, including the method detection limit (MDL) and minimum Level (ML). For each constituent, the MDL should be adequate to evaluate observed effluent concentrations with respect to the water quality objective given in SMP Table 2, where technically and reasonably feasible.

(ii) This report shall include an evaluation of observed effluent concentrations with respect to the water quality objectives given in SMP Table 2, and an assessment of the costs of monitoring the effluent for these constituents.

(iii) The SMP of this Order may subsequently be revised to include routine monitoring for all or some of the SMP Table 2 Constituents.

13. Special Study – Dioxin Study

In accordance with the SIP, major dischargers shall conduct effluent monitoring for the seventeen 2, 3, 7, 8-TCDD congeners listed below. 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. Major dischargers are required to monitor the effluent once during the dry season and once during the wet season for a period of three consecutive years.

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

Task	Compliance Date
(a) Sampling Plan	1 year after permit adoption

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

(b) Implement Plan	30 days after approval of study

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

(c) Annual Report	Annually for 3 years

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

14. Special Study – Ambient Background Concentration Determination

The discharger shall take background, ambient water samples near or upstream from the facility. This information is required to perform the RP analysis and to determine the effluent limitations.

Task	Compliance Schedule
(a) Sampling Plan	August 30, 2001

A sampling plan shall be submitted to the Executive Officer for approval, prior to sampling. The sampling plan shall include, but is not limited to, sampling protocols, data submittal format, and time schedule. Sampling may occur in coordination with other POTWs in the area in order to effectively acquire the same information required of them.

(b) Annual Progress Report/or Regional Monitoring Report	February 15, 2002, and annually thereafter
(c) Final Report	No later than February 15, 2005

Submit a report, to the Board, documenting the work performed in the sampling plan. Information included, but not limited to, in report are as follows: constituent sampled for, MDL and ML for each priority pollutant, sampling results, location of the samples, time the samples were taken, sample methodology used in the lab analysis, QA/QC data, and map showing the location of the sampling site(s) in relation to the location of the discharge.

15. Special Study – Cyanide Site-Specific Objective

The Discharger shall particpate 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 implement 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 Discharger shall complete the ambient background water quality characterization study, and submit a report of the results.

By June 30, 2003, the Discharger shall submit a report of completion for the site-specific objective study. 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.

16. 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.

17. 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.

(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.

18. 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.21 below.

19. 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.21 below.

20. 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.21 below.

21. Annual Status Reports.

The reports identified in Provisions E.18.c., E.19.c. and E.20.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.

22. 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.

23. 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 *Standard Provisions & Reporting Requirements*, August 1993, Section E.4.). Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.

24. 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.

25. NPDES Permit.

This Order shall serve as a National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective 10 days after the date of its adoption provided the 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.

26. 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 July 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.

27. Order Expiration and Reapplication.

a. This Order expires on May 30, 2006. This is based on 40 CFR 122.46(a) that specifies that the term of the permit shall not exceed 5 years.

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 June 20, 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. 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
F. Statistical Analysis of Pooled Data from Regionwide Ultraclean Mercury Sampling
G. Standard Provisions

ATTACHMENT A

Location Map

ROAD CLASSIFICATION

Heavy-duty ——— Light-duty ———

Medium-duty ——— Unimproved dirt - - - - - -

U.S. Route State Route

QUADRANGLE LOCATION

Revisions shown in purple and woodland compiled from aerial photographs taken 1979 and other source data
This information not field checked. Map edited 1980

Purple tint indicates extension of urban areas

SAN RAFAEL, CALIF.

NE/4 MT. TAMALPAIS 15' QUADRANGLE

37122-H5-TF-024

1954
PHOTOREVISED 1980
DMA 1459 I NE-SERIES V895

B.2.9.1

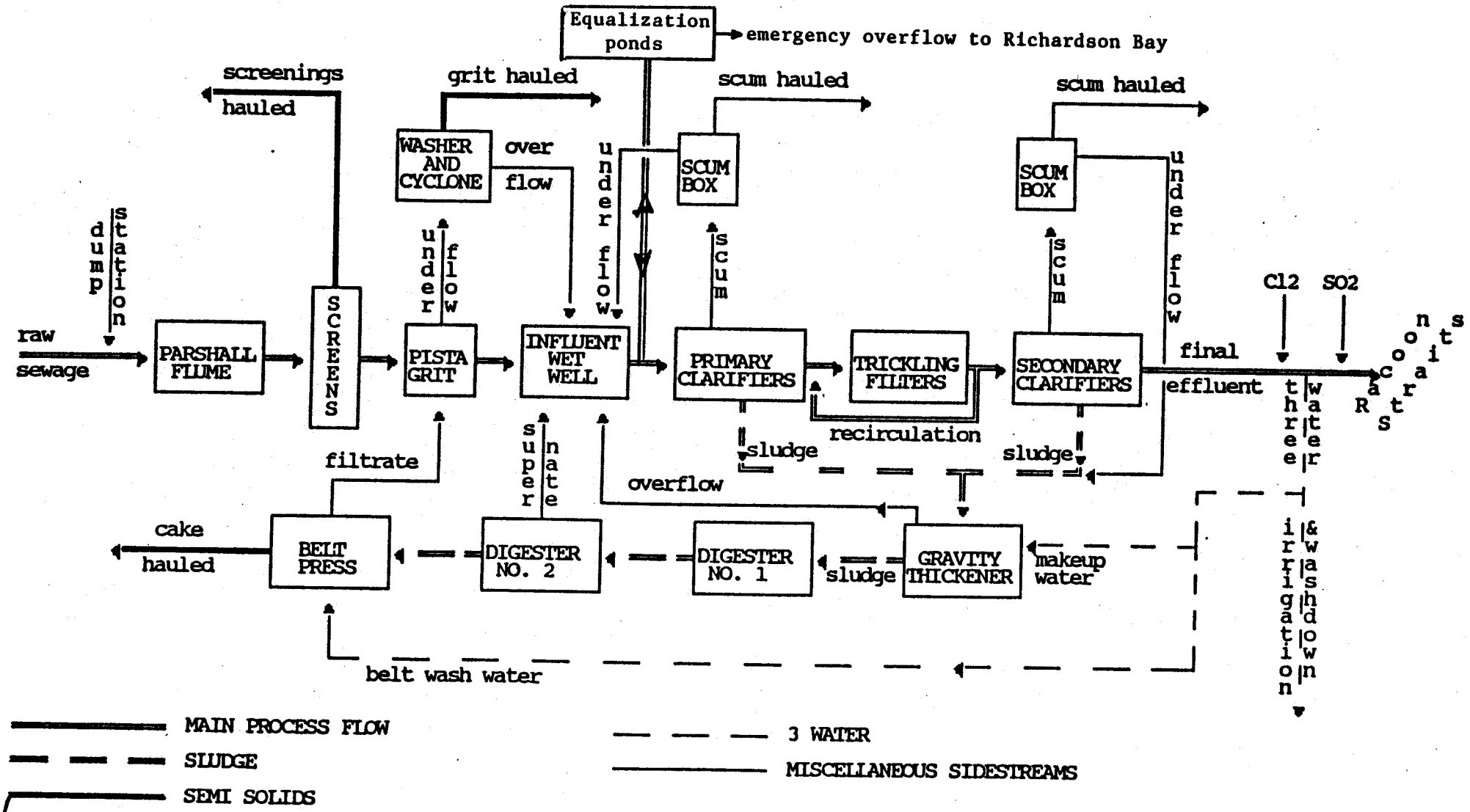
Pg 21b

092

ATTACHMENT B

Treatment Plant Schematic

SEWERAGE AGENCY OF SOUTHERN MARIN
WASTEWATER TREATMENT PLANT SCHEMATIC



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 - Strongylocentrotus purpuratus, S. franciscanus); (sand dollar - Dendraster excentricus)		percent fertilization	1 hour	4
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

SEWERAGE AGENCY OF SOUTHERN MARIN
WASTEWATER TREATMENT PLANT

MILL VALLEY, MARIN COUNTY

NPDES PERMIT NO. CA0037711

ORDER NO. 01-070

PART A AND PART B

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 control procedures in his or her laboratory and shall sign all reports of such work submitted to the Regional Board.

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

C. SPECIFICATIONS FOR SAMPLING AND ANALYSES

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

1. Influent

Composite samples of influent shall be collected on varying days selected at random and shall not include any plant recirculation or other 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

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. BASIS and PURPOSE

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

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

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

II. SAMPLING and ANALYTICAL METHODS

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

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

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

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

III. DEFINITION of TERMS

A. Types of Samples

1. *Grab Sample.* A grab sample is defined as an individual sample collected in a short period of time not exceeding fifteen minutes. A grab sample represents only the conditions that exist at the time the sample is collected. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may not necessarily correspond with periods of peak hydraulic conditions. Grab samples are used primarily in determining compliance with daily and instantaneous maximum or minimum limits.

2. *Composite Sample.* A composite sample is defined as a sample composed of multiple individual grab samples collected at regular intervals throughout a given period of time, with the individual grab samples mixed in proportion to the instantaneous waste flow rate at the time of each grab sample. For standard composite sampling required by this SMP, grab sample intervals shall not exceed one hour, and sample proportioning shall not vary by more than five percent of the flow rate.

3. *Flow Sample.* A flow sample is defined as the accurate measurement of either a volumetric flow rate or flow volume using a properly calibrated and maintained flow measuring device. Flows are typically

reported as Average Daily Flow which is the average flow rate during a 24-hour calendar day, and typically reported in units of million gallons per day (mgd).

B. Statistical Parameters

1. *Average.* Average is the arithmetic mean; i.e., the sum all values in a given data set, divided by the total number of values. A monthly average applies to samples collected in a calendar month.

2. *Median.* The median is the middle value of an ordered set of values; i.e., the value in the ordered set for which there is an equal number of values both greater than and less than this middle value. If the data set is an even number of values, the median is the arithmetic mean of the two middle values.

3. *Log mean.* The log mean is the summation of the log values of each data set value, divided by the number of values in the set. The log mean is given by the following equation:

$$\text{Log mean} = (1/n) \left(3 \text{ Log } (Ci) \right)_{i=1}^{i=n}$$

where: n is the number of data set values; and
Ci is the individual datum value.

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

C. Standard Observations

1. Wastewater Effluent:
   a. Floating or suspended material of waste origin (e.g., oil, grease, algae, and other macroscopic particulate matter): Presence or absence; description of any materials observed.
   b. Nuisance Odors: Presence or absence; characterization description if present; apparent source(s); and distance of travel.

2. Perimeter of wastewater treatment facility:
   a. Nuisance Odors: same as 1.b. above.
   b. Weather conditions:
      (1) General characterization (e.g., sunny, cloudy, rainy);
      (2) Air temperature
      (3) Wind: Direction and estimated velocity.
      (4) Precipitation: Total precipitation since previous observation.

IV. DESCRIPTION of SAMPLING and OBSERVATION STATIONS

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

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 Central San Francisco Bay Discharge (via Raccoon Strait)
At any point in the outfall between the point of discharge and the point at which all waste tributary to the outfall is present. (May be the same as E-001-D).

E-001-D Disinfected Effluent
At a point in the treatment facility at which all effluent to be discharged to the outfall is present, and at which point adequate contact with the disinfectant has been achieved. (May be the same as E-001). At any point in the disinfection facilities for waste E-001 at which adequate contact with the disinfectant is assured.

E-001-S At any point in the disposal facilities following dechlorination.

V. SCHEDULE of SAMPLING, ANALYSES and OBSERVATIONS

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

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

Sampling Station:			A-001	E-001-D	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
PH	pH units	[3,4]			Cont/D		
Temperature	°C	[3]					
Dissolved Oxygen	mg/L	[3]					
$BOD_5$20°C/CBOD	mg/L		W				W
TSS	mg/L		W				W
Oil & Grease	mg/L	[5,12]				Q	
Settleable Matter	ml/l-hr	[6]				W	
Total Coliform	MPN / 100 ml			W			
Chlorine Residual	mg/L	[7]			Cont./2h		
Acute Toxicity	% Surv'l	[8]					M
Chronic Toxicity		[9]					1/5Y
Zinc	ug/L						Q
Cyanide	ug/L	[12]				Q	
Mercury, Copper, Selenium	ug/L & kg/mo						M (kg/mo measurements for Hg and Se, only)
Metals	ug/L	[10]					2/Y (dry and wet weather)
Table 2 Selected Constituents	ug/L	[11,12]					2/Y for three years
Standard Observations						M	

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

LEGEND FOR TABLE 1

Sampling Stations:

A = treatment facility influent
E = treatment facility effluent
flows)
OV = overflow and bypass points
P = treatment facility perimeter points

Types of Samples:

C-24 = composite sample, 24 hours
(includes continuous sampling, such as for

C-X = composite sample, X hours
G = grab sample
O = observation

Frequency of Sampling:

Cont. = continuous
°C
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

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: VI. 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). These can be grab samples (G).
[4] A pH meter shall continuously monitor effluent quality at the facility. Both of these meters shall be equipped with an alarm relayed to a central station.
[5] Oil & Grease Monitoring. See SMP Section: VI. C.
[6] Settleable Matter Option of either grab or composite sampling protocol
[7] Disinfection Process. See SMP Section: VI. D.
[8] Acute Toxicity Monitoring. See SMP Section: VI. E.
[9] Chronic Toxicity Monitoring. See SMP Section: VI. F., and Order Provision E.16. 1/5y = one wet weather and one dry weather sampling event
[10] Metals See SMP Section: VI. G.
[11] Table 2 Selected Constituents See SMP Section: VII.

[12] A minimum of four grab samples, one every six hours over a 24-hour period, shall be used for volatile organic compounds, such as oil & grease and cyanide, Any samples for PCBs, dioxins/furans, and PAHs shall be grab samples.

VI. 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 (mg)
   b. Monthly: The same values as given in a., above, for the calendar month

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

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 Prechlorination chlorine residual data shall be maintained by the discharger. Total chlorine dosage (kg/day) shall be recorded on a daily basis.

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, Dissolved Oxygen, and Ammonia Nitrogen.

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 species screening testing conducted by a similar neighboring sanitary district. . SASM shall provide an evaluation of how similar the two plants are in terms of treatment processes, chemical useages, and other factors that might affect the species screening testing to support using species screening results from a neighboring sanitary district. 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 discharge demonstrates chronic toxicity, routine monitoring will be required. However, if the discharge demonstrates no chronic toxicity, in excess of the triggers specified in section (d), the monitoring frequency will be twice during the next five-years (one wet weather and one dry weather testing).

(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.

c. Reporting Raw Data in Electronic Format: The discharger shall report all chronic toxicity data upon completion of chronic toxicity testing in the format specified in "Suggested Standardized Reporting Requirements for Monitoring Chronic Toxicity," February 1993, SWRCB. The data shall be submitted in high density, double sided 3.5-inch floppy diskettes, or electronically via e-mail.

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

1. Arsenic,
2. Cadmium,
3. Chromium(total),
4. Copper,
5. Lead,
6. Mercury,
7. Nickel,
8. Selenium,
9. Silver, and
10. Zinc.

H. PAHs:

1. PAH constituents. The parameter 'PAHs' means all of the following PAH constituents:
   benzo(a)anthracene;
   benzo(a)pyrene;
   benzo(b)flouranthene;
   benzo(k)fluoranthene;
   chrysene;
   dibenzo(a,h)anthracene; and
   indeno(1,2,3-cd)pyrene.

2. Sampling and Analysis.

   a. PAHs shall be analyzed using the latest version of USEPA Method 610 (Methods 8100 or 8300).

   b. The Discharger shall attempt to achieve the lowest detection limits commercially available.

   c. If an analysis can not achieve quantification for a particular sample at or below the characterization objective (given below), the discharger shall provide an explanation in the self-monitoring report.

   d. PAH constituent characterization objective: 0.049 ug/L for each constituent identified in H.1 above.

   e. Samples must be collected in amber glass containers. Use of an automatic sampler is acceptable, provided the sampler incorporates glass containers, keeps samples refrigerated at 4°C and keeps samples protected from light during compositing. 24-hour composite samples may consist of eight grab samples collected at three hour intervals, with composite sampled prepared by the flow-proportioned samples from each grab sample vial, in accordance with effluent flows at the time of sampling.

VII. SELECTED CONSTITUENTS MONITORING

A. Table 2 - Selected Constituents

CTR #	Constituent (a)	Minimum Level (µg/l) (b)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGF AA	HYD RIDE	CVAA	DCP
1.	Antimony					10	5	50	0.5	5	0.5		1000
2.	Arsenic				20		2	10	2	2	1		1000
3.	Beryllium					20	0.5	2	0.5	1			1000
4.	Cadmium				10	0.5	10	0.25	0.5				1000
5a.	Chromium (III) (c)												
5b.	Chromium (VI)				10	5							1000
6.	Copper (d)					25	5	10	0.5	2			1000
7.	Lead					20	5	5	0.5	2			10,000
8.	Mercury (e)								0.5			0.2	
9.	Nickel					50	5	20	1	5			1000
10.	Selenium						5	10	2	5	1		1000
11.	Silver					10	1	10	0.25	2			1000
12.	Thallium					10	2	10	1	5			1000
13.	Zinc					20		20	1	10			
14.	Cyanide				5								
15.	Asbestos (c) (f)												
16.	2, 3, 7, 8-TCDD (Dioxin) (c)												
17.	Acrolein	2.0	5										
18.	Acrylonitrile	2.0	2										
19.	Benzene	0.5	2										
20.	Bromoform	0.5	2										
21.	Carbon Tetrachloride	0.5	2										
22.	Chlorobenzene	0.5	2										
23.	Chlorodibromomethane	0.5	2										
24.	Chloroethane	0.5	2										
25.	2-Chloroethylvinyl Ether	1	1										
26.	Chloroform	0.5	2										
27.	Dichlorobromomethane	0.5	2										
28.	1,1-Dichloroethane	0.5	1										
29.	1,2-Dichloroethane	0.5	2										
30.	1, 1-Dichloroethylene or 1,1 Dichloroethene	0.5	2										
31.	1, 2-Dichloropropane	0.5	1										
32.	1, 3 – Dichloropropylene or 1,3-Dichloropropene	0.5	2										
33.	Ethylbenzene	0.5	2										
34.	Methyl Bromide	1.0	2										
35.	Methyl Chloride or Chloromethane	0.5	2										
36.	Methylene Chloride or Dichlorormethane	0.5	2										
37.	1,1, 2,2-Tetrachloroethane	0.5	1										

CTR #	Constituent (a)	Minimum Level (µg/l) (b)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
38.	Tetrachloroethylene	0.5	2										
39.	Toluene	0.5	2										
40.	1,2-Trans-Dichloroethylene	0.5	1										
41.	1,1,1-Trichloroethane	0.5	2										
42.	1,1,2-Trichloroethane	0.5	2										
43.	Trichloroethylene or Trichloroethene	0.5	2										
44.	Vinyl Chloride	0.5	2										
45.	2-Chlorophenol	2	5										
46.	2, 4 Dichlorophenol	1	5										
47.	2,4-Dimethylphenol	1	2										
48.	2-Methyl-4,6-Dinitrophenol or Dinitro-2-methylphenol	10	5										
49.	2,4-Dinitrophenol	5	5										
50.	2-Nitrophenol		10										
51.	4-Nitrophenol	5	10										
52.	4-chloro-3-methylphenol	5	1										
53.	Pentachlorophenol	1	5										
54.	Phenol (g)	1	1		50								
55.	2, 4, 6 Trichlorophenol	10	10										
56.	Acenaphthene	1	1	0.5									
57.	Acenaphthylene		10	0.2									
58.	Anthracene		10	2									
59.	Benzidine		5										
60.	Benzo(a)Anthracene or 1,2 Benzanthracene	10	5										
61.	Benzo(a)Pyrene		10	2									
62.	Benzo(b)Fluoranthene or 3,4 Benzofluoranthene		10	10									
63.	Benzo(ghi)Perylene		5	0.1									
64.	Benzo(k)Fluoranthene		10	2									
65.	Bis(2-Chloroethoxy) Methane		5										
66.	Bis(2-Chloroethyl) Ether	10	1										
67.	Bis(2-Chloroisopropyl) Ether	10	2										
68.	Bis(2-Ethylhexyl) Phthalate	10	5										
69.	4-Bromophenyl Phenyl Ether	10	5										
70.	Butylbenzyl Phthalate	10	10										
71.	2-Chloronaphthalene		10										
72.	4-Chlorophenyl Phenyl Ether		5										
73.	Chrysene		10	5									
74.	Dibenzo(a,h) Anthracene		10	0.1									

CTR #	Constituent (a)	Minimum Level (µg/l) (b)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGF AA	HYD RIDE	CVAA	DCP
75.	1, 2 Dichlorobenzene (volatile)	0.5	2										
	1, 2 Dichlorobenzene (semi-volatile)	2	2										
76.	1, 3 Dichlorobenzene (volatile)	0.5	2										
	1, 3 Dichlorobenzene (semi-volatile)	2	1										
77.	1, 4 Dichlorobenzene (volatile)	0.5	2										
	1, 4 Dichlorobenzene (semi-volatile)	2	1										
78.	3,3'-Dichlorobenzidine		5										
79.	Diethyl Phthalate	10	2										
80.	Dimethyl Phthalate	10	2										
81.	Di-n-Butyl Phthalate		10										
82.	2,4-Dinitrotoluene	10	5										
83.	2,6-Dinitrotoluene		5										
84.	Di-n-Octyl Phthalate		10										
85.	1,2-Diphenylhydrazine		1										
86.	Fluoranthene	10	1	0.05									
87.	Fluorene		10	0.1									
88.	Hexachlorobenzene	5	1										
89.	Hexachlorobutadiene	5	1										
90.	Hexachlorocyclopentadiene	5	5										
91.	Hexachloroethane	5	1										
92.	Indeno(1,2,3-cd)Pyrene		10	0.05									
93.	Isophorone	10	1										
94.	Naphthalene	10	1	0.2									
95.	Nitrobenzene	10	1										
96.	N-Nitrosodimethylamine	10	5										
97.	N-Nitrosodi-n-Propylamine	10	5										
98.	N-Nitrosodiphenylamine	10	1										
99.	Phenanthrene		5	0.05									
100.	Pyrene		10	0.05									
101.	1,2,4-Trichlorobenzene	1	5										
102.	Aldrin	0.005											
103.	α-BHC	0.01											
104.	β-BHC	0.005											
105.	γ-BHC (Lindane)	0.02											
106.	δ-BHC	0.005											
107.	Chlordane	0.1											
108.	4,4'-DDT	0.01											
109.	4,4'-DDE	0.05											
110.	4,4'-DDD	0.05											
111.	Dieldrin	0.01											
112.	Endosulfan (alpha)	0.02											
113.	Endosulfan (beta)	0.01											

CTR #	Constituent (a)	Minimum Level (µg/l) (b)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYDRIDE	CVAA	DCP
114.	Endosulfan Sulfate	0.05											
115.	Endrin	0.01											
116.	Endrin Aldehyde	0.01											
117.	Heptachlor	0.01											
118.	Heptachlor Epoxide	0.01											
119-125	PCBs (h)	0.5											
126.	Toxaphene	0.5											
	Chlorpyrifos (c)												
	Diazinon (c)												
	Tributyltin (c)												

Notes:

a.) According to the SIP, method-specific factors (MSFs) can be applied. In such cases, this additional factor must be applied in the computation of the reporting limit. Application of such factors will alter the reported ML (as described in section 2.4.1) Dischargers are to instruct laboratories to establish calibration standards so that the ML value is the lowest calibration standard. At no time is the discharger to use analytical data derived from the extrapolation beyond the lowest point of the calibration curve.

b.) Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e. EPA 200.9); DCP = Direct Current Plasma.

c.) The SIP does not contain an ML for this constituent.

d.) For copper, the discharger may also use the following laboratory techniques with the relevant minimum level: GFAA with a minimum level of 5 µg/L and SPGFAA with a minimum level of 2 µg/L.

e.) Use ultra-clean sampling and analytical methods for mercury monitoring per 13267 letter issued to Discharger. ML for compliance purposes is as listed in table above until the SWRCB adopts alternative minimum level. (see 2000 SIP Appendix 4)

f.) The discharger does not need to sample for this constituent because sampling is not required for receiving waters with a municipal beneficial use designation.

g.) Phenol by colorimetric technique has a factor of 1.

h.) PCBs refers to PCB 1016, 1221, 1232, 1242, 1248, 1254 and 1260.

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

j.) When the discharger uses a method whose quantification practices are not consistent with the definition of an ML, such as USEPA approved method 1613 for dioxins and furans, the discharger, the RWQCB and the SWRCB shall agree on a lowest quantifiable limit and that limit will substitute for the ML for reporting and compliance determination purposes.

[7] VIII. REPORTING REQUIREMENTS

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

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

1. The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this Order, as demonstrated by the monitoring program data and the discharger's operation practices.

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

3. *Letter of Transmittal*
   Each report shall be submitted with a letter of transmittal. This letter shall include the following:
   (a) Identification of all violations of effluent limits or other discharge requirements found during the monitoring period;
   (b) Details of the violations: parameters, magnitude, test results, frequency, and dates;
   (c) The cause of the violations;
   (d) Discussion of corrective actions taken or planned to resolve violations and prevent recurrence, and dates or time schedule of action implementation. If previous reports have been submitted that address corrective actions, reference to such reports is satisfactory.
   (e) Signature: The letter of transmittal shall be signed by the discharger's principal executive officer or ranking elected official, or duly authorized representative, and shall include the following certification statement:
   "I certify under penalty of law that this document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information , including the possibility of fine and imprisonment."

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

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

   (b) If any parameter is monitored more frequently than required by this permit and SMP, the results of this additional monitoring shall be included in the monitoring report, and the data shall be included in data calculations and compliance evaluations for the monitoring period.

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

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

7. *Reporting Data in Electronic Format.* The discharger has the option to submit all monitoring results in 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.

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

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

1. Both tabular and graphical summaries of monitoring data collected during the calendar year that characterizes treatment plant performance and compliance with waste discharge requirements.

2. A comprehensive discussion of treatment plant performance and compliance with waste discharge requirements. This discussion should include any corrective actions taken or planned such as changes to facility equipment or operation practices which may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the discharger's wastewater collection, treatment or disposal practices.

3. A plan view drawing or map showing the dischargers' facility, flow routing and sampling and observation station locations.

4. 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.

D. Spill Reports.

1. A report shall be made of any spill of oil or other hazardous material.
2. The spill shall be reported by telephone as soon as possible and no later than 24 hours following occurrence or discharger's knowledge of occurrence. Spills shall be reported as described in a Board staff Memorandum dated May 3, 1999, Notification and Cleanup Procedures for Sewage Spills.

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

E. Reports of Collection System Overflows.

Overflows of sewage from the discharger's collection system, other than overflows specifically addressed elsewhere in this Order and SMP, shall be reported to the Board in accordance with the following:

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

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

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

(1) Notify the current Board staff case handler, by phone call or message, or by facsimile:
[current staff case handler: Ray Balcom, phone number (510) 622 - 2312]
[current Regional Board Fax number: (510) 622 - 2460];

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

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

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

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

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

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

a. The discharge shall prepare and retain records of such overflows, with records available for review by Board staff upon request.

b. The records for these overflows shall include the information as listed in 1.d. above.

c. A summary of these overflows shall be submitted to the Board annually, as part of the discharger's Self-Monitoring Program Annual Report.

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

1. A report shall be made of any incident where the discharger:

a. experiences or intends to experience a bypass of any treatment process, or

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

due to:

(1) maintenance work, power failures or breakdown of waste treatment equipment, or
(2) accidents caused by human error or negligence, or

(3) other causes such as acts of nature.

2. Such incidents shall be reported to the Regional Board in accordance with the following:
   a. Notify Regional Board staff by telephone:
      (1) within 24 hours of the time the discharger becomes aware of the incident, for incidents that have occurred, and
      (2) as soon as possible in advance of incidents that have not yet occurred.

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

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

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

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

IX. 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 log mean for number of samples or sampling period identified in waste discharge requirements).

2. For chlorination process, at least daily average values for the following:
   a. Chlorine residual in contact basin (mg/L)
   b. Contact time (minutes)
   c. Chlorine dosage (kg/day)

E. Treatment Process Bypasses.
A chronological log of all treatment process bypasses, including the following:
1. Identification of treatment process bypassed;
2. Date and time of bypass start and end;
3. Total duration time;
4. Estimated total volume;
5. Description of, or reference to other report(s) describing, bypass event, cause, corrective actions taken, and any additional monitoring conducted.

F. Collection System Overflows
A chronological log of all collection system overflows, including the following:
1. Location of overflow;
2. Date and time of overflow start and end;
3. Total duration time;
4. Estimated total volume;
5. Description of, or reference to other report(s) describing, overflow event, cause, corrective actions taken, and any additional monitoring conducted.

X. 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. 01-070.

2. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and revisions will be ordered by the Executive Officer.

3. Is effective as of July 1, 2001.

Loretta K. Barsamian

LORETTA K. BARSAMIAN
Executive Officer

ATTACHMENT E

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

SEWERAGE AGENCY OF SOUTHERN MARIN

Wastewater Treatment Plant
Mill Valley, Marin County
(NPDES Permit No. CA0037711)

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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: Monday, June 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: June 20, 2001, starting at 8:00 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.

The Sewerage Agency of Southern Marin (SASM) owns and operates a wastewater treatment plant, which comprises the wastewater collection, treatment and disposal facilities for the discharges regulated by this permit. SASM is the discharger for this permit.

B. Permit Application.

The District 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 Sewerage Agency of Southern Marin Wastewater Treatment Plant, is located at 450 Sycamore Avenue, Mill Valley, Marin County, California.

b. The plant provides secondary level treatment for domestic wastewater from the six SASM member agencies: City of Mill Valley, Almonte Sanitary District, Alto Sanitary District, Homestead Valley Sanitary District, Richardson Bay Sanitary District, and the Kay Park Area of the Tamalpais Community Sanitary District. The discharger's service area has a present population of approximately 25,000. The discharger's present service area population is about 18,319.

c. The plant has an average dry weather design flow capacity of 3.6 million gallons per day (mgd), and can treat up to 24.7 mgd during the wet weather flow period. The plant presently discharges an average dry weather flow of 1.45 mgd, and an annual average effluent flow of 1.68 mgd (based on data collected from 1998-2000).

d. The treatment process consists of screening facilities, Pista-Grit grit removal, primary sedimentation clarifiers, biological treatment using trickling filters (bio-towers with synthetic media), secondary clarification, disinfection (chlorination) and dechlorination (sulfonation). Chlorine contact is accomplished in the six-mile effluent force main and dechlorination is accomplished by Sanitary District No. 5 prior to entrance into the outfall. In wet weather conditions when high influent flows exceeds 24.7 mgd (the capacity of the biological treatment processes), a portion of flow is diverted to the equalization ponds.

B. Discharges and Locations.

1. ***Central San Francisco Bay Discharge outfall (E-001).***
   a. Treated municipal wastewater is discharged 840 feet offshore at an 84-foot depth into Central San Francisco Bay via Raccoon Strait through a submerged diffuser, at the location identified below.

   b. Location: Latitude 37 degrees, 52 minutes, 12 seconds; Longitude 122 degrees, 27 minutes, 05 seconds.

   c. The discharge receives an effluent to receiving water initial dilution of about 1400:1, and is

classified by the Board as a deepwater discharge.

2. ***Wastewater Collection System.***
   a. The discharger owns and operates the collection system for the following areas: City of Mill Valley, Almonte Sanitary District, Alto Sanitary District, Homestead Valley Sanitary District, Richardson Bay Sanitary District, and the Kay Park Area of the Tamalpais Community Sanitary District.

   b. Additionally, wastewater is conveyed to SASM from the satellite collection systems in the areas listed above (a). Each of the satellite collection systems is operated independently from the discharger and collects wastewater from their respective service area.

3. ***Solids Disposal.***
   Solids removed from the wastewater stream are treated by gravity thickening, primary and secondary digestion, and dewatering by belt filter press. Dewatered biosolids are delivered to Redwood Sanitary Landfill in Novato approximately eight months out of the year (from October through May) where it is composted with yard wastes and used for daily cover at the landfill. From June through September, dewatered solids are delivered to the Residuals Processing Inc. agricultural reuse site located on Lakeville Highway in Sonoma County. The discharger currently generates and reclaims about 375 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, 1998-2000

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) 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 3.6 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 3.6 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	60	--
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 CBOD 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. The CBOD parameter and associated limits were not included in the existing permit, but have been included in the draft permit at the request of the discharger.

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, and existing permit effluent limitations, based on Basin Plan requirements.

2. Effluent Limitation B.3 (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. Effluent limits in the tentative order are from the existing permit, which are based on Basin Plan Table 4-2, total coliform limits for deepwater dischargers. Water quality objectives are given in terms of parameters which serve as surrogates for pathogenic organisms. The traditional parameter in this regard is coliform bacteria, either as total coliform or as fecal coliform.

Water quality objectives for various beneficial uses are given in the Basin Plan as both total coliform and fecal coliform (Basin Plan, Chapter 3, Table 3-1). To use the fecal coliform limit, the discharger must conduct a receiving water study (in accordance with a plan approved by the Executive Officer) to confirm that use of the fecal coliform limit does not adversely affect the beneficial uses of the receiving water.

3. Effluent Limitation B.4 (Whole Effluent Acute Toxicity):
These limits are based on acute toxicity effluent limits given in the Basin Plan (Chapter 4 & Table 4-4). These limits apply to all discharges.

The discharger began conducting flow through whole effluent acute toxicity testing in 1989. Since that time the discharger has been in consistent compliance with the permit limits. The discharger has therefore requested a reduction in this monitoring requirement to one species only and has requested that that species be fathead minnow. The primary reason for selecting fatheads is that the discharger has had difficulty in securing a consistently healthy supply of sticklebacks.

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 Limits and Trigger Limits for Mercury and Selenium):** See discussion at Fact Sheet Item B.10 (Mercury), below. Additionally, see Attachment 5: Mass Emission Limit Calculations.

   a. Mass Emission Limit. Mercury and Selenium are identified in the 303(d) list as constituents contributing to impairment of Central San Francisco Bay. To prevent further impairment of receiving water by these constituents, mass-based loading limits (mass emission limits) for Mercury and Selenium are proposed to be included in the permit. These limits are established at the 99.7 percentile value (or average + 3* standard deviation)of the calculated total mass loadings for the respective constituents from discharges to Central San Francisco Bay via Raccoon Strait, based on effluent data from 1998 through 2000. The loadings were calculated using a 12-month moving average of the monthly total mass load..

   b. Mass Trigger Limit. A mass trigger emission limit is established for Selenium. This value is calculated based on treatment plant performance using flow and concentration data from January 2000 through December 2000. The effluent data from the year 2000 has lower detection limits than the previous two years (1998 and 1999), providing more accurate information. Due to the limited size of data points, the trigger limit is established at the maximum moving average from January 2000 through December 2000. If the mass trigger limit is exceeded, the discharger shall initiate a pollutant minimization program as specified in Provision 10.

   c. Compliance with these limits 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.

The effluent limitations under these this section of the permit are water quality based (WQBELs) for those pollutants not listed on the 303(d) list. For pollutants on the 303(d) list for which RP can be determined, the effluent limitations are interim limits based on current performance of the facility or the existing permit limit, whichever is more stringent.

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.

Copper, mercury, and selenium are listed as pollutants 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 these constituents, interim effluent limits are based on performance (as determined by effluent monitoring) data or previous permit limits, whichever value is more stringent. Treatment plant performance was evaluated statistically. For effluent data that could be approximated by a normal distribution, the corresponding limitation is set at a value corresponding to the sum of mean (m) and three times the standard deviation, s (i.e. m+3xs). The mean and standard deviation are calculated from the effluent data sample. If the effluent data is determined to be best approximated by a lognormal distribution, the corresponding interim performance-based limitation is set at a value corresponding to "exp(m+3xs)", where "exp( )" is the exponential function of the expression inside the brackets. Thus, testing of effluent data for the appropriate distribution type is a crucial step in determining the appropriate value for the interim performance-based effluent limitation. For selenium, a pollutant that has considerable portion of non-detected results, the probit analysis is used to establish the interim performance-based effluent limitation.

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.
$LTA_{acute} = ECA_{acute} * ECA\ multiplier_{acute99}$ (from Table 1 or calculated)

$LTA_{chronic}$ = $ECA_{chronic}$ * 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, phenol. 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, selenium, 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, nickel, total PAHs and total phenols 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 and Order 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 January 1998 through December 2000. 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 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). However, for total phenols, and cyanide there was effluent monitoring data from January 1998 through December 2000. In addition, there is effluent monitoring data for some individual PAHs.

(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, selenium ,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 <u>not</u> show reasonable potential to cause or contribute to excursion above applicable water quality objectives: arsenic, cadmium, chromium, silver, nickel, lead, total PAHs and total phenols. 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, Cyanide and Phenols.*
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	2.00	2.22	No
Cadmium	9.3	Basin Plan	0.2	0.13	No
Chromium	50	Basin Plan	1.00	4.4	No
Copper	3.7	CTR	26.00	2.45	Yes
Lead	5.6	Basin Plan	2.59	0.8	No
Mercury	0.025	Basin Plan	0.04	0.006	Yes
Nickel	7.1	Basin Plan	5.00	3.5	No
Selenium	5.0	CTR	12.00	0.19	Yes
Silver	2.3	Basin Plan	1.5	0.068	No
Zinc	58	Basin Plan	250.00	4.6	Yes
Cyanide	1	NTR	3.0	<1	Yes
Phenol	500	Basin Plan	210.00	NA	No

NA: Background concentration not available

j. *Phenols.* For phenol, the MEC is compared with the effluent limit for phenol as given in the Basin Plan (500 ug/L), because there is no numeric WQO for protection of salt water aquatic life, and the numeric WQO for protection of human health (NTR criteria for organism consumption) is 4,600,000 ug/L. Because the RPA was conducted only for total phenol , the analysis is incomplete. In this order, the RPA was conducted only for total phenol. Based on Best Professional Judgment (BPJ), it is determined that there is no reasonable potential for the discharge to cause or contribute to the exceedance of total phenol, even though the ambient background concentration is not available. The CTR includes both total and individual phenol constituents. Therefore, the RPA is required for individual and total phenols, pursuant to the SIP and CTR Provisions in the order require the discharger to monitor the effluent and receiving water for individual phenols for which the WQO is sometimes lower than the total phenol WQO listed in the Basin Plan. Upon completion of the required effluent and ambient background monitoring, the Board shall use the gathered data to complete the RPA for phenol (individual constituents, CTR Constituent Numbers (45-53)) and determine if a water-quality based effluent limitation is required.

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 (except PAHs, CTR Constituent Numbers 56,58,60,61,62,64,73,74,86,87,92,100). ***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 Provision 12.

l. *Polynuclear Aromatic Hydrocarbons (PAHs).* The RPA was conducted on both total and individual PAHs not total PAHs, as required by the SIP and CTR. Based on the RPA for total PAHs, there is no reasonable potential to cause or contribute to an exceedance of a WQO, as listed in the Basin Plan [MEC (0.1 ug/L) is not greater than the Basin Plan WQO (15 ug/L)](See Attachment 6). Based on the RPA for individual PAHs, certain PAHs constituents have a reasonable potential to cause or contribute to an exceedance of a WQO and a numeric WQBEL is required. The effluent monitoring data set is based on all concentrations reported at less than non-detect. Based on BPJ, this is insufficient data to calculate a WQBEL, (WQBEL methodology is described in Section 1.4 of the SIP). Provision 12 requires the discharger to characterize the effluent for individual PAH constituents, below WQOs, listed in Table 2 of the SMP. 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 (January 1998- December 2000) 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 Se; and
  iii. 10:1 dilution is mathematically eliminated for Cyanide because the chronic water quality objective was equal to the maximum observed background value.

10. Compliance Schedule

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

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

Pursuant to SIP (Section 2.2.2, Interim Requirements for Providing Data), in the case where available data are insufficient (e.g., cyanide), a compliance schedule of May 18, 2003 is established. This Order contains a provision requiring the Discharger to conduct a study for data collection. The Discharger is required to fully implement the study and submit a final report to the Board by May 18, 2003. The Board

intends to include, in a subsequent permit revision, a revised final limit based on the study required as an enforceable limit. However, if the discharger requests and demonstrates that it is infeasible to comply with the revised final limit, the permit revision will establish a maximum five-year compliance schedule. During the compliance schedules, interim limits are included based on current treatment facility performance or on existing permit limits, whichever is more stringent to maintain existing water quality. The Board may take appropriate enforcement actions if interim limits and requirements are not met.

Table: FEASIBILITY ANALYSIS TO COMPLY WITH WQBELs

CONSTITUENT	AMEL (ug/L)	MEC (ug/L)	IS MEC > AMEL	FEASIBILITY TO COMPLY (Y/N)
Copper	13.9	26	Y	N
Selenium	3.2	12	Y	N
Mercury	0.021	0.2	Y	N
Cyanide	1	3	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. In the interim, the Board is required under the SIP to set an interim concentration limit which is based on current performance or the existing limit , whichever is more stringent. The Regional Board will consider site-specific water quality objectives as long as the Discharger can demonstrate that the site-specific objective will protect existing beneficial uses, is scientifically defensible, and is consistent with the Antidegradation policy.

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

According to the SIP, this order establishes an interim performance-based concentration limit of 29 µg/L for discharges to Central San Francisco Bay.

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 0.031 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 1998 through 2000. The calculation of the Mercury Mass Emission Limit is shown on Attachment 5.

g. *Source Control and Special Studies.* The permit requires the discharger to develop a source control program as necessary to reduce any significant, controllable sources that may be contributing to mercury impairment in the receiving waters. 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. Selenium - 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 4.0 to <100.0 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 50 µg/L.

b. *Detection Limits (<100 ug/L Reported Values).* The effluent data set used to determine the interim limit and mass limit was modified to exclude all <100 ug/L reported values. The <100 ug/L reported values are not considered representative of the effluent as the high detection limits could be a result of significant matrix interference. Including these high values (approximately eight data points) would have set inappropriately high interim and mass limits and therefore were eliminated from the data set. As a result of switching labs, for the past 7 months the discharger has met the minimum level (1 ug/L) as prescribed by the SIP.

c. *Interim Effluent Concentration Limit.* The SIP requires the interim numeric effluent limit for the pollutant be the lower of the current treatment facility performance or the existing permit limitation. This Order establishes interim daily average concentration effluent limit for selenium of 18 µg/L, based on current facility performance. The interim limit shall apply to the discharges until a TMDL and WLA for selenium are completed. The final limit will be based on the WLA

derived from the TMDL.

d. *Water Quality Based Effluent Limit.* As discussed above, the discharger cannot meet the calculated WQBELs, so a compliance schedule has been granted until June 30, 2006. To satisfy the conditions of a compliance schedule, there is a provision requiring a source control program (only if the mass trigger is exceeded), along with interim performance-based effluent limits.

e. *Mass Emission Limit.* Selenium is on the 303(d) list for impairing the San Francisco Bay. To prevent further impairment of receiving water by these constituents while the TMDL is being developed, a mass emission limit for Selenium is established in this permit. This limit is the 99.87 percentile value (or average + 3* standard deviation) of the calculated total mass loading from discharges to Central San Francisco Bay, based on effluent data from January 1998 through December 2000. The total mass loadings were calculated using a 12-month moving average. The selenium mass emission limit is 2.4 kilograms per month. When a final WLA is approved for the discharger, the permit may be reopened.

f. *Mass Trigger Limit.* A mass trigger limit is established at 0.94 kilograms per month. This value is calculated based on treatment plant performance using flow and selenium concentration data from January 2000 through December 2000. If the mass trigger emission limit is exceeded, the discharger shall initiate a pollutant minimization plan as specified in Provision 10.

g. *Source Control.* Effluent monitoring results since mid-2000 have all been <1 ug/L, which is more typical of domestic wastewater. If results continue at this level, SASM will demonstrate compliance with future potential WQBELs or the effluent would no longer show reasonable potential (since it would be less than the WQO of 5 ug/L) and an effluent limit would not be required in the future. Efforts to control selenium discharge are satisfied by a permit provision requiring a selenium reduction study (prompted when the mass trigger is exceeded), along with interim performance-based concentration and mass effluent limits.

14. 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. The non-detect value (<1 ug/L) is equivalent to the WQO (1 ug/L) and causes the dilution portion of the final effluent limit equation to be eliminated, thereby giving no dilution. The final WQBELs for cyanide, presented in the fact sheet attachments, are a point of reference to conduct a feasibility study for immediate compliance. Cyanide is a regional problem associated with the analytical protocol for cyanide analysis due to matrix inferences. A body of evidence exists to show that cyanide measurements in effluent may be an artifact of the analytical method. This question is being explored in a national research study sponsored by the Water Environment Research Foundation (WERF).

b. This Order contains a provision requiring the Discharger to conduct a study for data collection. The Discharger is required to fully implement the study and submit a final report to the Board by May 18, 2003. The Board intends to include, in a subsequent permit revision, a revised final limit based on the study required as an enforceable limit. However, if the discharger requests and demonstrates that it is infeasible to comply with the revised final limit, the permit revision will establish a maximum five-year compliance schedule. In the meantime, an interim limit is established based on the previous permit limit of 25 ug/L.

15. 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 = 440 ug/L and maximum daily = 882 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= 440 ug/L and Maximum Daily Limit = 882 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= 440 ug/L and Maximum Daily Limit = 882 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 June 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 May 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 (4^{th} edition) by June 1, 2002.

7. **Provision E.7 (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 trigger loading limit identified in the Permit. Actions identified include notification of the Board of such exceedance, re-sampling to verify exceedance, and implementation 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 implementation of all reasonable control measures based on study conclusions.

8. **Provision E.8 (Copper Source Control and Reduction Study and Schedule)**
This provision requires the discharger to investigate additional potential copper source control and corrosion control measures, and to optimize copper removals across the treatment plant. This provision is based on past monitoring data that indicate the discharger's plant may have difficulty complying with future water quality based effluent limits for copper if it remains on the 303(d) list. This requirement is also based on the defined concerns about copper toxicity in the receiving waters, both as dissolved copper in the water column, and in particulate form. Requirements are intended to reduce effluent copper concentrations to achieve compliance with future effluent limits that will be based on a TMDL.

9. **Provision E.9 (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. In the event a translator study is not completed within the specified time, the USEPA conversion factor shall be the default translator.

10. **Provision E.10 (Submittal and Implementation of a Pollutant Minimization Program (PMP))**
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.

11. **Provision E. 11 (Receiving Water Beneficial Use Study and Schedule)**
To use the fecal coliform limit, the discharger must conduct a receiving water study (in accordance with a plan approved by the Executive Officer) to confirm that the use of the fecal coliform limit does not adversely affect the beneficial uses of receiving water.

12. **Provision E. 12 (Special Study – Effluent Characterization for Selected Constituents)**
Review of effluent monitoring data from January 1998 through December 2000 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).

13. **Provision E. 13 (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.

14. **Provision E. 14 (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.

15. **Provision E. 15 (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 revised final limit based on the study required as an enforceable limit. However, if the discharger requests and demonstrates that it is infeasible to comply with the revised final limit, the permit revision will establish a maximum five-year compliance schedule.

16. Provision E.16 (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.

17. Provision E.17 (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.

18. **Provisions E.18, E.19, E.20, and E.21 (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.

19. **Provision E.22 (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.

20. **Provision E.23 (change in control or ownership):** This provision is based on 40 CFR 122.61.

21. **Provision E.24 (reopener; modification or revocation and reissuance of the permit):** This provision is based on 40 CFR 123.

22. **Provision E.25 (NPDES Permit and USEPA concurrence):** This provision is based on 40 CFR 123.

23. **Provision E.26 (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. Basis and Purpose
- II. Sampling and Analytical Methods
- III. Definition of Terms
- IV. Description of Sampling and Observation Stations
- V. Schedule of Sampling, Analyses and Observations (Table 1)
  - Legend for Table 1 and Footnotes for Table 1
- VI. Specifications for Sampling, Analyses and Observations
- VII. Selected Constituents Monitoring (Table 2)
  - Footnotes for Table 2
- VIII. Reporting Requirements
- IX. Recording Requirements - Records to Be Maintained
- X. 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. WRITTEN COMMENTS

- Interested persons are invited to submit written comments concerning this draft permit.
- Comments shall be received by the Board no later than: **Monday, June 4 , 2001 by 5:00 pm**
- Comments received after this date will not receive full consideration in the formulation of final determinations of permit conditions.
- Comments should be submitted to the Board at the address given on the first page of this fact sheet, and addressed to the attention of: Ms. Gina Kathuria.

VII. PUBLIC HEARING

- The draft permit will be considered for adoption by the Board at a public hearing during the Board's regular monthly meeting to be held on: **June 20 2001, starting at 8:00 a.m.**

- This meeting will be held at: **Main Floor Auditorium, Elihu Harris State Office Building, 1515 Clay Street, Oakland, California.**

II. 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

SEWERAGE AGENCY OF
SOUTHERN MARIN
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

SASM

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

SASM FLOW, BOD, TSS AND TOXICITY SUMMARY FROM JAN. 1998 THROUGH DEC. 2000

	MONTH	FLOW (mgd) Avg.Monthly	BOD (% removal)	TSS (% removal)	Toxicity (%survival, daily) Stickle	Fathead
1998	JAN	8.18	85	84	100	85
	FEB	9.00	92	88	95	80
	MAR	3.42	95	95	100	95
	APR	3.17	95	96	95	100
	MAY	3.05	95	94	100	95
	JUN	2.50	92	93	100	100
	JUL	2.28	94	95	100	90
	AUG	2.24	93	96	95	100
	SEP	2.26	95	96	100	95
	OCT	2.38	95	96	100	100
	NOV	3.42	91	96	100	100
1998	DEC	3.29	92	92	100	100
1999	JAN	3.95	91	93	100	100
	FEB	6.51	89	88	85	95
	MAR	3.56	87	87	100	100
	APR	3.31	92	93	100	100
	MAY	2.40	94	96	95	90
	JUN	2.34	93	95	85	100
	JUL	2.27	94	96	100	100
	AUG	2.26	93	95	100	100
	SEP	2.24	92	96	100	100
	OCT	2.32	93	96	100	100
	NOV	2.66	92	96	100	100
1999	DEC	2.47	93	94	100	100
2000	JAN	4.53	91	89	70	100
	FEB	7.09	85	86	95	90
	MAR	4.03	88	90	100	100
	APR	3.02	93	94	100	100
	MAY	3.10	94	94	100	90
	JUN	2.61	94	96	100	100
	JUL	2.52	95	95	100	100
	AUG	2.48	94	90	100	100
	SEP	2.53	93	95	100	85
	OCT	2.83	92	94	100	100
	NOV	2.77	92	94	95	100
2000	DEC	2.89	91	93	100	100

Average 3.39

ATTACHMENT 4

Effluent Summary

Sewerage Agency of Southern Marin
Effluent Data January 1998
through December 2000

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																										
Jan								12.00			<	0.20			<	100.00										
Feb								13.00			<	0.20			<	100.00										
Mar	<	5.00	<	10.00	<	10.00		15.00	<	100.00	<	0.20	<	50.00		8.90	<	10.00		98.00	<	10.00	<	5.00	<	50.00
Apr								18.00			<	0.20			<	5.00										
May								17.00			<	0.20			<	100.00										
Jun	<	5.00	<	10.00	<	10.00		26.00	<	100.00	<	0.20	<	50.00	<	5.00	<	10.00		250.00	<	10.00	<	5.00	<	50.00
Jul								17.00			<	0.20			<	5.00										
Aug								13.00			<	0.20			<	5.00										
Sep	<	5.00	<	10.00	<	10.00		17.00	<	100.00	<	0.20	<	50.00		6.30	<	10.00	<	10.00	<	10.00	<	5.00	<	50.00
Oct								12.00			<	0.20			<	100.00										
Nov								14.00			<	0.20			<	100.00										
Dec	<	5.00	<	10.00	<	10.00	<	10.00	<	100.00	<	0.20	<	50.00		5.30	<	10.00		17.00	<	10.00	<	5.00		210.00
1999																										
Jan								22.00			<	0.2			<	100.00										
Feb								11.00			<	0.2			<	100.00										
Mar	<	100.00	<	10.00	<	10.00		14.00	<	100.00	<	0.2	<	50.00	<	100.00	<	10.00		110.00	<	10.00	<	5.00	<	50.00
Apr								14.00			<	0.2			<	4.00										
May								19.10			<	0.2			<	5.00										
Jun	<	10.00	<	1.00	<	10.00		18.30	<	3.00	<	0.2	<	5.00	<	5.00	<	1.75		121.00	<	10.00	<	1.00	<	50.00
Jul								16.00			<	0.2			<	5.00										
Aug								20.00			<	0.2				12.00										
Sep	<	3.00	<	0.50	<	5.00		17.10	<	0.50		0.0412	<	5.00	<	8.02	<	0.67		106.00	<	10.00	<	5.00	<	50.00
Oct								14.40			<	0.2				11.20										
Nov								15.10			<	0.2				9.00										
Dec	<	3.00	<	0.50	<	5.00		19.10		2.59	<	0.2	<	3.98	<	4.00	<	1.81		131.00	<	10.00	<	5.00	<	50.00
2000																										
Jan								18.90				0.024				4.25										
Feb								11.00				0.022			<	4.00										
Mar	<	3.00	<	0.50	<	5.00		17.10		1.21		0.036	<	5.00	<	4.00	<	0.50		109.00	<	10.00			<	50.00
Apr								12.90				0.019				4.00							<	0.10		
May								21.80				0.025				4.60										
Jun	<	3.00	<	0.20	<	5.00		15.00	<	3.00		0.011	<	5.00	<	1.00		0.70		140.00	<	6.00	<	0.30	<	12.00
Jul								17.00				0.019			<	1.00										
Aug								14.00				0.019			<	1.00										
Sep	<	4.00	<	0.20	<	5.00		16.00	<	2.00		0.016	<	5.00	<	1.00		1.50		130.00		3.00	<	0.30		8.00
Oct								14.00				0.019			<	1.00										
Nov								17.00				0.017			<	1.00										
Dec	<	2.00	<	0.20		1.00	<	16.00	<	2.00		0.020		5.00	<	1.00		1.10		120.00	<	3.00				14.00
avg (mg/l)		12.33		4.43		7.17		15.97		42.86		0.14		23.67		25.88		4.84		111.83		8.50				53.67
SD		27.684		4.926		3.157		3.385		50.446		0.087		23.249		40.269		4.576		60.552		2.812				52.173
coef var		2.24		1.11		0.44		0.21		1.18		0.53*		0.98		1.43*		0.95		0.54		0.33				0.9722
MEC		2.00		0.20		1.00		26.00		2.59		0.04		5.00		12.00		1.50		250.00		3.00				210
min		2.00		0.20		1.00		10.00		0.50		0.01		3.98		12.00		0.50		10.00		3.00				8.00
max		100.00		10.00		10.00		26.00		100.00		0.20		50.00		100.00		10.0000		250.00		10.00				210

* Note as per the SIP, the CV is calculated using one-half the value of the detection limit for all values in the data set, which are non-detects.

Sewerage Agency of Southern Marin
PAHs Effluent Data January 1998
through December 2000

Date		Acenaphthene, ug/l		Acenaphthylene, ug/l		Anthracene, ug/l		Benzo(a)anthracene, ug/l		Benzo(a)pyrene, ug/l		Benzo(b)fluoranthene, ug/l		Benzo(g,h,i)perylene, ug/l		Benzo(k)fluoranthene, ug/l		Chrysene, ug/l		Dibenzo(a,h)anthracene, ug/l		Fluoranthene, ug/l		Flourene, ug/l		Indeno(1,2,3-cd)pyrene, ug/l		Naphthalene		Pyrene
1998																													
Jan																													
Feb																													
Mar																													
Apr	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00
May																													
Jun																													
Jul	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00
Aug																													
Sep																													
Oct	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00
Nov																													
Dec	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00
1999																													
Jan																													
Feb																													
Mar	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00
Apr																													
May																													
Jun	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00
Jul																													
Aug																													
Sep	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00
Oct																													
Nov																													
Dec	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00
2000																													
Jan	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00	<	5.00
Feb																													
Mar	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00
Apr																													
May																													
Jun	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00
Jul																													
Aug																													
Sep	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00	<	3.00
Oct																													
Nov																													
Dec																													
avg (mg/l)		4.50		4.50		4.50		4.50		4.50		4.50		4.50		4.50		4.50		4.50		4.50		4.50		4.50		4.50		4.50
SD		0.905		0.905		0.905		0.905		0.905		0.905		0.905		0.905		0.905		0.905		0.905		0.905		0.905		0.905		0.905
coef var		0.20		0.20		0.20		0.20		0.20		0.20		0.20		0.20		0.20		0.20		0.20		0.20		0.20		0.20		0.20
MEC		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00
min		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00		3.00
max		5.00		5.00		5.00		5.00		5.00		5.00		5.00		5.00		5.00		5.00		5.00		5.00		5.00		5.00		5.00

ATTACHMENT 5

Mass Emission Limits Calculations

SASM

Calculation of Mass Emission Limits

(Based on effluent flow and mercury concentration 12-month moving averages, January 1998 to December 2000)

		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	Jan.	8.18	0.2	0.188	-
	Feb.	9.00	0.2	0.207	-
	Mar.	3.42	0.2	0.079	-
	Apr.	3.17	0.2	0.073	-
	May	3.05	0.2	0.070	-
	June	2.50	0.2	0.058	-
	July	2.28	0.2	0.052	-
	Aug.	2.24	0.2	0.052	-
	Sep.	2.26	0.2	0.052	-
	Oct.	2.38	0.2	0.055	-
	Nov.	3.42	0.2	0.079	-
1998	Dec.	3.29	0.2	0.076	0.09
1999	Jan.	3.95	0.2	0.091	0.08
	Feb.	6.51	0.2	0.150	0.07
	Mar.	3.56	0.2	0.082	0.07
	Apr.	3.31	0.2	0.08	0.07
	May	2.40	0.2	0.06	0.07
	June	2.34	0.2	0.05	0.07
	July	2.27	0.2	0.05	0.07
	Aug.	2.26	0.2	0.05	0.07
	Sept.	2.24	0.0412	0.01	0.07
	Oct.	2.32	0.2	0.05	0.07
	Nov.	2.66	0.2	0.06	0.07
1999	Dec.	2.47	0.2	0.06	0.07
2000	Jan.	4.53	0.02	0.010	0.06
	Feb.	7.09	0.02	0.018	0.05
	Mar.	4.03	0.04	0.019	0.04
	Apr.	3.02	0.02	0.007	0.04
	May	3.10	0.03	0.011	0.03
	June	2.61	0.01	0.003	0.03
	July	2.52	0.02	0.006	0.03
	Aug.	2.48	0.02	0.006	0.02
	Sep.	2.53	0.02	0.006	0.02
	Oct.	2.83	0.019	0.006	0.02
	Nov.	2.77	0.017	0.005	0.01
2000	Dec.	2.89	0.02	0.007	0.01

Count, n	24	24	24	25
Maximum	9.00	0.20	0.21	0.09
99.7 %tile	8.92	0.20	0.21	0.09
Average	3.44	0.15	0.06	0.05
Std Dev	1.74	0.08	0.05	0.02
Avg + 3SD	8.67	0.39	0.20	0.13

0.13
0.01

MERCURY MASS EMISSION LIMIT = 0.13 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.

SASM

Calculation of Mass Emission Limits

(Based on effluent flow and selenium concentration 12-month moving averages, January 1998 to December 2000)

Year	Month	Q1	C1, calc	ML	ML MvAv
Notes --->		1	3	5	4
Units ---->		mgd	µg/L	kg/mo	kg/mo
1998	Jan.	8.18		-	-
	Feb.	9.00		-	-
	Mar.	3.42	8.90	3.503	-
	Apr.	3.17	5.00	1.824	-
	May	3.05		-	-
	June	2.50	5.00	1.439	-
	July	2.28	5.00	1.312	-
	Aug.	2.24	5.00	1.289	-
	Sep.	2.26	6.30	1.639	-
	Oct.	2.38		-	-
	Nov.	3.42		-	-
1998	Dec.	3.29	5.30	2.007	1.86
1999	Jan.	3.95		-	1.86
	Feb.	6.51		-	1.86
	Mar.	3.56		-	1.59
	Apr.	3.31	4.00	1.52	1.53
	May	2.40	5.00	1.38	1.51
	June	2.34	5.00	1.35	1.50
	July	2.27	5.00	1.31	1.50
	Aug.	2.26	12.00	3.12	1.76
	Sept.	2.24	8.02	2.07	1.82
	Oct.	2.32	11.20	2.99	1.97
	Nov.	2.66	9.00	2.76	2.06
1999	Dec.	2.47	4.00	1.14	1.96
2000	Jan.	4.53	4.25	2.216	1.98
	Feb.	7.09	2.26	1.844	1.97
	Mar.	4.03	3.01	1.396	1.92
	Apr.	3.02	4.00	1.390	1.91
	May	3.10	4.60	1.641	1.93
	June	2.61	1.00	0.300	1.85
	July	2.52	1.00	0.290	1.76
	Aug.	2.48	1.00	0.285	1.53
	Sep.	2.53	1.00	0.291	1.38
	Oct.	2.83	1.00	0.326	1.16
	Nov.	2.77	1.00	0.319	0.95
2000	Dec.	2.89	1.00	0.333	0.89

Count, n	24	16	16	25
Maximum	9.0	12.0	3.5	2.1
99.7 %tile	8.9	11.9	3.5	2.1
Average	3.4	5.0	1.6	1.8
Std Dev	1.7	2.9	0.9	0.3
avg + 3SD	8.7	13.9	4.2	2.7

SELENIUM MASS EMISSION LIMIT = 2.7 kg/month

Eight data points (<100) were not counted in the calculation of the mass limit, they were non-detects and above the effluent limit of 50 ppb.

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.

SASM

Calculation of Mass Trigger Emission Limits

(Based on effluent flow and selenium concentration 12-month moving averages, January 2000 to December 2000)

Year	Month	Q1	C1, calc	ML	ML MvAv
Notes --->		1	3	5	4
Units ---->		mgd	µg/L	kg/mo	kg/mo
2000	Jan.	4.53	4.25	2.216	
	Feb.	7.09	2.26	1.844	
	Mar.	4.03	3.10	1.438	
	Apr.	3.02	4.00	1.390	
	May	3.10	4.60	1.641	
	June	2.61	1.00	0.300	
	July	2.52	1.00	0.290	
	Aug.	2.48	1.00	0.285	
	Sep.	2.53	1.00	0.291	
	Oct.	2.83	1.00	0.326	
	Nov.	2.77	1.00	0.319	0.940
2000	Dec.	2.89	1.00	0.333	0.769

Count, n	0	0	0	25
Maximum	7.1	4.6	2.2	--
99.7 %tile	7.0	4.6	2.2	--
Average	3.5	2.5	1.1	--
Std Dev	1.5	1.5	0.8	--
avg + 3SD	8.1	7.1	3.4	--

SELENIUM TRIGGER MASS EMISSION LIMIT = 0.94 kg/month

The effluent data from January 2000 through December 2000 was used to calculate the Selenium trigger mass limit

If the mass loading for mercury exceeds the trigger level then the discharger must initiate pollution minimization efforts

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

ATTACHMENT 6

Reasonable Potential Analysis

SASM

Reasonable Potential
Summary for Inorganics,
Phenols, and total PAHs

	As	Cd	Cr(T)	Cu	CN	Hg	Pb	Ni	Se	Ag	Zn	total PAHs	Phenols
Max conc (ppb)	2.00	0.20	1.00	26.00	3.00	0.04	2.59	5.00	12.00	1.50	250.00	0.10	210.00
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	NA[4]	NA[4]
Basin Plan WQO[6,7]													
1-hr avg (WQO1)	69	43	1100	4.9	5	2.1	140						500
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	15	
Objectives for (HH)[8]													
CTR													
Criterion Max Conc	69	42	1100	5.78	1		220	74	5	2.24	95	NA[5]	
Criterion Continous Conc	36	9.3	50	3.7	1		8.5	8.3	5		85	NA[5]	
Objectives for (HH)[8]					220000	0.051							
Is B> any WQO	N	N	N	N	Y	N	N	N	N	N	N	N	
Is C> any BP WQO	N	N	N	Y	Y	Y	N	N		N	Y	N	N
Is C> any CTR WQO	N	N	N	Y	Y	N	N	N	Y	N	Y	N	
Reasonable Potential	**N**	**N**	**N**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**N**	**Y**	**N**	**N**

Note:

1. Maximum observed effluent from SASM discharge from 1998-2000
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. NA = CTR only list individual PAHs, total PAHs are not listed
6. Data from DWR and the Discharger showed that the salinity of the receiving water exceeds 5 ppt more than 75% of the time.
7. 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.
8. 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

Date		Cyanide, ug/l
1998		
Jan		
Feb		
Mar	<	10.00
Apr		
May		
Jun	<	10.00
Jul		
Aug		
Sep	<	10.00
Oct		
Nov		
Dec	<	10.00
1999		
Jan		
Feb		
Mar	<	10.00
Apr		
May		
Jun	<	10.00
Jul		
Aug		
Sep	<	10.00
Oct		
Nov		
Dec	<	10.00
2000		
Jan		
Feb		
Mar	<	10.00
Apr		
May		
Jun	<	6.00
Jul		
Aug		
Sep		3.00
Oct		
Nov		
Dec	<	3.00
avg (ug/l)		9.0000
SD		2.81231
coef var		0.31
Avg+3 SD		17.4369
Performance-Based (ug/L)		17.43
Previous Permit (ug/L)		25.00**

** For Cyanide, a performance-based limit could not be calculated because the effluent data set for the past three years consists of all non-detects, providing no accurate effluent characteristics In addition, an SIP effluent limit could not be calculated, the background concentrations measured at the Central Bay stations are non-detect (>1), which allows for no assimilative capacity for Cn (because the WQO = 1), based on this limited data set an accurate SIP-effluent limit could not be calculated.

Provisions in the permit require monitioring to provide accurate Cyanide measurements for the effluent and receiving water (ambient background) until this data is provided to the RWQCB, the Cyanide effluent limit is set at the previous permit limit of 25 ug/L

SASM

CALCULATION OF INTERIM EFFLUENT LIMIT FOR COPPER

Date	Copper, ug/l
1998	
Jan-98	12.00
Feb-98	13.00
Mar-98	15.00
Apr-98	18.00
May-98	17.00
Jun-98	26.00
Jul-98	17.00
Aug-98	13.00
Sep-98	17.00
Oct-98	12.00
Nov-98	14.00
Dec-98	10.00
1999	
Jan-99	22.00
Feb-99	11.00
Mar-99	14.00
Apr-99	14.00
May-99	19.10
Jun-99	18.30
Jul-99	16.00
Aug-99	20.00
Sep-99	17.10
Oct-99	14.40
Nov-99	15.10
Dec-99	19.10
2000	
Jan-00	18.90
Feb-00	11.00
Mar-00	17.10
Apr-00	12.90
May-00	21.80
Jun-00	15.00
Jul-00	17.00
Aug-00	14.00
Sep-00	16.00
Oct-00	14.00
Nov-00	17.00
Dec-00	16.00

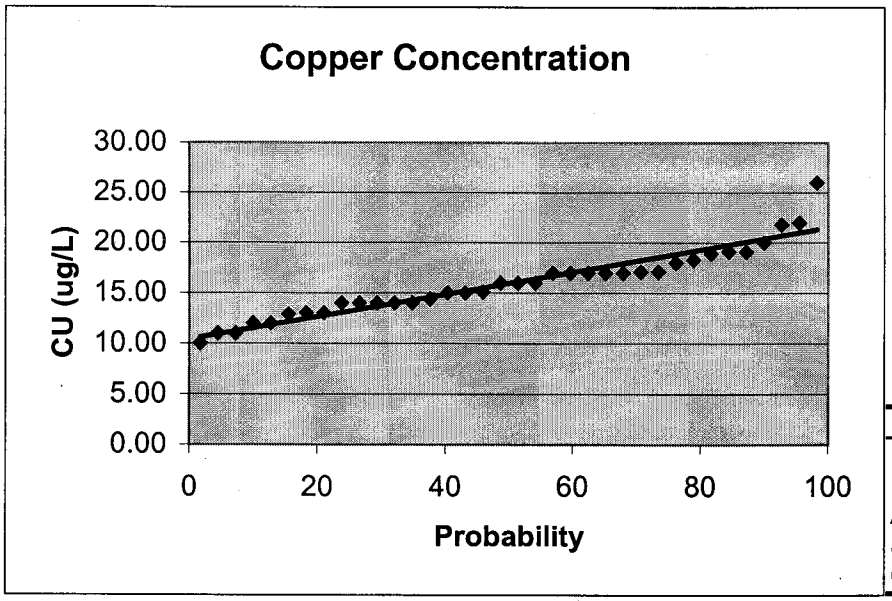
Date	Copper, ug/l	LN(Cu)	RANK	Probability
Dec-98	10.00	2.30	1	1.7
Feb-99	11.00	2.40	2	4.5
Feb-00	11.00	2.40	3	7.2
Jan-98	12.00	2.48	4	10.0
Oct-98	12.00	2.48	5	12.8
Apr-00	12.90	2.56	6	15.5
Feb-98	13.00	2.56	7	18.3
Aug-98	13.00	2.56	8	21.0
Nov-98	14.00	2.64	9	23.8
Mar-99	14.00	2.64	10	26.6
Apr-99	14.00	2.64	11	29.3
Aug-00	14.00	2.64	12	32.1
Oct-00	14.00	2.64	13	34.8
Oct-99	14.40	2.67	14	37.6
Mar-98	15.00	2.71	15	40.3
Jun-00	15.00	2.71	16	43.1
Nov-99	15.10	2.71	17	45.9
Jul-99	16.00	2.77	18	48.6
Sep-00	16.00	2.77	19	51.4
Dec-00	16.00	2.77	20	54.1
May-98	17.00	2.83	21	56.9
Jul-98	17.00	2.83	22	59.7
Sep-98	17.00	2.83	23	62.4
Jul-00	17.00	2.83	24	65.2
Nov-00	17.00	2.83	25	67.9
Sep-99	17.10	2.84	26	70.7
Mar-00	17.10	2.84	27	73.4
Apr-98	18.00	2.89	28	76.2
Jun-99	18.30	2.91	29	79.0
Jan-00	18.90	2.94	30	81.7
May-99	19.10	2.95	31	84.5
Dec-99	19.10	2.95	32	87.2
Aug-99	20.00	3.00	33	90.0
May-00	21.80	3.08	34	92.8
Jan-99	22.00	3.09	35	95.5
Jun-98	26.00	3.26	36	98.3

Calculation of Performance-based Interim Concentration Limit			
Statistic	Cu ug/L	LN(Cu)	Previous Permit
Average	15.97	2.75	
SD	3.3845	0.208695	
Best Fit (R^2)*	0.898	0.943	
avg+3SD	26.12	29.2	37

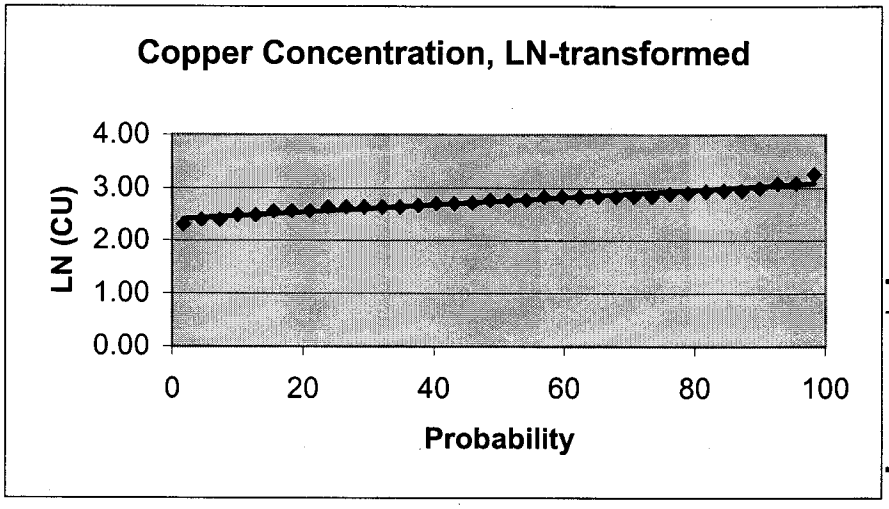
* R^2 reflects a regression analysis of the data set as plotted along a line the higher the R^2, the better fit the data is along a line.
The higher R^2 will determine the better statistical analysis to determine the performance-based limit

The appropriate interim effluent limit as shaded above is 29 ug/L
The interim effluent limit is the lower of the previous permit or treatment plant performance (with the best statistical fit).

PROBABILITY PLOTS OF DATA SET, COPPER



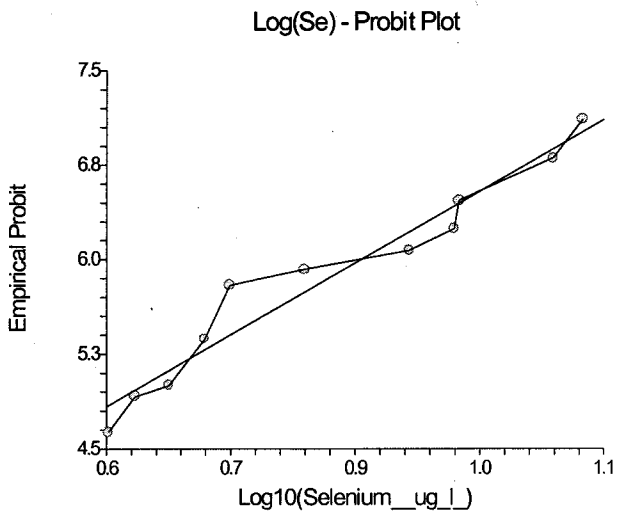
Regression Statistics	
Multiple R	0.949650369
R Square	0.901835822
Adjusted R Square	0.89886115
Standard Error	1.040998619
Observations	35

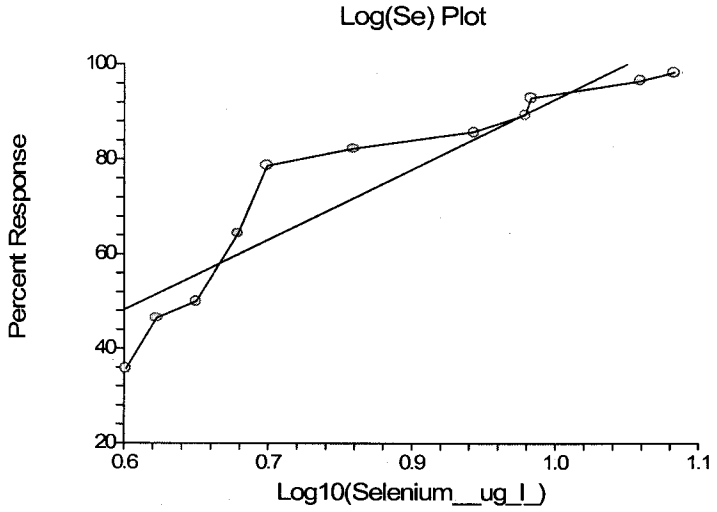


Regression Statistics	
Multiple R	0.972010805
R Square	0.944805005
Adjusted R Square	0.94313243
Standard Error	0.046972202
Observations	35

Se Probit Analysis Percentile

Percentile	Probit	Log(Se)	Se
1	2.6737	0.1802	1.5142
5	3.3551	0.3167	2.0734
10	3.7184	0.3895	2.4517
20	4.1584	0.4776	3.0032
25	4.3255	0.5111	3.2439
30	4.4756	0.5411	3.4764
40	4.7467	0.5954	3.9394
50	5	0.6462	4.4277
60	5.2533	0.6969	4.9766
70	5.5244	0.7512	5.6393
75	5.6745	0.7813	6.0436
80	5.8416	0.8148	6.5279
90	6.2816	0.9029	7.9965
95	6.6449	0.9757	9.4553
99	7.3263	1.1122	12.9476
99.9	8.0902	1.2652	18.4166
99.87	8.0115	1.2494	17.7594
99.99	8.719	1.3912	24.6131





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	0.54	9	1658.6	0.352	583.8272	301.0774	1.49	2.85	448.61	858.07	449	858
chronic	58	4.6	No	0.54	9	538.6	0.559	301.0774							
Copper															
acute	5.8	2.45	No	0.21	9	35.95	0.643	23.11585	11.91515	1.17	1.55	13.94	18.47	13.9	18.5
chronic	3.7	2.45	No	0.21	9	14.95	0.797	11.91515							
Selenium															
acute	20.0	0.19	No	1.43	0	20	0.15	3	1.38	2.34	6.67	3.23	9.20	3.2	9.2
chronic	5.0	0.19	No	1.43	0	5	0.276	1.38							
Mercury															
acute	2.1	0.006	No	0.53	0	2.1	0.357	0.7497	0.014125	1.48	2.81	0.021	0.040	0.021	0.040
chronic	0.025	0.006	No	0.53	0	0.025	0.565	0.014125							
Cyanide															
acute	5	1	No	0.6	0	5	0.321	1.605	0.527	1.55	3.11	0.82	1.64	1	2
chronic	1	1	Yes	0.6	0	1	0.527	0.527							

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

ATTACHMENT F

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:
Ken Katen, P.E.
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 99.87^{th} 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.

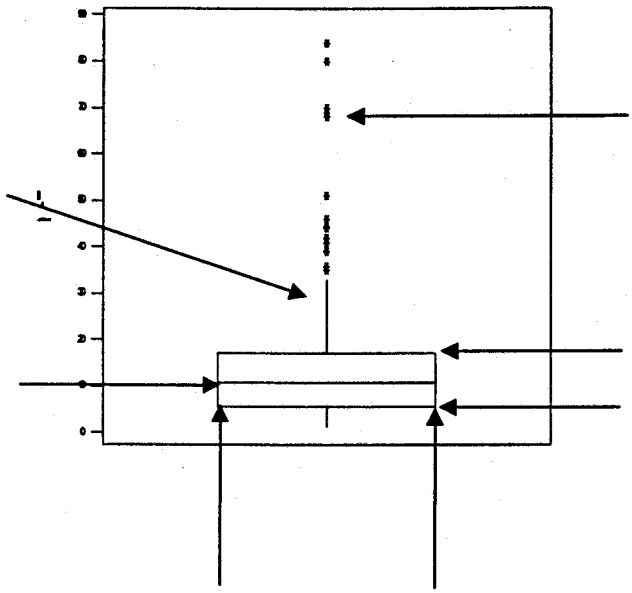
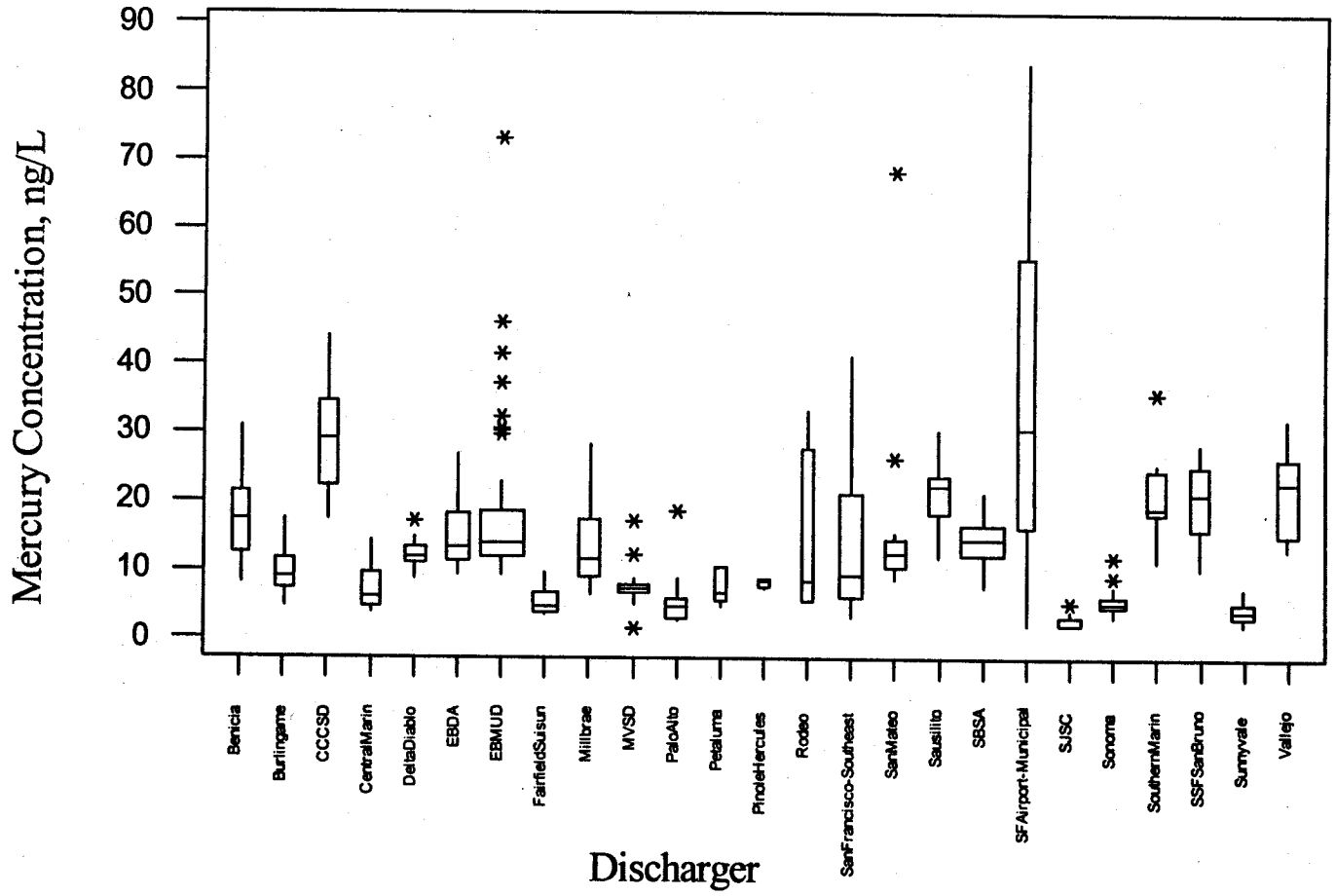


Figure 2. Boxplots of data in preliminary pooled data set, by discharger.



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.

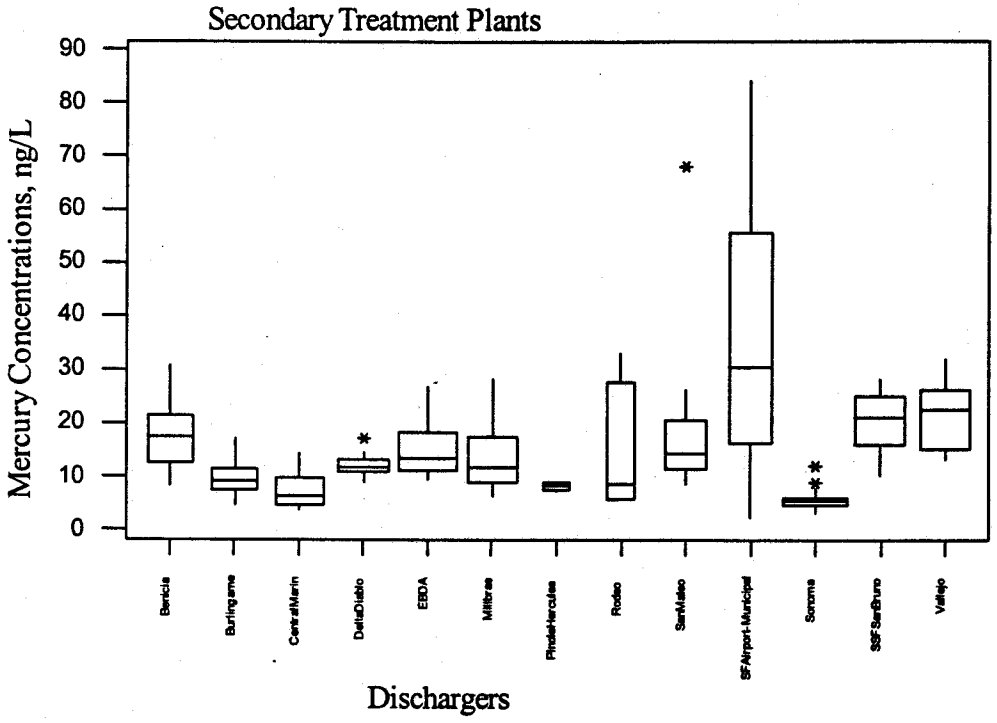
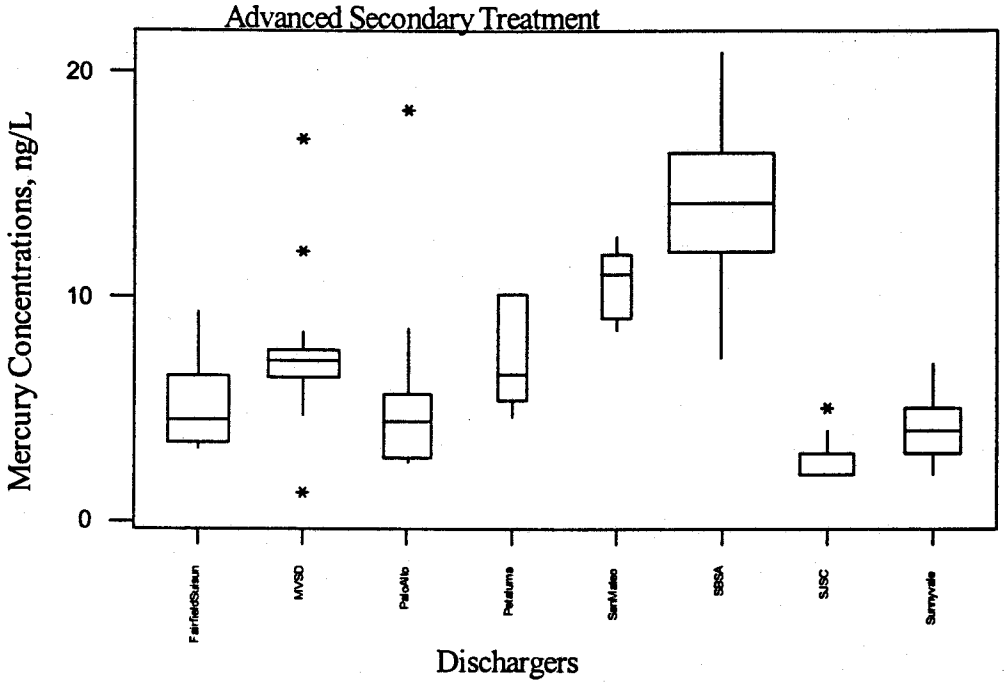
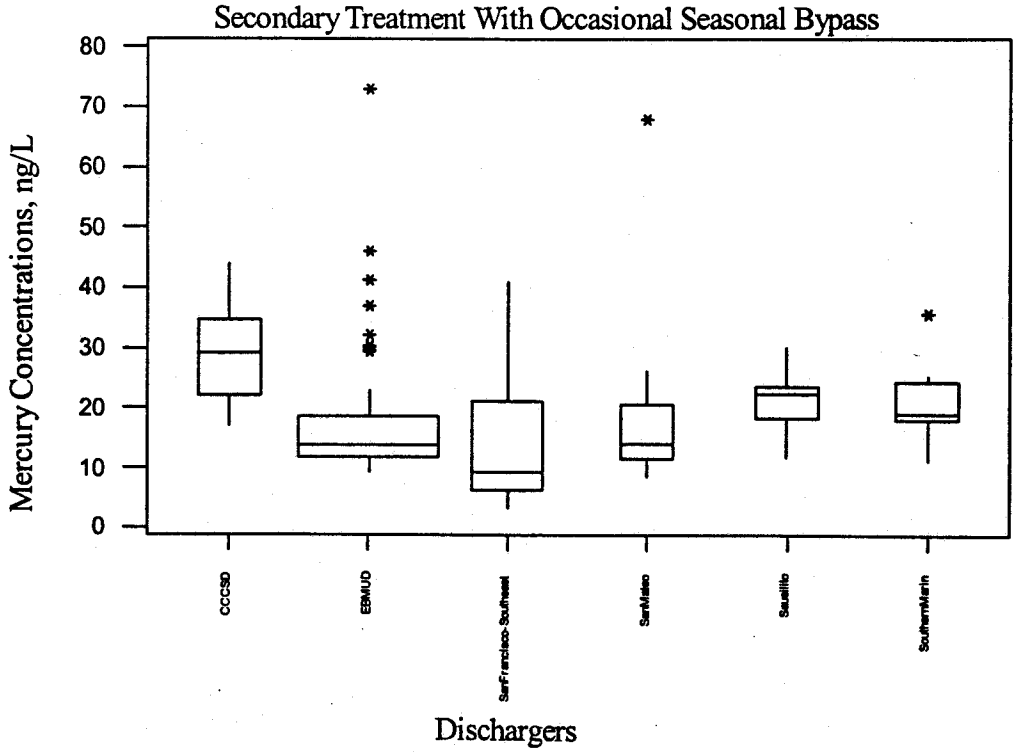


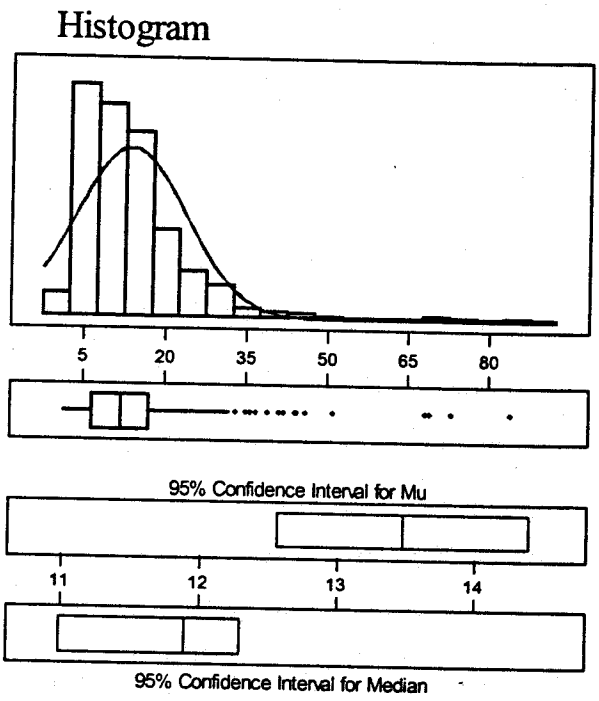
Figure 3. (Continued) Boxplots of preliminary pooled data set, by treatment type.





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.



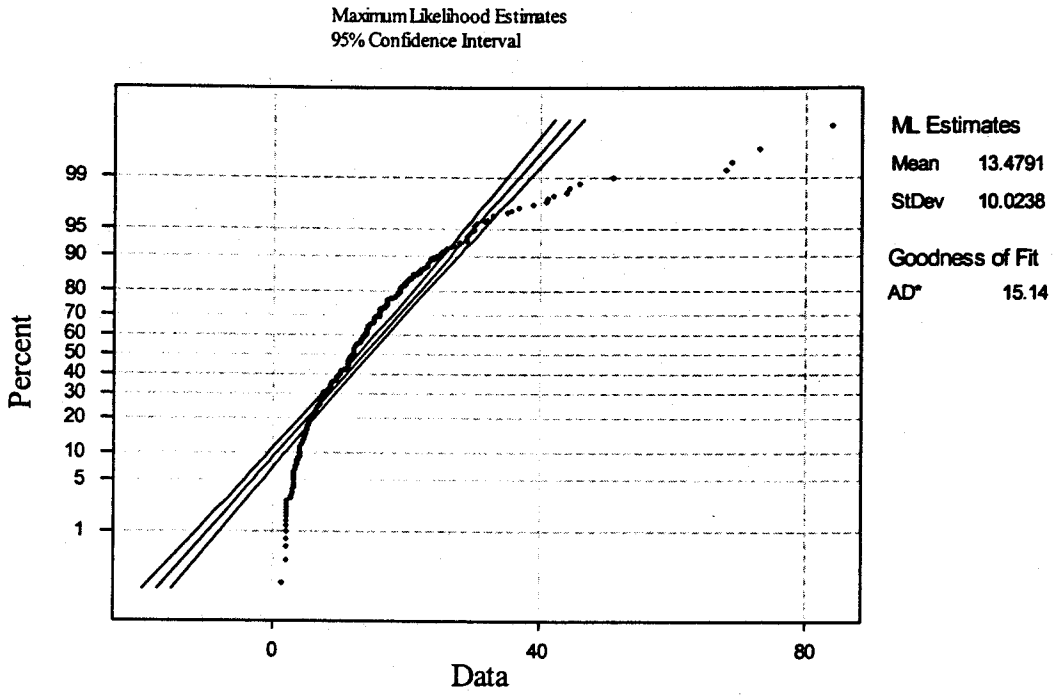
Variable:
Mercury Concentration, ng/L

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.

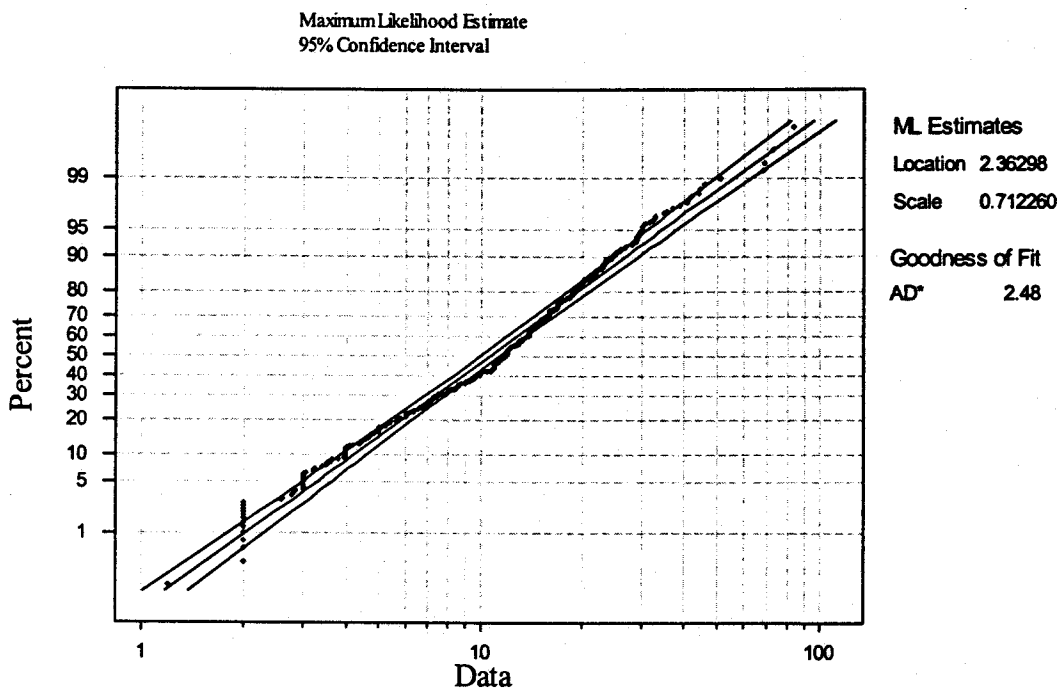
Figure 5. Preliminary probability plot of all data, in original units.



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.

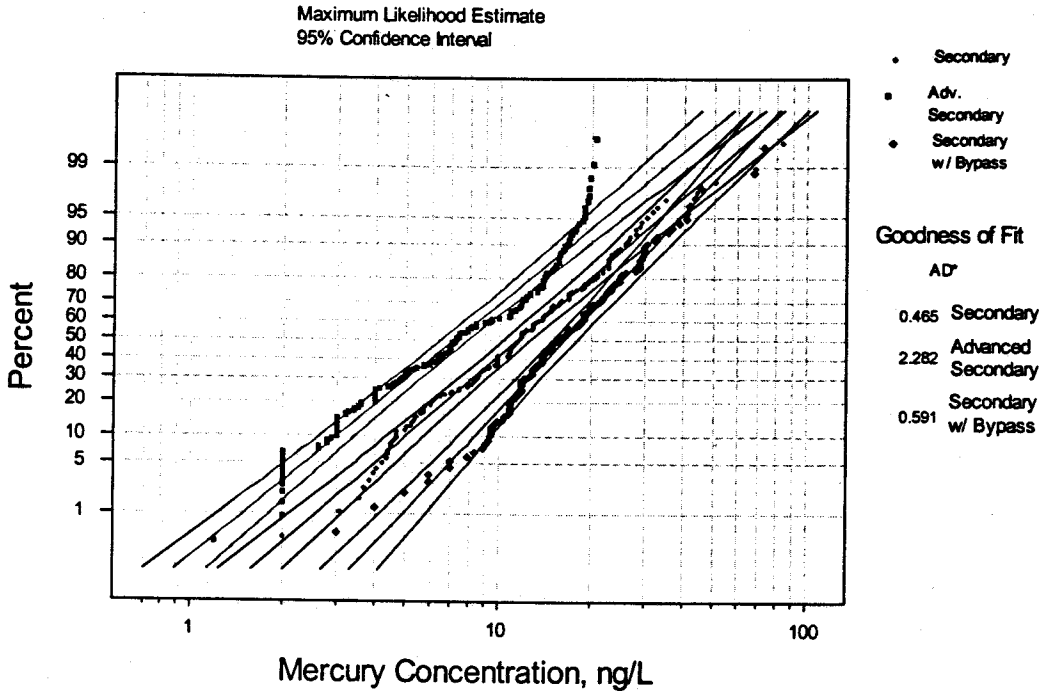
Next, a probability plot of the ln-transformed data (ln-normal probability plot) was produced. This plot is depicted in Figure 6, below. It is much more linear than the probability plot in original units, but the Anderson-Darling statistic is still too high – 2.48 vs. 1.035 – to accept the hypothesis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

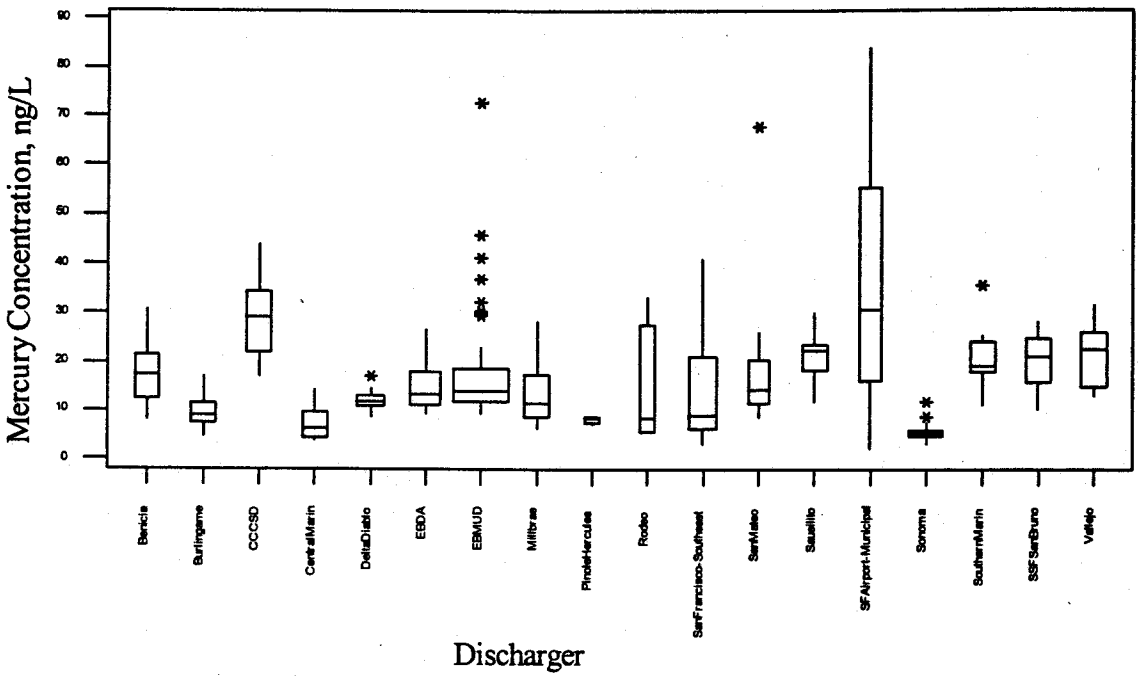


Figure 9. Boxplots of advanced secondary treatment plants in final pooled data set, by discharger.

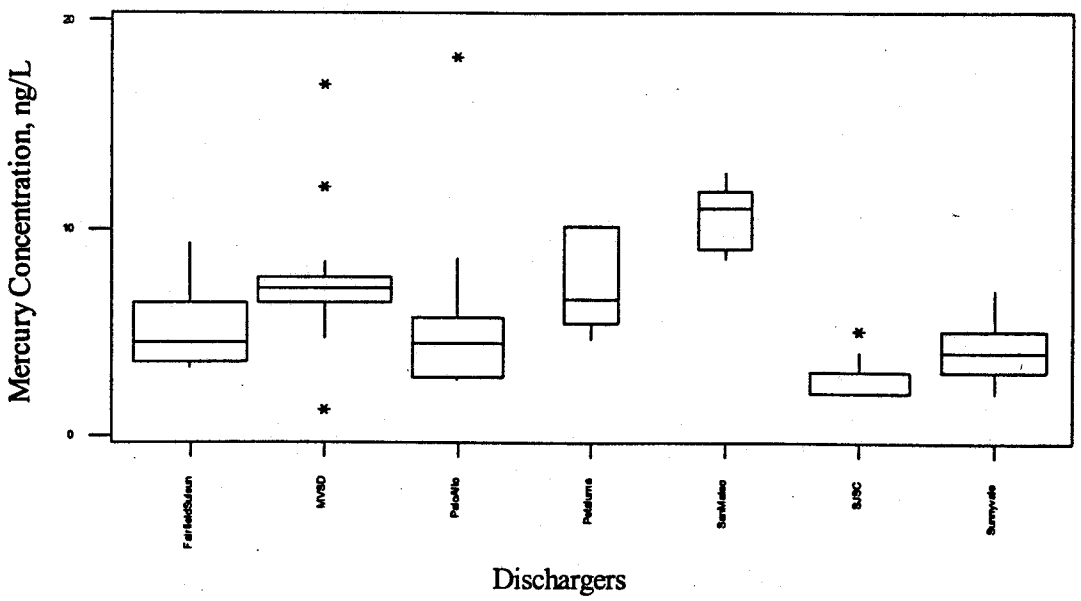


Figure 10. Histogram of final data set, all data.

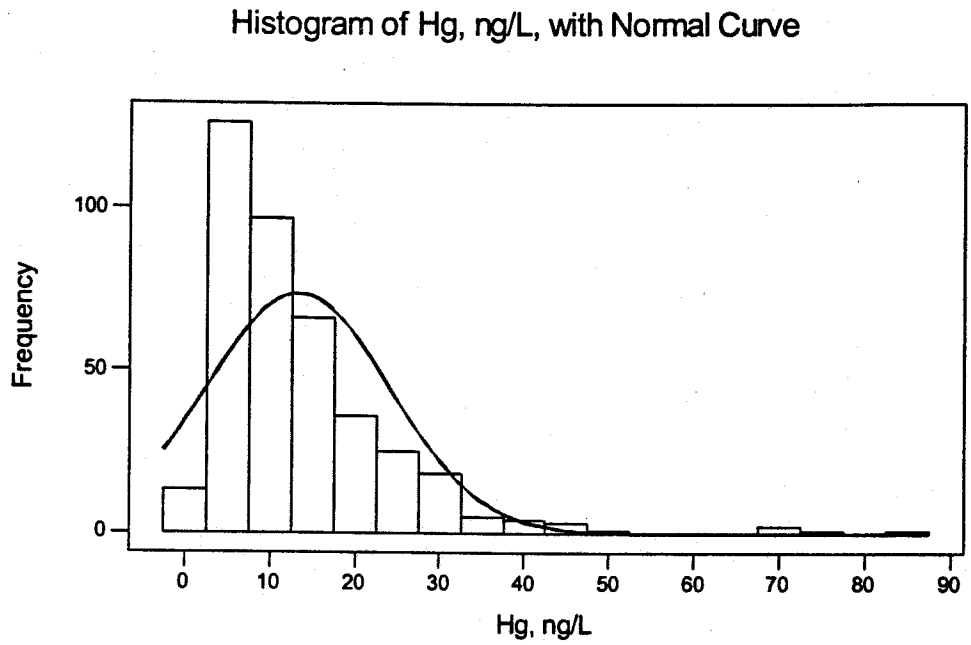
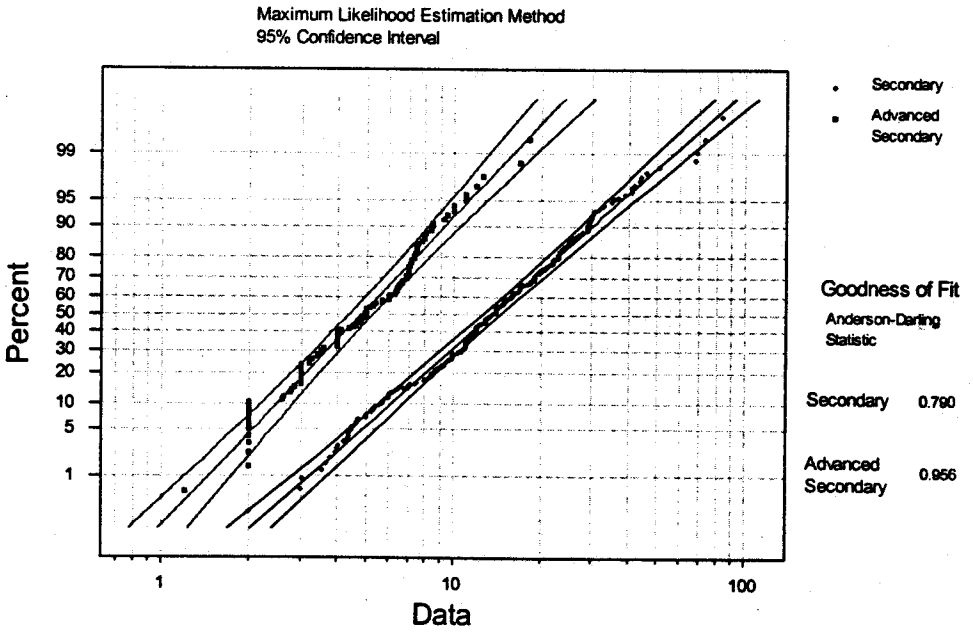


Figure 11. Ln-plotted probability plots of final data, by treatment type.



Applicability of Data Subgroups

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

Percentiles

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

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

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

Precision and Significant Figures

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

Table 2. Percentiles for secondary treatment.

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

Table 3. Percentiles for advanced secondary treatment.

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

Proposed Interim Mercury Effluent Limitations

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

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

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

Discussion

Validity of Approach

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

- Final data subsets appear to be well represented by ln-normal distributions, as shown by the Anderson-Darling goodness of fit statistics in the final statistical analysis.

- Division of the data into subsets by type of treatment appears appropriate, again based on the Anderson-Darling goodness of fit statistics for the two projected probability lines (each subset provides an approximately homogeneous, ln-normally distributed group), and as indicated by the results of the Mood's Median test applied to the two subsets (the two sets are statistically dissimilar).

- The IPBLs are proposed as limits not to be exceeded, based on the 99.87th percentile of actual performance data for each subgroup, which is a standard approach for setting effluent limitations, and is more conservative than the once-every-three-years (approximately 99.91st percentile) frequency suggested by U.S. EPA.

Using pooled data is valid because:

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

- one year of ultraclean data from a cross section of different plants with similar processes, with 285 data points for secondary treatment and 113 for advanced secondary treatment is representative of plants' performance in each category.

- pooling the data reduces the likelihood of penalizing plants that have implemented effective control measures and are already performing well as compared to other plants that may not have implemented similar measures (see Protection of Water Quality, below).

- pooling the data results in a more consistent set of interim mercury effluent limits that can be applied uniformly regionwide.

- pre-2000 performance data included a high percentage of non-detects (ND's), and the effluent limits based on those data were typically 210 nanograms per liter, rather than the lower limits proposed in this report.

Percentiles and Regulatory Control Points

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

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

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

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

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

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

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

Other possible data groupings

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

Performance Reevaluation

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

Protection of Water Quality

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

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

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

Summary

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

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

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

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

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

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

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

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

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

References Referred To In Conducting This Analysis

1. California Regional Water Quality Control Board, San Francisco Bay Region *San Francisco Bay Basin (Region 2). Water Quality Control Plan.* 1995 and subsequent amendments.

2. California Regional Water Quality Control Board, San Francisco Bay Region, *Watershed Management of Mercury in the San Francisco Bay Estuary: A Total Maximum Daily Load Report to U.S. EPA.* April 1, 2000.

3. Helsel, D.R., and Hirsch, R.M. *Statistical Methods in Water Resources.* 2000.

4. Krebs, C.J. *Ecological Methodology.* 2000.

5. MiniTab Corporation. MiniTab™ Release 13.30 online documentation, 2001.

6. MiniTab Corporation, MiniTab™ Release 13.30, personal communication with MiniTab support technician, May 21, 2001.

Appendix A: Preliminary Verified Data Set

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

Appendix A: Preliminary Verified Data Set

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

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

Appendix A: Preliminary Verified Data Set

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

Appendix A: Preliminary Verified Data Set

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

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

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

Appendix A: Preliminary Verified Data Set

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

Appendix A: Preliminary Verified Data Set

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

Appendix B: Final Verified Data Set

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

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

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

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

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

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

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

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

ATTACHMENT G

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 = Average daily concentration = $\frac{1}{Q_t}(\Sigma\ Q_i C_i)$ $i=1$

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.

California Regional Water Quality Control Board
San Francisco Bay Region

Winston H. Hickox
Secretary for Environmental Protection

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

Gray Davis
Governor

CERTIFIED MAIL No. 70993220000146714355
RETURN RECEIPT REQUESTED

Date: JUL 0 6 2001
File No. 2159.5015 (GK)

Mr. David A. Coe
General Manager
Sewerage Agency of Southern Marin
P.O. Box 1029
Mill Valley, California 94942

Subject: Transmittal of the Final Order issuing Waste Discharge Requirements for Sewerage Agency of Southern Marin, Marin County

Dear Mr. Coe:

Enclosed is Order No. 01-070, dated June 20, 2001, reissuing Waste Discharge Requirements for Sewerage Agency of Southern Marin. The requirements of Order No. 01-070 shall be effective on July 1, 2001.

If you have any questions, please contact Gina Kathuria at (510) 622-2378 or by email at gk@rb2.swrcb.ca.gov.

Sincerely,

Loretta K. Barsamian

LORETTA K. BARSAMIAN
Executive Officer

Enclosure

cc w/ enc.: Ms. Sheryl Freeman, State Water Resources Control Board, Office of Chief Counsel

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

In the Matter of: National Auto Truck Dismantlers 6275 Napa Vallejo Highway Napa, Napa County	)	COMPLAINT NO. 01-001 for ADMINISTRATIVE CIVIL LIABILITY

YOU ARE HEREBY GIVEN NOTICE THAT:

1. National Auto Truck Dismantlers (hereinafter the Discharger) is alleged to have violated provisions of law for which the California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter the Regional Board), may impose civil liability pursuant to Section 13385 of the California Water Code.

2. Unless waived, a hearing on this matter will be held before the Regional Board on June 20, 2001 in the Elihu M. Harris State Building, First Floor Auditorium, 1515 Clay Street, Oakland, California, 94612. You or your representative(s) will have an opportunity to be heard and to contest the allegations in this complaint, and the imposition of civil liability by the Regional Board. An agenda showing the time set for the hearing will be mailed to you no less than ten days before the hearing date. You must submit any written evidence concerning this complaint to the Regional Board by June 6, 2001. Any written evidence submitted to the Regional Board after June 6, 2001 will not be included in the record.

3. At the hearing the Regional Board will consider whether to affirm, reject, or modify the proposed administrative civil liability, or whether to refer the matter to the Attorney General for recovery of judicial civil liability

ALLEGATIONS

4. The following facts are the basis for the alleged violation in this matter:

   a. The Discharger submitted a Notice of Intent (NOI) to obtain coverage under the State Water Resources Control Board's discharge permit for Storm Water Discharges Associated with Industrial Activities, Water Quality Order No. 97-03-DWQ, NPDES No. CAS000001 (General Permit). The Discharger's Waste Discharge ID No. is 228S014496.

b. The General Permit requires the Discharger to submit an annual report documenting sampling and analyses, observations, and an annual comprehensive site compliance evaluation, by July 1 of each year.

c. Prior to the July 1 deadline, the State Water Resources Control Board mailed a blank form for the annual report to the Discharger.

d. The Discharger is alleged to have violated its waste discharge requirements by failing to submit its 1999/2000 annual report by July 1, 2000.

e. On August 15, 2000, the Acting Executive Officer issued a Notice of Noncompliance (NNC) letter to the Discharger. The Discharger was notified of its obligation to submit an annual report and to comply with the General Permit. The Discharger was required to respond by September 15, 2000.

f. On September 26, 2000, the Acting Executive Officer issued a second NNC letter to the Discharger. This letter informed the Discharger that it was in violation of the General Permit and that the Executive Officer would recommend enforcement actions if an annual report was not submitted. The Discharger was required to respond by October 26, 2000.

g. As of the date of this Complaint, the Discharger has failed to submit its 1999-2000 annual report. The Discharger has been in violation of the General Permit for a total of 303 days (July 2, 2000 through April 30, 2001). The total maximum liability that may be assessed for this violation is 3,030,000.

PROPOSED CIVIL LIABILITY

5. Issuance of this Complaint is exempt from the provisions of the California Environmental Quality Act (Public Resources Code 21000 et seq.) in accordance with Section 15321 of Title 14, California Code of Regulations.

6. Under Section 13385(c)(2) of the California Water Code, the Regional Board can impose a maximum civil liability of $10,000 per day of violation. Under Section 13399.33(c), the minimum civil liability for failure to submit an annual report is $1,000. This Complaint addresses violations for the 303-day period from July 2, 2000 through April 30, 2001.

7. The Executive Officer of the Regional Board proposes that an administrative civil liability be imposed in the amount of $5,000. Of this amount $2,400 is for recovery of staff costs. The Executive Officer will not consider any request to reduce the amount of proposed liability based on the Discharger's alleged inability to pay unless the Discharger submits adequate proof of financial hardship, e.g., two years of income tax returns or an audited financial statement.

8. Further failure to comply with the General Permit or amendments thereof beyond the date of this Complaint may subject the Discharger to further administrative civil liability, and/or other appropriate enforcement action(s), including referral to the Attorney General.

Loretta K. Barsamian
Executive Officer

May 21, 2001
DATE

Please contact Rico Duazo at (510) 622-2340 or Dorothy Dickey, Regional Board Counsel, at (510) 622-2490 if you have any questions.

WAIVER OF HEARING

You may waive the right to a hearing. If you wish to waive the hearing, an authorized person must check and sign the waiver and return it to the Regional Water Quality Control Board, San Francisco Bay Region, 1515 Clay St., Suite 1400, Oakland, CA, 94612. Payment of the administrative civil liability is due within thirty (30) days after the waiver is signed.

WAIVER OF HEARING

FOR

COMPLAINT NO. 01-001

National Auto Truck Dismantlers
6275 Napa Vallejo Highway
Napa, Napa County

[ ] By checking the box, I agree to waive my right to a hearing before the Regional Board with regard to the violations alleged in the above Complaint No. 01-001 and to remit payment for the civil liability imposed. I understand that I am giving up my right to argue against the allegations made by the Executive Officer in the complaint, and against the imposition of, or the amount of, the civil liability proposed. I further agree to remit payment for the civil liability imposed within 30 days after the waiver is signed.

Signature:_____

Name:_____

Position:_____

Company:_____

Date:_____

REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

STAFF REPORT

TO: Loretta K Barsamian
Executive Officer

DATE: April 30, 2001

FROM: Rico Duazo, Assoc. WRCE
NPDES Permits Division

FILE NO: 2198.23

SUBJECT: **ACLs for failure to submit a 99/00 Annual report as required by the State Board's General NPDES Permit for Discharges of Stormwater Associated with Industrial Activity (General Permit)**

The following sites (hereinafter the Dischargers) have been notified of their responsibility to submit a 99/00 annual report as required by the General Permit:

National Auto & Truck Dismantler	C & C Enterprises	C & C Enterprises
6275 Napa Vallejo Highway	7910 Enterprise Drive	8240 Enterprise Drive
Napa	Newark	Newark
Napa County	Alameda County	Alameda County
WDID No. 2028S014496	WDID No. 2001S009259	WDID No. 2001S009362

To date the Dischargers have not submitted an annual report and continue to be in violation of the General Permit.

BACKGROUND

The General Permit regulates the discharge of storm water from industrial sites as required under Section 402(p) of the Federal Clean Water Act. Coverage under the General Permit is obtained by filing a Notice of Intent (NOI), site map, and fee (annual fee of $250 or $500, dependent on site location), with the State Water Resources Control Board.

Sites that file an NOI are required by the General Permit to develop a site-specific Stormwater Pollution Prevention Plan (SWPPP) and a Monitoring Program. The SWPPP identifies sources of pollution that might affect stormwater discharges from the site and describes best management practices (BMPs) that can be implemented to reduce or eliminate pollutants from being entering stormwater. The Monitoring Program includes visual observations, and collecting and analyzing samples of stormwater discharges. The Monitoring program is used to aid in the implementation of the SWPPP and to measure the effectiveness of BMPs in reducing or preventing stormwater pollution.

As of April 30, 2001, over 1,500 industrial facilities within Region 2's jurisdiction are covered under the General Permit. Each of the Dischargers owning the above sites has filed a NOI with

the State Water Resources Control Board for coverage under the General Permit. Section B. 14 of the General Permit requires all dischargers to submit an annual report for their sites by July 1 of each year to the Executive Officer of the Regional Board. The report covers the previous one-year period (July 1-June 30).

For the 1999-2000 reporting period, the annual reports were due on July 1, 2000. In October 1999, the State Water Resources Control Board mailed out blank annual report forms to each discharger with a reminder to submit the report by the July 1, 2000, deadline. The annual report is the only report required to be submitted under the General Permit.

On August 15, 2000, Notice of Noncompliance letters (NNC) were issued to 476 dischargers in Region 2 that had not yet submitted their annual reports. A second NNC was issued on September 26, 2000, to 105 of the original 476 dischargers that still had not submitted the annual report in response to the first NNC. The second NNCs included the website address and contact names for obtaining a blank copy of the annual report form, and required that the overdue annual reports be submitted by October 26, 2000.

The September 26, 2000, NNC also indicated that there is a mandatory penalty for non-submittal of annual reports. Pursuant to California Water Code Section 13399.33 (c), the Regional Board must impose a minimum penalty of $1,000 if an annual report is not submitted.

Board staff subsequently contacted 53 dischargers by telephone who had received both NNCs and still had not submitted the annual reports, and reminded them about the October 26, 2000 deadline. With the exception of the sites at issue in this ACL, Board staff were able to make arrangements to have the annual reports submitted at a later date or were able to determine that an annual report was not needed (e.g., site had no discharges, site was no longer in operation, etc.).

The three sites listed above were the only ones who did not respond to our NNC letters or telephone calls. The sites are still in operation, have an active NOI, and despite our repeated attempts to secure report submittals, still have not (as of April 30) submitted their required reports.

LEGAL BASIS FOR ACTION

The Dischargers have violated the terms of the General Permit, as described below. Therefore, the Board may impose administrative civil liability pursuant to Section 13385(a)(5). Section 13385(e) requires a discussion of the following factors that have a bearing on the amount of liability:

1. NATURE, CIRCUMSTANCES, EXTENT AND GRAVITY OF THE VIOLATIONS:

   The Dischargers were given a number of warnings, including two Notices of Noncompliance letters and telephone messages. Also, the Dischargers, by submitting an

NOI, indicated their intent to comply with all requirements of the General Permit, including the requirement to submit an annual report.

The annual reports contain self-monitoring and inspection reports. Without these reports, staff has no way of determining the quality of storm water runoff from these sites or whether the dischargers have implemented appropriate control measures at their sites. Staff can only assume that the facilities have been in violation of the General Permit all year.

2. ABILITY TO PAY THE PROPOSED ASSESSMENT:

The Dischargers have not demonstrated an inability to pay the proposed amount..

3. PRIOR HISTORY OF VIOLATIONS:

National Auto & Truck Dismantler also did not submit its 98/99 annual report. C & C Enterprises has no history of failing to submit its annual reports.

4. DEGREE OF CULPABILITY:

The storm water regulations are applicable to all industrial sites on a nationwide basis. All dischargers, including those owning the sites listed above, are responsible for compliance with the Clean Water Act. The sites listed above are fully culpable for violating the terms and conditions of the General Permit, which implements the Clean Water Act.

5. ECONOMIC BENEFIT OR SAVINGS, IF ANY, RESULTING FROM THE VIOLATIONS:

The Dischargers have realized cost savings by failure to perform required sampling and analyses, and failure to implement the SWPPP. Assuming an average-sized site, the minimum economic savings for not submitting an annual report is estimated as follows:

Annual Costs
$1,000 (Sample/Analysis Costs and Annual Report Preparation)
$1,000 (Annual SWPPP Implementation and Maintenance)
Total = $2,000

6. OTHER MATTERS THAT JUSTICE MAY REQUIRE

Section 13399.31 of the Water Code requires that dischargers receive two notices before an ACL complaint is issued. Board staff has fulfilled this requirement with the August 15, 2000, and September 26, 2000, NNCs. Section 13399.33 (c) of the Water Code provides that the Regional Board shall impose a minimum penalty of $1,000 for any person who

fails to submit an annual report in accordance with Section 13399.31 of the Water Code. Each of the Dischargers is subject to this $1,000 minimum penalty.

Staff time to prepare a Complaint and supporting information is estimated to be 24 hours. Based on an average cost to the State of $100 per hour, the total cost is $2,400 for each of the sites.

CONCLUSIONS

Section 13385(c) of the Water Code allows the Regional Board to administer civil liability in an amount not to exceed $10,000 per day of violation. While these Dischargers' days of violations continue to increase, calculations based on days of violations to date are as follows:

July 2, 2000 to April 30, 2001 = 303 violation days

(303 violation days) x ($10,000/day) = $3,030,000

If the matter is referred to the Attorney General, the maximum liability is $25,000 per violation day. I recommend that civil liability be imposed administratively rather than referred to the Attorney General because:

1. The proposed penalty is sufficient to encourage future compliance with the General Permit and provides for limited compensation for unknown damage to waters of the United States;

2. Additional expenditure for staff time to seek greater penalties, such as referral to the Attorney General, is unwarranted at this time; and

3. The means to impose reasonable penalties are provided within the administrative liability provisions of the Water Code.

RECOMMENDATIONS

I recommend that the Board impose administrative civil liability (ACL) of $5,000 (including $2,400 for staff costs) for each of the C&C Enterprises sites. I recommend that the Board impose an ACL of $7,000 (including $2,400 for staff costs) on National Auto & Truck Dismantler, because this is the second year in a row that it has failed to submit its required annual report. Considerations include:

1. The recommended liability is consistent with previous ACLs adopted by other Regional Boards (Region 5 and Region 8).

2. The amount is low enough such that the Dischargers should be able to pay, yet high enough such that they have an immediate incentive to comply with the General Permit.

3. The amount is sufficiently large enough to impress upon other dischargers that annual reports must be completed and submitted on time.

I have prepared draft complaints that propose ACL of $5,000 for each C&C Enterprise site and ACL of $7,000 for National Auto & Truck Dismantler.

Concur: Bruce A. Wolfe, for
Hossain Kazemi
Section Leader

Concur: Bruce A. Wolfe
Bruce Wolfe
Division Chief

Attachment 2

Subject: SUPPLEMENTAL ENVIRONMENTAL PROJECTS AS COMPONENTS OF ADMINISTRATIVE CIVIL LIABILITIES

The San Francisco Bay Regional Water Quality Control Board (Regional Board) accepts and encourages Supplemental Environmental Projects (SEP's) in lieu of a portion of the Administrative Civil Liability imposed on dischargers in the Bay Area. This letter is to inform you of the types of projects the Board will accept and the procedures for proposing and implementing a project.

The overall goals of the Regional Board's program for SEP's: 1) monetary penalties should be directed to projects within the Region; 2) projects should benefit the environment; 3) projects should focus on education, outreach and/or restoration. The Regional Board identifies four categories of SEP's that may receive funding: pollution prevention, pollution reduction, environmental restoration, and environmental education. The project should not be used to mitigate the damage caused directly by the original violation or to implement measures required to comply with permits or regulations, since this is the responsibility of the discharger regardless of any penalties involved.

The Regional Board does not select projects for SEP's; rather, it is the discharger's responsibility to propose the project (or projects) they would like to fund and then obtain approval from the Regional Board. However, the Regional Board can facilitate this process by maintaining a list of possible projects, which is made available to dischargers interested in pursuing the SEP option. Dischargers are not required to select a project from this list, however, and may contact local governments or public interest groups for potential projects in their area, or develop projects of their own

In cases where an SEP is approved by the Regional Board, payment of a portion of the ACL will be suspended if the project is satisfactorily completed on schedule. The SEP can only be used to offset a portion of a proposed penalty; therefore the final ACL package will consist of a monetary penalty, reimbursement of staff costs, and a project. Note that the total penalty is not reduced by implementing a project; rather the method of payment is being modified in order to achieve a greater environmental benefit.

To improve tracking and overall performance of SEP, the Regional Board has set up a monitoring program. The San Francisco Estuary Project (SFEP) is available to oversee the SEP's. They serve as liaison between the Discharger, the Regional Board and the fund recipient and will monitor project implementation and expenses. SFEP staff will also maintain a current list of potential projects and can assist in the selection process. This coordination work is funded by allocation of 6% of the SEP to the San Francisco Estuary Project.

Questions regarding the San Francisco Bay Regional Water Quality Control Board's SEP program may be directed to Carol Thornton at the San Francisco Estuary Project, (510) 622-2419.

California Regional Water Quality Control Board
San Francisco Bay Region

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

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

Certified Mail No.7099322000014671 3884
Return Receipt Requested

Date: MAY 3 1 2001
File No: 2198.23 (RAD)

Mr. Ed Garcia
National Auto Truck Dismantler
6275 Napa Vallejo Highway
Napa, CA 94589

SUBJECT: ADMINISTRATIVE CIVIL LIABILITY COMPLAINT NO. 01-001
National Auto Truck Dismantler
6275 Napa Vallejo Highway
Napa, Napa County

Dear Mr. Garcia:

Enclosed is a Complaint for Administrative Civil Liability issued to National Auto & Truck Dismantler for the subject site. The Complaint alleges that National Auto & Truck Dismantler has violated its waste discharge requirements by failing to submit its 1999/2000 annual report by July 1, 2000, as required. The complaint proposes administrative civil liability of $7,000.

A public hearing on this matter has been scheduled for the June 20, 2001, Regional Board Meeting in the Elihu M. Harris State Building, First Floor Auditorium, located at 1515 Clay Street, Oakland, California. The meeting agenda will be mailed to you prior to the hearing.

At this time, you have three options:

1. You can appear before the Board during the scheduled meeting to contest the Complaint; written comments are due by June 6, 2001. At that time, the Board may impose the Administrative Civil Liability in the amount proposed, for a different amount, decline to seek civil liability, or refer the case to the Attorney General.

2. You can waive the right to a hearing by signing the attached "Waiver of Hearing" form and submitting it to the Regional Board at 1515 Clay St. Suite 1400, Oakland, CA 94612, by June 6, 2001. By doing so, you agree to pay the liability within 60 days of this Complaint's issuance.

3. You may request that a portion of the assessment be suspended and an amount equal to the suspended amount be dedicated to a local Supplemental Environmental Project (SEP). If so, do not sign the waiver; instead state your intent in a letter addressed to me, no later than June 6, 2001. Attached is a description of the Regional Board's program for SEPs. Staff can assist you in identifying and developing an acceptable project.

Please contact Rico Duazo at (510) 622-2340 or Dorothy Dickey, Regional Board Counsel, at (510) 622-2490 if you have any questions.

Sincerely,

Loretta K. Barsamian

Loretta K. Barsamian
Executive Officer

Enclosures:

Complaint No. 01-001
Attachment 1 - Staff Report
Attachment 2 - SEP Information

cc: Regional Board
State Water Resources Control Board, Office of the Chief Counsel - Dorothy Dickey
State Water Resources Control Board, Division of Water Quality - Bruce Fujimoto
State Water Resources Control Board, Office of Statewide Consistency - Margie Young