

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER 98-052

NPDES PERMIT NO. CA0037842

REISSUING WASTE DISCHARGE REQUIREMENTS FOR:

CITIES OF SAN JOSE AND SANTA CLARA
SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT
SAN JOSE
SANTA CLARA COUNTY

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

1. The Cities of San Jose and Santa Clara (hereinafter the Discharger) submitted a National Pollutant Discharge Elimination System (NPDES) permit application for reissuance and amendment of waste discharge requirements under NPDES Permit No. CA0037842.

Facility Description

2. The Discharger owns the San Jose/Santa Clara Water Pollution Control Plant (the Plant), located at 700 Los Esteros Road, San Jose. The Plant treats wastewater from the cities of San Jose, Santa Clara, and Milpitas; County Sanitation District 2-3; the West Valley Sanitation District and the Cupertino, Burbank, and Sunol Sanitary Districts.

Purpose of Order

3. This NPDES permit regulates the discharge of treated wastewater to Artesian Slough, tributary of Coyote Creek and South San Francisco Bay. The Discharger is currently subject to NPDES Permit CA0037842, Regional Board Order No. 93-117 (adopted October 20, 1993), Regional Board Cease and Desist Order (CDO) 93-118 (adopted October 20, 1993), and Regional Board Order 97-111 (adopted September 17, 1997).

Discharge Description

4. The Discharger currently discharges an average dry weather effluent flow (ADWEF) of approximately 134 million gallons per day (MGD). Treated wastewater effluent from the Plant flows into Artesian Slough (37 deg. 26 min. 06 sec. latitude - 121 deg. 57 min. 08 sec. longitude), tributary to Coyote Creek and South San Francisco Bay, all waters of the United States. Starting in May 1998 the Discharger will also supply recycled (reclaimed) water for nonpotable purposes to approximately 200 customers throughout the service area via South Bay Water Recycling, a fixed piping system. Customer uses include irrigation of golf courses, parks and playgrounds, farms, as well as industrial use. Recycled water is also available for construction use at remote locations through a truck fill facility.

Treatment Process Description

5. The Plant has a treatment capacity of 167 MGD average dry weather influent flow, and 271 MGD peak hourly flow capacity. Treatment facilities consist of screening and grit removal, primary sedimentation, secondary (biological nutrient removal) treatment, nitrification, filtration, chlorination, and dechlorination. Effluent designated for recycling is not dechlorinated and additional chlorine is added to meet Title 22 requirements. Biosolids are anaerobically digested and stabilized in lagoons and drying beds. After solar drying to about 75% total solids, the biosolids are reused in compliance with 40 CFR part 503 regulations.

South Bay Dischargers

6. NPDES Permits have been issued to each of the three publicly owned treatment works ("POTWs") discharging into the South Bay, namely the San Jose/Santa Clara Water Pollution Control Plant (CA 0037842), the Palo Alto Regional Water Quality Control Plant (CA0037834), and the Sunnyvale Water Pollution Control Plant (CA0037621). The current NPDES Permits for the three South Bay POTWs (the "1993 Permits") were adopted by the Regional Board in July 1993 (in the case of the Sunnyvale and Palo Alto Plants) and October 1993 (in the case of San Jose/Santa Clara Plant). The terms of the Cease and Desist Orders (CDOs) which accompany the 1993 Permits (the "1993 CDOs"), are co-extensive with the terms of the 1993 Permits. The 1993 Permits and 1993 CDOs are subject to the State Board's court-ordered remand order (State Water Board Order No. 94-8). Pending issuance of new permits, the three Cities' have committed to the Regional Board to abide by the terms of the 1993 Permits and 1993 CDOs.

Certain information relative to the lengthy regulatory history of the 1993 Permit is contained in Appendix A to this Order.

7. **Clean Water Act Section 304(l) Listing.** Section 304(l) of the federal Clean Water Act (as amended in 1987) required States to develop lists of water bodies impaired by toxic pollutant discharges, identify point sources and pollutants causing toxic impacts, and develop individual control strategies (ICSs) for each point source identified. In February 1989, the State Water Resources Control Board (State Board) designated the Lower South San Francisco Bay as an impaired water body under Section 304(l), due to evidence of water quality impacts associated with seven metals based on total recoverable fractions: cadmium, copper, lead, mercury, nickel, selenium, and silver. The State Board identified the three municipal plants and storm water discharges into the Lower South Bay as point sources contributing to this impairment. In June 1989, EPA Region IX approved the State's inclusion of the Lower South Bay and conditionally approved the three NPDES permits as ICSs for the municipal discharges.

Metals concentrations in the three municipal discharges have been declining since the original South Bay 304(l) listing. Recent Regional Monitoring Program (RMP) monitoring of South Bay waters demonstrates that objectives for most metals are met. Only three metals show intermittent exceedances compared to the total recoverable water quality objectives in the 1993 Permit: copper (4.9 µg/l), nickel (8.3 µg/l), and the human health objective for mercury (0.012 µg/l).

Watershed Management Initiative

8. This Order was developed in cooperation with the Santa Clara Basin Watershed Management Initiative (WMI). The WMI, in which the Discharger is an active participant, is a stakeholder driven process that commenced in June 1996 as a pilot effort by the Regional Board. The Initiative seeks to integrate regulatory and watershed programs in the South San Francisco Bay Region. This Order is consistent with the approach developed by the Regulatory Subgroup of the WMI to include interim permit limits in the three South Bay POTW NPDES permits and a process to establish final permit requirements and programs. In cooperation with the Bay Monitoring and Modeling Subgroup of the WMI, the Discharger is participating in technical studies and analyses that are needed by the Regional Board to develop site-specific water quality objectives, and a Total Maximum Daily Load (TMDL) calculation for copper and nickel for the South San Francisco Bay. If any WMI stakeholder believes that the technical studies are not proceeding in a manner that will lead to the development of site specific water quality objectives by July 2003, they may petition the Regional Board to reopen this permit. The Regional Board will involve the TMDL peer review group and/or other appropriate WMI subgroup as part of investigating the merits of the petition.

As defined by US EPA, the TMDL process provides a flexible assessment and planning framework for identifying load reductions or other actions needed to attain water quality standards. Clean Water Act (Section 303(d)) established the TMDL process to guide application of state standards to individual waterbodies/watersheds. The WMI's TMDL Process is consistent with the US EPA approach.

Basin Plan Beneficial Uses

9. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. 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 (State Board) and the Office of Administrative Law on July 20, 1995, and November 13, 1995, respectively. A summary of regulatory provisions is contained in Title 23 of the California Code of Regulations Section 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the state in the Region, including surface waters and groundwaters.
10. The beneficial uses of San Francisco Bay, South Bay (south of the Dumbarton Bridge) and contiguous water bodies are defined in the Basin Plan to be:

- Water contact recreation
- Non-contact water recreation
- Wildlife habitat
- Preservation of rare and endangered species
- Estuarine habitat
- Fish migration
- Fish spawning (potential use)

Industrial service supply
Shellfish harvesting
Navigation
Commercial and sport fishing

11. Contiguous water bodies of the South Bay in the vicinity of the discharge include freshwater and saltwater sloughs such as Artesian Slough, Coyote Slough, Mud Slough and Coyote Creek. Beneficial uses specific to the sloughs need to be assessed to determine which uses exist or potentially could exist. Regional Board policy is to use the tributary rule to interpret which beneficial uses are currently or potentially supported where beneficial uses have not been specifically designated.

Water Quality Objectives

12. In order to protect beneficial uses, the Basin Plan (page 3-4) sets a narrative objective of: "All waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental responses in aquatic organisms." Effluent limitations and provisions contained in this Order are designed to implement this objective, based on available information. The Basin Plan (page 3-5) also states that for the South Bay below the Dumbarton Bridge, water quality objectives contained in the Basin Plan should be considered guidance only. The Basin Plan notes that site specific objectives are absolutely necessary for this area. It directs that ambient conditions shall be maintained until site specific objectives are developed. Further, the Basin Plan (page 4-8) provides that alternate effluent limitations can be considered by the Board where a site specific water quality objective is being proposed and the Discharger is participating in a source control program.

Copper Water Quality Objective

13. For purposes of this permit the Basin Plan narrative water quality objectives will be interpreted as follows for copper:

EPA Guidance. On October 1, 1993, in recognition that the dissolved fraction is a better representation of the biologically active portion of the metal than the total or total recoverable fraction, EPA's Office of Water issued guidance stating that dissolved metal concentrations should be used for the application of metals aquatic life criteria and that state water quality standards for the protection of aquatic life (with the exception of chronic mercury criterion) be based on dissolved metals. EPA amended the National Toxics Rule (NTR) in 1995 to include factors to convert total metals to dissolved metals for both fresh and salt water objectives. The August 1997 proposed California Toxics Rule (CTR) water quality criteria for metals are expressed as dissolved. Since effluent limits must be expressed as total recoverable metals, use of the NTR/CTR objectives would require translation from dissolved to total recoverable metals. The June 1996 guidance document entitled *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion* describes this process.

Translator Study. The City of Sunnyvale submitted results of a dissolved to total recoverable metals translator study it conducted based on EPA's June 1996 guidance document in December 1997. Using RMP data and data from prior South Bay site specific objective studies, the Discharger calculated a translator value of 0.62 for in the main water mass of the Lower South Bay. Using the methodology employed by US EPA in the proposed Economic Impact Assessment which appeared concurrent with the proposed CTR the proposed CTR value for copper (3.1 µg/L dissolved translated to 5.0 µg/ (total).

San Jose Updated Copper WER Study. The City of San Jose conducted extensive studies to develop water effects ratios (WER) for copper for the South Bay. Results were submitted to US EPA in September 1997 as part of comments on the proposed CTR. Revised WERs in the South Bay for the period January 1996 through March 1997 ranged from 2.17 to 4.86 for dissolved copper and 2.10 to 8.75 for total copper. The Board has also developed a Bay wide site specific objective for copper (subsequently remanded by the State Board) based on a bay-wide WER of 1.7. The Board is not using the 1.7 WER for this permit since it is a Bay wide number based on limited data, whereas the South Bay study by San Jose is site specific and is based on more extensive and more recent data.

South Bay Site Specific Objective: Using a conservative approach and not considering translator values and using a 2.9 ug/l for total copper baseline, the WERs could range from a low of 2.10 to 8.75 for total copper. Utilizing a WER of 2.10 and a total copper of 2.9 µg/L yields a total recoverable metal final objective of 6.1 µg/L, while using a WER of 8.75 results in a final objective of 25.4 µg/L. These values comprise a wide range of objectives that are scientifically defensible and should be considered when adopting the final site-specific objective for copper in the South Bay.

Permit Limits. The Board recognizes that the information used to develop the range of objectives may change during the life of the permit and that the objective will be revised prior to the next permit re-issuance, based on studies required by this permit and other studies. The current long term average copper concentrations in the Discharger's effluent (1996 and 1997 average copper concentration of 4.2 ug/l) meet and exceed the most conservative end of the range of the available scientific data for final water quality objectives. Therefore, permit limits in this Order are established to assure that current plant performance is maintained during the life of the permit and are protective of water quality, and these limits will assure that the narrative standards and beneficial uses described in the Basin Plan are achieved.

When the Regional Board considers Site Specific Objectives for the South Bay it will consider all studies done to date, including the 4.9 ug/l value, and the studies to be done as required by this permit.

Nickel Water Quality Objective

14. For purposes of this permit the Basin Plan narrative water quality objectives will be interpreted as follows for nickel:

EPA Guidance. On October 1, 1993, in recognition that the dissolved fraction is a better representation of the biologically active portion of the metal than the total or total recoverable fraction, EPA's Office of Water issued guidance stating that dissolved metal concentrations should be used for the application of metals aquatic life criteria and that state water quality standards for the protection of aquatic life (with the exception of chronic mercury criterion) be based on dissolved metals. EPA amended the National Toxics Rule (NTR) in 1995 to include factors to convert total metals to dissolved metals for both fresh and salt water objectives. The August 1997 proposed California Toxics Rule (CTR) water quality criteria for metals are expressed as dissolved. Since effluent limits must be expressed as total recoverable metals, use of the NTR/CTR objectives would require translation from dissolved to total recoverable metals. 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.

Translator Study. The City of San Jose developed a dissolved to total recoverable metal translator from analytical data collected between January 1996 through March 1997 from sampling stations in the South Bay. Using this data from its South bay site specific objective studies, the Discharger calculated a translator value of 0.46 for nickel in the main water mass of the Lower South Bay. Using the methodology employed by US EPA in the proposed Economic Impact Assessment which appeared concurrently with the proposed CTR the proposed CTR value for nickel (8.2 µg/L dissolved) could be translated to 17.8 µg/ (total).

San Jose Nickel ACR Study. In 1989 the City of San Jose performed a recalculation of the nickel national dataset as part of its site-specific marine criteria development process. Through these studies, the City determined that recalculation of the Final Acute to Chronic Ratio (ACR) was warranted. The 1986 marine criterion document established a Final ACR of 17.99 for nickel. This ratio is based upon two fresh water values and one salt water value. The City is currently contracting with the University of California, Santa Cruz, to conduct toxicity studies to develop three additional marine ACR values to supplement the national dataset. Preliminary results for topsmelt indicate a species mean ACR of 6.277. Preliminary results for the red abalone indicate species mean ACRs of 4.642 and 16.73 for metamorphosis and juvenile growth, respectively. Applications of this new toxicological information to the national dataset results in revised marine nickel criterion between 11.90 ug/l and 37.45 ug/l, depending upon whether the freshwater ACR data is used to calculate a marine criterion. These values comprise a wide range of objectives that are scientifically defensible and should be considered when adopting the final site-specific objective for nickel in the South Bay.

Permit Limits. The Board recognizes that the information used to develop the range of objectives may change during the life of the permit and that the objective will be revised prior to the next permit re-issuance, based on studies required by this permit and other studies. The current long term average nickel concentrations in the Discharger's effluent (1997 average nickel concentration of 7.5 ug/l) meet and exceed the most conservative end of the range of the available scientific data for final water quality objectives. Therefore, permit limits in this Order are established to assure that current plant performance is maintained during the life of the permit and are protective of water quality, and these limits will assure that the narrative standards and beneficial uses described in the Basin Plan are achieved.

When the Regional Board considers Site Specific Objectives for the South Bay it will consider all studies done to date, and the studies to be done as required by this permit.

15. 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." The Discharger conducted, and the Regional Board reviewed and approved, an analysis of effluent data to determine if the discharges had reasonable potential to cause or contribute to an exceedance of a State water quality standard ("RP analysis"). The RP analysis conservatively assumed that the effluent would receive no dilution.

16. **Reasonable Potential Analysis.** Using methods described in EPA guidance documents for establishing reasonable potential, the Discharger performed a reasonable potential analysis by evaluating the Discharger's effluent data from January, 1994 through May, 1997 for metals and from January 1992 through July 1997 for organic priority pollutants. Data from the Coyote Creek RMP monitoring station (BA10) and the South Bay RMP monitoring station (BA20) were used to determine ambient background concentrations for use in the calculation of reasonable potential. Criteria proposed in the California Toxics Rule (CTR, August 1997), Basin Plan objectives (Tables 3-3 and 3-4) and proposed State criteria for diazinon, chlorpyrifos, and tributyltin were used to determine reasonable potential of the constituents. The CTR criteria were used as the latest science for purposes of the reasonable potential analysis only. Copper, nickel, zinc and tributyltin were shown to have a reasonable potential to exceed criteria at the 99% confidence and the 99% probability level.

17. **Uncertainty as to Reasonable Potential to Cause Exceedance of Objectives.**

It is not possible at this time to determine whether the Discharger's copper and nickel discharge is causing an exceedance in the water quality criteria for copper or nickel for the receiving waters, and thus there is corresponding uncertainty as to whether further controls on the Discharger's copper and nickel effluent should be imposed. However, the studies and analyses required or contemplated by this Order will make it possible to make such determination during the term of this Order.

Copper and nickel discharged by the three Lower South Bay POTWs are only one of many sources of copper and nickel found in that water body. Other sources include: copper and nickel transported by tidal action from other parts of San Francisco Bay, historic deposits of copper and nickel in sediment which are gradually reintrained into the water column, nonpoint source discharges, stormwater runoff, and deposition of airborne copper and nickel. A principal feature of the studies to be conducted under the WMI will be to quantify the contributions from each source.

18. For all parameters that have reasonable potential for contributing to an exceedance of a numeric criteria, effluent limitations are established. For copper and nickel, the effluent limitations are based on current performance of the treatment plant. These limits are based on the need to protect water quality. There have been no observable toxicity events in the South Bay south of the Dumbarton Bridge attributed to copper and nickel levels and the limits are intended to ensure that ambient conditions in the South Bay will be maintained. For other parameters with a reasonable potential, US EPA water quality criteria, and the Basin Plan objective for tributyltin, are used to set effluent limits. The 99.7th percentile of the effluent data collected during the period 1995 through 1997 was chosen as the maximum daily limit for copper and nickel.

Basin Plan Discharge Prohibitions and Exceptions

19. The Basin Plan prohibits discharges receiving less than 10:1 minimum initial dilution via a deep water diffuser, discharges to dead-end sloughs, and discharges south of the Dumbarton Bridge. Exceptions to the three Basin Plan prohibitions may be considered where the Discharger can show (1) a net environmental benefit as a result of the discharge, (2) that the project is part of a reclamation project, or (3) that the discharge will provide equivalent protection.

20. The 1986 Basin Plan (at page III-5) did not include numeric water quality objectives for San Francisco Bay south of the Dumbarton Bridge. The Basin Plan found that the South Bay had a unique hydrogeologic environment, and that site-specific water quality objectives were absolutely necessary for this water segment. The NPDES permit amendments issued to the Discharger on December 21, 1988 (Order 88-176) contained requirements for studies to assess impacts from metals on the water body, to investigate controls on metals levels discharged in effluent, and to develop water quality objectives based on cost/impact. Based on those studies the Discharger was allowed to propose water quality objectives based on toxicity testing. In connection with the issuance amendments to the Discharger's NPDES permit on December 21, 1988, the Regional Board granted a conditional exception to the discharge prohibitions. The conditions to the granted exceptions related to unresolved concerns regarding the potential impacts of heavy metals on the South Bay.
21. **State Board Order WQ 90-5.** In Order No. WQ 90-5, the State Board stated that a finding of equivalent level of protection for Discharger's discharge could be made if water quality based concentration limits for metals and revised mass loading limits for metals were placed in Discharger's permit, and if the Discharger continued an avian botulism control program and implemented a water conservation and reclamation program.
- WQ 90-5 found that water quality objectives were needed for the South Bay, and directed the Board to adopt objectives by March, 1991, and to amend Discharger's permit to include water quality based metals limits by April, 1991. In addition, the Board was required to modify mass loading limits for metals contained in the permit. On April 17, 1991, Order 91-067 was adopted by the Board, which included revised concentration and mass loading limits for metals. Order 91-067 amended Finding 13 in the December 21, 1988 permit so as to state that: "The requirements in this order support a finding of equivalent protection." The Board continued the grant of the exception in the NPDES permit issued to the Discharger on October 20, 1993.
22. The Discharger has conducted an avian botulism control program by monitoring Artesian Slough, Coyote Creek, and Alviso Slough for the presence of avian botulism since 1982. Outbreaks of avian botulism as well as other diseases have been controlled by the prompt removal of sick and dead vertebrates. The Discharger also supports the collection of bird and other wildlife data, in conjunction with the avian botulism program, to better understand the potential beneficial and detrimental impacts of the discharge on the associated habitat.
23. This Order contains effluent limitations which are substantially equivalent to the effluent limitations contained in the Discharger's October 20, 1993 NPDES permit. This Order also carries forward the requirement that the Discharger continue its on-going avian botulism control program. Furthermore, the Discharger has implemented a reclamation program, in compliance with another discharge prohibition exception criterion. Therefore, the Discharger is granted a continued exception to the Basin Plan prohibitions based on a finding of equivalent level of environmental protection and implementation of a reclamation program.

Basis for Effluent Limits

24. **Performance-Based Copper and Nickel Effluent Limit.** If the Board were to impose an effluent limitation for copper or nickel in this Order which was the same as the criteria contained in the US EPA water quality criteria, the Discharger would be unable to consistently comply with such effluent limitations. In view of the considerations discussed above (i.e. Basin Plan direction, uncertainty in the Reasonable Potential Analysis, and toxicity monitoring), this Order contains performance-based effluent limitations for those constituents. Unless the permit is reopened, the Discharger shall be required to achieve a performance-based effluent limitation for total recoverable copper of 11.3 ug/L, one-day average and for nickel of 18.0 ug/L, four day average. These effluent limitation are based upon the Discharger's performance from 1995 through 1997. The limitation represents the 99.7th percentile of plant performance.

It is the intent of the Regional Board to include revised water quality-based effluent limitations as enforceable limits by July 1, 2003. These revised water quality-based effluent limitations will be based on data developed by the Discharger, with the site-specific objectives and Total Maximum Daily Load (TMDL) studies. The technical studies and analysis to develop water quality based effluent limitations are anticipated to take 3 to 5 years. If the studies do not produce the required data the Board will base revised water quality based effluent limits on applicable State or federal water quality criteria available at that time. If neither site specific objectives nor water quality criteria are available, the Regional Board will set revised performance-based effluent limits for copper and nickel based on the 95th percentile of plant performance between 1995 and 1997, i.e. 7.4 ug/l for copper, one-day average and 13.0 ug/l for nickel, four day average.

25. This Order also includes effluent limits for pollutants listed in the latest 303(d) report as impairing the quality of waters due, in part, to municipal point source discharges. For the South Bay the high priority pollutants are copper, nickel, and mercury which are therefore included in this Order.
26. **Limits for other constituents.** For the other toxic constituents for which this order has effluent limits, i.e. mercury, zinc, and tributyl tin, limits are based on the 1995 Basin Plan and US EPA water quality criteria for mercury and US EPA water quality criteria for zinc. For tributyl tin the limit is based on the 1995 Basin Plan.
27. **Mass Limits.** State Board Order No. WQ 90-5 stated on page 67; "These performance based (mass) limits will remain in effect until maximum daily loads and wasteload allocations are developed for the pollutants." The mass limits in this Order are consistent with direction from State Board Order No. WQ 90-5.
28. **Numeric Effluent Goals for Certain Additional Constituents.** Fourteen other constituents or classes of constituents were never detected in the effluent since the available detection limits were above the effluent limitations specified in 1993 Permit Section B.4. Therefore an accurate estimation of reasonable potential to exceed the permit limitation is not possible for those constituents. Those constituents include: PAHs, hexachlorobenzene, 2,4,6-trichlorophenol, aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, heptachlor epoxide, toxaphene, PCBs, 2,3,7,8 TCDD, and cyanide. This Order includes numeric effluent goals (not effluent limitations) for toxic constituents for which historical effluent limitations are lower than current analytical techniques can measure. The Discharger will continue to monitor for constituents expressed as goals and to investigate methodologies to improve detection limits. When the new analytical techniques are approved for general use by Dischargers, a new reasonable potential analysis would be conducted to determine whether there is a need to add effluent limits to the permit or to continue monitoring.

29. **Monitoring Requirements for Certain Metals.** For metals that do not show a reasonable potential to exceed effluent limitations, i.e. arsenic, cadmium, chromium, silver, and lead, this Order requires continued monitoring and an annual evaluation. If significant increases in the concentrations of the constituents are observed, 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. A reopener provision is included in this Order that allows numeric limits to be added to this Order for any constituent that in the future exhibits reasonable potential to cause or contribute to an exceedance of a water quality standard. This determination will be made by the Regional Board based on monitoring results.
30. **Use of TMDL and WLA/LA Analyses for Future Permit Decisions.** Additional studies to support the TMDL will evaluate the relative merits of all potential strategies to abate sources of copper and nickel, including the effects of natural attenuation of historic sedimentary deposits. In the meantime, given the low levels of copper and nickel in the Discharger's effluent (averaging 4.4 ug/l for copper and 7.5 ug/l for nickel in 1997), it is not possible to determine with finality whether it is necessary to reduce the Discharger's copper and nickel discharge further in order to meet water quality objectives in the Lower South Bay, or whether, even if it is necessary at this time, the necessity would dissipate over a reasonable time in the future (e.g. though natural attenuation of sedimentary deposits). Once the special studies required for the TMDL and the WLA/LA have been completed, the Board can make its final determinations as to a water quality-based effluent limitation for copper and nickel. At that time, the Board can also determine what an appropriate site specific objective should be for the Lower South Bay as well as the effect of an appropriate translator in developing any future water quality-based effluent limitation.
31. For the following reasons, the Regional Board believes that these limitations will protect all beneficial uses described in the Basin Plan:

Development of Site Specific Objectives and a Total Maximum Daily Load (TMDL). During the life of the permit, site-specific objectives (SSO) for copper and nickel will be developed. The permit requires the Discharger to participate in special studies which are needed by the Regional Board to develop site-specific objectives, and a TMDL calculation for copper and nickel. A description and schedule of the studies are listed in Provision 7. Once these studies are completed, the Regional Board will adopt SSOs and perform another reasonable potential analysis using the study results. Should the discharges exhibit "reasonable potential" to exceed the new SSOs, the next NPDES permit (scheduled for issuance in 2003) will contain numeric effluent limitations designed to meet these new SSOs. If new SSOs are not adopted, applicable state or federal criteria will be used. Also, should data collected during this permit indicate that the copper and/or nickel in the effluent is causing an exceedance of the narrative objectives, the Regional Board can reopen the permit in order to establish more restrictive numeric limitations for these parameters.

Narrative toxicity objective being met. The narrative toxicity objective is currently being met in the South Bay. Results of routine aquatic bioassays conducted in the South Bay by the Regional Monitoring Program in 1995 and 1996 (the most recent data) do not indicate toxicity (a 1996 special study by the RMP did find some toxicity due to stormwater discharges, not due to the Discharger's treatment plant). Furthermore, acute and chronic Whole Effluent Toxicity (WET) testing has exhibited no toxicity in the effluent attributable to either copper or nickel, and future acute and chronic monitoring is required on a monthly basis. Should future RMP data, or WET testing (and follow-up TIE) indicate that copper and/or nickel are contributing to toxicity, this permit may be reopened to set more restrictive effluent limitations.

32. The approach the Regional Board has used to establish all of these water quality based effluent limitations is consistent with EPA guidance which states: In the absence of State numeric water quality objectives, the permit writer must rely on available information to identify the receiving water body beneficial uses and the ambient water quality, including numeric protective levels, necessary to attain such uses. Available information includes State water quality plans and/or available documentation supporting the applicability of objectives, technical literature, and federal numeric ambient water quality criteria. (EPA Region IX Guidance for NPDES Permit Issuance, February 1994).
33. **TMDL for Copper and Nickel.** Section 304(l) of the federal Clean Water Act (as amended in 1987) required States to develop lists of water bodies impaired by toxic pollutant discharges, identify point sources and pollutants causing toxic impacts, and develop individual control strategies (ICs) for each point source identified. Section 303(d) of the Clean Water Act requires States every two years to list water bodies that do not meet or are not expected to meet water quality objectives after existing controls are implemented. On March 9, 1998, the Regional Board submitted the Section 303(d) List of Impaired Water Bodies and Priorities for Total Maximum Daily Loads (TMDLs) for the San Francisco Bay Region to the State Water Resources Control Board. The list includes a high priority ranking for copper and nickel in the Lower South Bay. Municipal sources were listed as a source for these two pollutants and development of TMDLs for these pollutants is scheduled to begin in 1998.
34. As defined by US EPA, the TMDL process provides a flexible assessment and planning framework for identifying load reductions or other actions needed to develop (if necessary) and attain water quality standards. Clean Water Act section 303(d) established the TMDL process to guide application of state standards to individual water bodies and watersheds. The Discharger has volunteered resources to develop technical information that can be used by the State to develop site-specific objectives for copper and nickel in support of the TMDL process.

South Bay Action Plan

35. The State Board and the Regional Board have found that freshwater effluent from the Discharger's treatment plant contributes to the loss and degradation of habitat for two endangered species (California clapper rail and salt marsh harvest mouse).

36. On October 4, 1990 the State Board adopted Order WQ 90-5, which directed the Regional Board to limit flows from the Discharger's treatment plant to 120 million gallons per day (MGD) ADWEF or to flows that would not further impact rare and endangered species. On September 18, 1996 the Regional Board adopted Resolution 96-137, which accepted the Discharger's proposal for wetland loss mitigation as required by Provision 6.1 of Order No. 93-117 and requested State Board concurrence that the proposal fulfilled mitigation requirements contained in WQ 90-5. By letter dated October 10, 1996, the State Board concurred that the proposal satisfied requirements of Order WQ 90-5 pertaining to salt marsh conversion.
37. On March 6, 1991 the Discharger submitted an "Action Plan", with a request that the "Action Plan" be accepted by the Regional Board as fulfillment of the State Board requirement for a discharge flow limit. A revised "Action Plan" was accepted by the Regional Board (Resolution 91-152). Resolution 91-152 requested that the State Board accept the "Action Plan" as the approach to fulfill the intent of the State Board requirement for a flow cap. By letter dated November 26, 1991, the State Board found Resolution 91-152 to be consistent with Order WQ 90-5.
38. In Resolution 91-152, the Regional Board stated that the San Jose Action Plan (revised), dated September 30, 1991, fulfilled the intent of the State Board Order WQ 90-5 requirement to limit flows from the San Jose/Santa Clara Water Pollution Control Plant to a level that will halt any further loss or degradation of endangered species habitat. The Resolution contained a provision requiring a Regional Board hearing to consider adopting a 120 MGD ADWEF discharge limit if delays occurred that threatened the timely completion or implementation of reclamation projects, or if ADWEF exceed 120 MGD.
39. The 1991 Action Plan proposed a Phase II recycling project, and Order No. 93-117 contained requirements for implementing Phase II. Since its initial proposal, Phase II recycling, at an estimated cost of \$350 million, has been recognized to be prohibitively expensive. In 1995 the Discharger and Regional Board staff began discussions on alternatives to the original Phase II.
40. In 1996, the ADWEF of 132 MGD triggered the requirement in Resolution 91-152 for the Regional Board to hold a hearing. On December 18, 1996, when the Regional Board held a hearing on this issue three options were considered: 1. amend the NPDES permit to limit flows to 120 MGD ADWEF; 2. direct the Discharger to propose an alternative solution by June 1997; and 3. no action. The Regional Board adopted the second option.
41. On May 28, 1997 the Discharger submitted the South Bay Action Plan (SBAP) to the Regional Board. The SBAP proposed both near and long-term solutions to reduce the discharge. Total costs of these projects are estimated to be \$150 million and are expected to reduce effluent flows by up to 60 MGD. These projects are proposed in addition to the Phase I of the 1991 Action Plan, which the Discharger is currently implementing.
42. Average Dry Weather Effluent Flows continue to exceed 120 MGD. In 1997 the ADWEF was 134 MGD. If the 1998, or subsequent years, ADWEF exceeds 120 MGD, the Regional Board may hold a hearing to consider adoption of a permit amendment or enforcement Order imposing a limit of 120 MGD ADWEF.

43. At the December 1996 hearing, the Regional Board directed the Discharger to advance 1998 assessment of wetland conversions to 1997. The results of this assessment were submitted on November 30, 1997. It is the intent of the Regional Board to require appropriate mitigation for any wetland losses due to the discharge. Appropriate mitigation shall be determined after consultation with appropriate resource agencies and other interested parties.
44. At its September 1997 meeting the Regional Board amended the Discharger's NPDES permit to implement the SBAP. Those amendments have been incorporated into this permit.

Clean Bay Strategy Implementation

45. The Discharger submitted "The Pollution Prevention Strategy for a Clean Bay, Including Proposed Local Limits for Copper, Nickel, and Cyanide" to the Executive Officer of the Regional Board on October 26, 1994 pursuant to requirements in section II.C.1 of the Discharger's 1993 CDO (Order 93-118). The Clean Bay Strategy contains watershed programs that target pollutant reductions from nonpoint, residential and water supply, as well as revised local limits for industrial and commercial sources. The strategy is based on five principles: 1. a holistic approach toward environmental restoration; 2. cost-effective environmental protection; 3. regulatory certainty for the tributary cities and industrial Dischargers; 4. sound science and data collection and 5. environmental equity. The Discharger has implemented the Clean Bay Strategy and provided semi-annual updates to the Executive Officer, since its acceptance by the Regional Board.
46. Clean Bay Strategy implementation has resulted in a reduction of copper and nickel levels, from the largest industrial Dischargers, by 61.9% and 49.6% (as of November 1997) respectively when compared to the 1993 baseline. The following watershed projects were instrumental in achieving these reductions:
 - The Discharger has implemented and is maintaining an effective US EPA approved pretreatment program in accordance with Federal pretreatment regulations (40 CFR Part 403) and this Regional Board's Orders 91-107, 93-117, 93-118, and 95-015. All requirements from Order 91-107 were completed on schedule.
 - The Discharger has completed a Mass Audit Study Protocol for the "largest Dischargers" of copper and nickel. There were 45 companies that completed their requirements and implemented Maximum Feasible Reductions programs (MFRs).
 - The Discharger has completed the "Evaluation of Local Limits for Non-regulated Pollutants" and developed new local limits which were incorporated into the City of San Jose Municipal Code and Regulations well as in the regulations of the tributary agencies.
 - The Discharger has completed a public/private partnership with four of the largest industrial nickel Dischargers. Nickel Initiative Partnership Program companies have reduced their discharges of nickel to the Plant by over 50% from the 1993 baseline.
 - The Discharger has implemented trunkline and upstream monitoring programs to identify sources of pollutants entering the Plant. The Discharger has also completed a commercial/residential sampling program.
 - The Discharger has implemented a Financial Incentive Program to provide financial assistance to commercial and industrial sectors for implementation of devices, practices, and process changes that reduce wastewater discharges.
 - The Discharger has completed a Waste Minimization Plan program. The original program has been integrated into the Mass Audit Study program, Reasonable Control Measure Plans (RCMPs), and Best Management Practices (BMPs).

47. **Plant Optimization:** The Discharger is making an ongoing effort to optimize the existing wastewater treatment processes for copper removal. The basic research for the projects have been completed. The Discharger is now looking at the feasibility (including process reliability) of full-scale implementation of research results. These projects include Biological Nutrient Removal (BNR), Filtration Improvements, and Termination of Pre-filter Chlorination.

The purpose of the BNR study is to replace the existing dual-stage secondary and nitrification processes with a single-stage BNR process. The BNR process has shown a reduction in dissolved copper concentration by 0.6 part per billion (median reduction achieved during pilot study) compared to nitrification effluent.

The purpose of the Filtration study was to identify changes to filter media size and type (mono vs. dual), underdrain and backwash systems, and operational procedures to aid in the removal of higher TSS loads from BNR effluent. The Discharger plans to retrofit one full-scale filter (16 total filters) and test for one year. Beginning the retrofit of remaining filters could occur in the fall of 2000 depending on results of full-scale testing.

The purpose of the Prefilter Chlorination Termination project is to improve copper removal within the filters by terminating prefilter chlorination. Prefilter chlorination was found to solubilize particulate copper prior to filtration allowing dissolved copper to pass through the filters. Termination of prefilter chlorine requires the (1) relocation of the ammonia dosing station, (2) the successful implementation of backwash water chlorination. These changes are likely to result in reduced copper concentrations in the effluent but reduces overall chlorine contact time which may impact the Discharger's ability to meet existing disinfection requirements. These projects are scheduled to begin in the fall of 1998.

In addition to the copper reduction projects highlighted above, the Discharger is planning to conduct a Chlorine Reduction study to evaluate the feasibility of changing permit requirements from using total Coliform to fecal Coliform for determining compliance with disinfection standards, and determining the effects on the receiving waters of reducing the quantity of chlorine used. The goal of this project is 1) to reduce the use of chlorine, which has the positive environmental benefit of reducing the potential for the formation of chlorinated hydrocarbons, and 2) to achieve annual cost savings through reduced usage of chlorine and sulfur dioxide. It is anticipated that this study will take about at least one year to complete.

48. The following additional programs are being implemented by the Discharger as part of the Clean Bay Strategy: New Industry Program, Industrial User Academy, Industrial User Newsletter, Outreach Programs, Commercial Business BMP Development, Point Source and Urban Runoff Program Integration, Storm Sewer Monitoring, and Industrial Monitoring Program.

Research and Monitoring Programs

49. **Local Effects Monitoring.** The Discharger conducts a Local Effects Monitoring Program on receiving waters, as part of the self-monitoring program. Two stations have been monitored between 3 and 6 times a year. Monitoring includes water quality, sediment quality, toxicity, tissue and trace metals sampling. This program has been coordinated with the US Geological Survey (USGS) and the San Francisco Estuary Institute (SFEI) to promote consistent and comparable data quality. Data from this program is submitted to the Regional Board and published in the Annual Report of the San Francisco Estuary Regional Monitoring Program for Trace Substances (RMP). The Discharger will evaluate the effectiveness of the program design, and identify opportunities for improved data collection. The Discharger intends to continue the Local Effects Monitoring Program in a revised format.
50. **Regional Monitoring Program (RMP).** The Discharger has participated both financially and with staff resources in the RMP since 1993. The Discharger has supported the expansion of the program into the Santa Clara Valley Watershed with additional funding and resources. The Discharger supports the efforts of the RMP and will continue to work with SFEI, the Regional Board and other participants to evaluate the existing program and to develop a more effective monitoring program.

Treatment of Plant Stormwater Discharges

51. **Federal Regulations.** Federal Regulations for storm water discharges were promulgated by the US Environmental Protection Agency on November 19, 1990. The regulations 40 Code of Federal Regulations Parts 122, 123, and 124 require specific categories of industrial activities including Publicly Owned Treatment Works which discharge storm water associated industrial activity to obtain a NPDES permit and to implement Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology to control pollutants in industrial storm water discharges.
52. Stormwater flows from the Discharger's facility are regulated by this Order. These storm water flows are directed to the wastewater treatment plant headworks and are treated along with the wastewater discharged to the treatment plant. Because all stormwater from the facility is treated at the facility, this permit now also regulates the discharge of industrial stormwater from the plant.
53. **O&M Manual.** An Operations and Maintenance (O&M) Manual is maintained by the Discharger for purposes of providing plant and regulatory personnel with a source of information describing all equipment, recommended operation strategies, process control monitoring, and maintenance activities. The Discharger will update the O&M manual according to the tasks and schedules in Provision 18.
54. **Plant Reliability.** The Basin Plan states (at page 4-5) that:

" In reviewing requests for exceptions, the Regional Board will consider the reliability of the Discharger's system in preventing inadequately treated wastewater from being discharged to the receiving water and the environmental consequences of such discharges."

The Discharger completed a plant reliability analysis in 1984 that demonstrated a high level of reliability. The Discharger will update the reliability analysis according to the tasks and schedule in Provision 8.

55. This Order serves as an NPDES permit, reissuance of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Code.
56. The Discharger and interested agencies and persons have been notified of the Regional Board's intent to reissue the NPDES permit for this discharge and have been provided an opportunity to submit their written comments and appear at the public hearing.
57. The Regional Board, at a properly noticed public meeting, heard and considered comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Discharger, in Order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder and the provisions of the Clean Water Act as amended and regulations and guidelines adopted thereunder, shall comply with the following provisions:

A. **Discharge Prohibitions**

1. Discharge of waste to waters of San Francisco Bay south of the Dumbarton Bridge or tributaries is prohibited.
2. Discharge of waste not receiving initial dilution of at least 10 to 1 is prohibited.
3. Discharge of waste to dead-end sloughs or confined waterways is prohibited.
4. There shall be no bypass or overflow of untreated wastewater to waters of the State at the treatment plant or from the collection system.
5. The average dry weather influent flow (ADWIF) shall not exceed 167 MGD, determined during any five-weekday period during the months of June through October. The average dry weather effluent flow (ADWEF) is the lowest average effluent flow for any three consecutive months between the months of May and October.
6. Discharges of water, materials, or wastes other than storm water, which are not otherwise authorized by this NPDES permit, to a storm drain system or waters of the State are prohibited.
7. Consistent with State Board Order WQ 90-5, this Order contains effluent limits for copper and nickel designed to prevent toxicity and maintain ambient water quality until site specific water quality objectives are adopted, mass loading limits for metals, water quality based effluent limits for all other constituents found to have reasonable potential to cause or contribute to exceedance of water quality objectives and the requirement to continue the City's ongoing avian botulism program. Regional Board Order No. 97-111 accepted the Discharger's "South Bay Action Plan" to implement a water conservation and reclamation program in lieu of a 120 MGD ADWEF flow cap and to implement mitigation for loss and degradation of endangered species habitat. Therefore the Discharger is granted a conditional exception to discharge prohibitions 1 through 3, based on the above, and provided the Discharger complies with Provision 11 (avian botulism) and the terms of the "South Bay Action Plan," as specified in the Provisions.

B. **Effluent Limitations**

1. The discharge of effluent containing constituents in excess of the following limits is prohibited:

Conventional Pollutants

The discharge of an effluent containing constituents in excess of the following limits is prohibited:

Constituent	Unit	Monthly Average	Daily Maximum	Instantaneous Maximum
a. CBOD	mg/l	10	20	-
b. Ammonia-N	mg/l	3	8	-
c. Suspended Solids	mg/l	10	20	-
d. Oil and Grease	mg/l	5	10	-
e. Settleable Matter	mg/l-hr	0.1	-	0.2
f. Turbidity	NTU	-	-	10
g. Chlorine Residual	mg/l	-	-	0.0

2. The discharge shall not have pH of less than 6.5 nor greater than 8.5.

3. Effluent Toxicity

3.1 Acute Toxicity:

A. Definition: The survival of organisms in undiluted effluent shall be an 11-sample median value of not less than 90 percent survival, and a 90 percentile value of not less than 70 percent survival. The 11-sample median and 90th percentile effluent limitations are defined as follows:

11-sample median: 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 less bioassay tests show less than 90 percent survival;

90th percentile: Any bioassay test showing survival of 70 percent or greater is not a violation of this 90 percentile value 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 less tests shows less than 70 percent survival

B. Test Species and method:

Bioassays shall be performed using Three-Spine Stickleback, (*Gasterosteus aculeatus*), which was determined to be the most sensitive species following an acute toxicity screening performed by the Discharger. Bioassays shall be conducted in compliance with the "Methods for Measuring The Acute Toxicity of Effluents and Receiving Water To Freshwater and Marine Organisms", 3rd. edition, with exceptions granted the Discharger by this Regional Board and the Environmental Laboratory Accreditation Program (ELAP).

3.2 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 (bi-weekly) after exceeding a three sample median value of 1 TUC(1) or a single sample maximum of 2 TUC or greater;
 3. return to routine monitoring if accelerated monitoring does not exceed either "trigger" in "2" above;
 4. initiate approved TIE/TRE workplan if accelerated monitoring confirms consistent toxicity above either "trigger" in "2";
 5. return to routine monitoring after appropriate elements of TRE workplan are implemented and/or toxicity drops below "trigger" level in "2", or as directed by the Executive Officer
- (1) 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.

B. Test Species and Methods

The Discharger shall conduct routine monitoring with *Ceriodaphnia dubia*. This species was determined to be the most sensitive species during a chronic toxicity screening performed by the Discharger in 1997. Bioassays shall be conducted in compliance with the "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to West Coast Marine and Estuarine Organisms," (EPA/600/R-95/136, August 1995), or other guidance approved by the Executive Officer, with exceptions granted the Discharger by this Regional Board and the Environmental Laboratory Accreditation Program (ELAP).

4. Concentration Criteria for Toxic Pollutants

Table 1: The effluent shall not exceed the following concentration limits:

Constituent	1-day Avg. ($\mu\text{g/l}$)+		4-day Avg. ($\mu\text{g/l}$)+		Monthly Avg. ($\mu\text{g/l}$)+	
Copper	11.3	(D,E)				
Mercury	2.1	(A,B,E)			0.012	(A,E)
Nickel			18.0	(D,E)		
Tributyl Tin	0.04	(A)			0.005	(A,C)
Zinc			86	(A,E)		

+ Compliance determinations shall be based on available analyses for the time interval associated with effluent limitation. When only one sample analysis is available in a specified time interval (e.g., 30-day average or 4-day average), that sample shall serve to characterize the discharge for the entire interval. For 4-day averages, compliance with the effluent limitation may be demonstrated by reporting concentrations of four consecutive 24-hour composite samples, as well as the average of the four.

A Limit same as October 1993 permit limit.

- B This limit, based on Basin Plan water quality objectives and EPA water quality criteria, is solely for the purposes of this permit and only for the duration of the permit.
 - C On August 7, 1997 EPA proposed a 4-day average water quality criterion for tributyl tin of 0.010 µg/L . A limit of 0.005 µg/L, which is based on the Basin Plan, is solely for the purposes of this permit and only for the duration of the permit. When the EPA criterion is promulgated, the Board may reopen this permit to consider revising the limit to conform with the new criterion.
 - D The limit is based upon recent (1995-1997) plant performance at the 99.7 percentile level and is solely for the purposes of this permit and only for the duration of the permit.
 - E Metal limits are expressed as total recoverable metals
- 4.1 Final water quality-based effluent limitations for copper and nickel will be implemented prior to July 1, 2003. Limits will be based on data developed by the Discharger (consistent with Provision 7 of this Order), which will be used to develop site specific objectives and TMDL studies. If the studies do not produce the required data the Board will base final water quality based effluent limits on applicable State or federal water quality criteria available at that time. If neither site specific objectives nor water quality criteria are available, the following performance based limits shall take effect; 7.4 ug/l for copper, one-day average and 13.0 ug/l for nickel, four day average.

4.2 Concentration Goals for Toxic Pollutants

The values stated in this table are goals rather than effluent limitations per footnotes A and B below.

Constituent	1-day Avg. (µg/l)	4-day Avg. (µg/l)	Monthly Avg. (µg/l)
2,4,6Trichlorophenol			1.00
Hexachlorobenzene			0.00069
Aldrin			0.00014
Chlordane*	0.004		0.000081
DDT*	0.001		0.0006
Dieldrin	0.0019		0.00014
Endrin*	0.0023		0.8
Heptachlor	0.0036		0.00017
Heptachlor Epoxide			0.00007
PCBs*	0.014		0.00007
Toxaphene		0.00002	0.00069
Cyanide	5		
PAHs*	15		0.031
TCDD			1.4E-08

* Analytical definition of constituent found in Attachment B of this permit "Organic Priority Pollutants Definitions"

A Goal same as October 1993 permit limit.

- B. The values stated in this Table are goals rather than effluent limitations. The stated goal is below the level of detection. The pollutant has not been detected in the discharge. A goal at this level is solely for the purposes of this permit and only for the duration of the permit. The goal comes from the 1991 Enclosed Bays and Estuaries Plan. If any of these goals is ultimately converted to an effluent limitation, the Regional Board will make appropriate adjustments in data reporting requirements for any constituent where a number of related individual constituents have been aggregated into a group for which a single number applies in order to avoid creating an anomalous situation where the aggregation of reported values for a series of non-detects could lead to a false exceedance of such single number.

5. Mass Criteria for Pollutants

- A. The following Mass Emission Limits for conventional pollutants where concentration limits are expressed in mg/l shall apply:

$$(\text{Mass Emission Limit in kg/day}) = (\text{Concentration Limit in mg/l}) \times (\text{Actual Flow in million gallons per day averaged over the time interval to which the limit applies}) \times 3.785 \text{ (conversion factor).}$$

- B. The effluent mass loadings for toxic pollutants shall not exceed the following annual mass loading limits:

Constituents	Annual Limit (lb/yr) (A,B)
Arsenic	2848
Cadmium	356
Chromium (VI)	712
Copper	3309
Lead	712
Mercury	71
Nickel	4272
Selenium	712
Silver	1068
Zinc	22748
Cyanide	14240
Phenol	5340
PAHs	4628

Notes

- A. Mass limits same as in Order No. 91-066. Metal limits based on average flow data from 1985-1988 and average concentration data from 1989.
- B. In calculating compliance, the Discharger will count all non-detect measures at the detection level. If a mass limit violation is observed, and non-detects contribute to the violation, the Discharger will evaluate monitoring capabilities for the specific constituent, and the violations will be evaluated with consideration of the detection limits.

Mass loading should be calculated for each analytical result (e.g., for weekly measures, calculate loadings weekly using average weekly flow data. The Discharger shall submit a cumulative total of mass loadings for the previous twelve months with each Self-Monitoring Report). Compliance will be determined based on the previous twelve months of monitoring, and will be calculated weekly for weekly measures, and monthly for monthly measures. Monitoring data collected under accelerated schedules should be time-weighted when calculating the average annual loading.

Because mass may increase during heavy rainfall years and wet year data were not considered in the development of these limits, exceedances during wet weather years will be evaluated separately.

6. Percent Removal BOD and TSS

The arithmetic mean of values for BOD and suspended solids in effluent samples collected in each monthly reporting period shall not exceed 15% of the arithmetic mean of respective values for influent samples collected at approximately the same times during the same monthly period, i.e. 85% removal.

7. 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 any five (5) consecutive samples shall not exceed 23 MPN/100 mL; and
- B. Any single sample shall not exceed 240 MPN/100 mL.

The Discharger may use alternate limits of bacteriological quality instead of meeting 7.a and 7.b above (total coliform limits) during a study to determine appropriate limits if the Discharger can establish to the satisfaction of the Executive Officer that the use of fecal coliform limits will not result in unacceptable adverse impacts on the beneficial uses of the receiving water:

C. Receiving Water Limitations

- 1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place:
 - A. Floating, suspended, or deposited macroscopic particulate matter, or foam;
 - B. Bottom deposits or aquatic growths;
 - C. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - D. Visible, floating, suspended, or deposited oil or other products of petroleum origin;
 - E. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State within one foot of the water surface:

<u>Constituent</u>	<u>Limit</u>
A. Dissolved Oxygen	5.0 mg/L minimum. Median of any three consecutive months shall not be less than 80% saturation. When natural factors cause lesser concentrations than those indicated above, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
B. Dissolved Sulfide	0.1 mg/L maximum.
C. pH	Variation from natural ambient pH causing unreasonable effects on beneficial uses.
D. Un-ionized Ammonia	0.025 mg/L as N, annual median. 0.4 mg/L as N, maximum.

3. Any applicable receiving water quality standard for receiving waters adopted by the Regional Board or the State Water Resources Control Board, as required by the Clean Water Act or amendments thereto, including the chronic toxicity objective, shall be met within 250 feet of the point of discharge. In the case of applicable marine water quality objectives, the standard shall be met where the salinity is greater than or equal to 5 parts per thousand 75% of the time.

If applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto that supersede the basis for this permit, the Regional Board will revise or modify this Order in accordance with the applicable objectives and implementation policies established by the State Board.

D. **Biosolids/Sludge Requirements**

1. For Biosolids management, the Discharger shall comply with all requirements of 40 CFR Part 503.
2. The Discharger of biosolids shall not allow waste material to be deposited in the waters of the State.
3. The Discharger shall submit an annual report to the US EPA and the Regional Board containing reuse information and other information requirements as specified by 40 CFR Part 503.

E. **Provisions**

1. **Permit Compliance**

The Discharger shall comply with the limitations, prohibitions, and other provisions of this Order immediately upon adoption by the Board. The Board may reopen this permit to add numeric limits for any constituent that in the future exhibits reasonable potential to cause or contribute to a exceedance of a water quality standard.

South Bay Action Plan

2. **Salt Marsh Conversion Assessment:** The Discharger shall continue to document any new conversion of salt marsh habitat to fresh or brackish marsh habitat during the life of this permit in areas that are or reasonably could be influenced by the San Jose/Santa Clara discharge. These areas include, but are not limited to, Artesian Slough, Coyote Creek downstream to Calaveras Point and upstream to Fremont airport, Coyote Slough, and Mud Slough downstream from the former Union Sanitary District wastewater facility. The Discharger will also monitor conversion at a reference site unaffected by the discharge. The Discharger shall also continue to study habitat utilization by endangered species in these areas in accordance with the Habitat Evaluation Procedure (HEP) of the Action Plan requirements. The Discharger shall submit a report to the Regional Board, the California Fish and Game Department, and the US Fish and Wildlife Service.

2.1	<u>Task</u>	<u>Due Date</u>
	Submit a conversion assessment and habitat utilization plan, incorporating reference sites, acceptable to the Executive Officer.	November 30, 1999 and every two years thereafter
2.2.	Submit a plan for mitigation of wetland losses caused by the discharge and not covered by previous Orders, including a time schedule for implementation, acceptable to the Executive Officer.	as required by Executive Officer
2.3	Implement approved mitigation plan required by 2.2. above.	Pursuant to schedule in approved plan required by 2.2 above

3. **San Jose Action Plan:** The Discharger shall implement its revised Action Plan in Order to comply with Resolution 91-152, which accepted the Discharger's original Action Plan in lieu of a 120 MGD ADWEF limit, as directed by State Board Order No. WQ 90-5. Compliance shall be achieved in accordance with the tasks and time schedules below. The tasks are taken from the City of San Jose Action Plan as revised, December 22, 1992 and May 28, 1997. For each of the following tasks, a technical report, acceptable to the Executive Officer, documenting completion of the task shall be submitted by the due date. Annual progress reports shall be submitted for the Water Conservation and Reclamation tasks.

3.1	<u>Task</u>	<u>Due Date</u>
	<u>Wetlands Mitigation</u>	
A.	Acquire or make funds available to acquire 380 acres of land that is considered suitable by the Executive Officer for salt marsh restoration to mitigate for past conversion of salt marsh to freshwater marsh.	completed
B.	Begin as necessary restoration of marsh area, for instance by providing assistance to USFWS in breaching dikes in appropriate locations.	completed
C.	Establish a salt water marsh bank that will contain sufficient acreage to mitigate any	Submit annual progress reports

potential conversion of endangered species' habitat due to future treatment plant discharge increases as described in State Board Order WQ 90-5 and the San Jose Action Plan (September 1991).

Phase I, 21.1 MGD Non-potable Water Reclamation

- D. Award Construction Contract completed
- E. Complete Construction, Testing, and Startup completed

12 MGD Water Conservation Program

- F. Complete 12 MGD Phase I Water Conservation Program completed

Potable Water Reclamation Demonstration Project

- G. Continue to work with the Santa Clara Valley Water District to develop a project to use reclaimed water for potable water supply. Submit annual progress reports

Public Education Project

- H. Implement six month public awareness campaign. completed

On-site Reuse

- I. Divert effluent to irrigate agricultural land controlled by the Discharger. completed

Indoor Water Conservation

- J. Implement program completed

Expanded South Bay Water Recycling

- K. Begin construction of deferred and infill projects. January 31, 1999
- L. Begin construction of southern alignment and agricultural extension projects. January 31, 2001

Industrial Water Recycling

- M. Identify pilot projects. ongoing
- N. Develop an implementation plan for pilot projects and begin implementing the plan pursuant to the time September 1, 1998

schedules in it.

Inflow and Infiltration Reduction

- O. Implement program. completed

Environmental Enhancement Projects

- P. Implement projects. January 31, 2001

Time Schedules and Annual Reports

- Q. For projects described by K, L, and P above, submit a detailed time schedule of activities that need to be done in order to achieve the due dates listed. The time schedules shall include milestones such as plan completion, obtaining permits, and beginning and finishing construction. November 1, 1998

- R. For projects described by E and I through P above, submit an annual report describing and evaluating implementation of the project. If projects are not achieving expected effluent reductions the annual report shall include proposals for implementing appropriate portions of the contingency plan required by 3.1.S. below. July 31 annually

South Bay Action Plan Contingency Plan

- S. Submit a contingency plan of additional measures that will be implemented on November 1, 1998 if the measures contained in the 1997 Revised Action Plan do not achieve expected ADWEF reductions and ADWEF exceeds 120 MGD during the 1998 ADWEF period. At a minimum the contingency plan shall include the establishment of local ordinances to require additional water conservation and recycling efforts, as well as economic incentives, and accelerated implementation of the revised Action Plan. The contingency plan should be tiered, proposing specific projects for different levels of necessary flow reduction. completed

3.2. Plan Implementation

- A. The Discharger shall take all actions reasonably necessary to reduce ADWEF to less than 120 MGD or to a level necessary to prevent salt marsh conversion from further adversely impacting rare and endangered species.
- B. The Discharger shall be deemed in compliance with paragraph 3.2.A., above, provided that it has timely implemented and carried out the tasks identified in the revised Action Plan, in accordance with the time schedules listed above in 3.1.H. through 3.1.R., and

1. The ADWEF for 1998, or any year thereafter, does not exceed 120 MGD, or
 2. The Discharger has implemented and carried out the revised Action Plan in a timely way and has implemented the contingency plan required by 3.1.S. above, or
 3. The Discharger can establish that ADWEF exceeds 120 MGD due to factors beyond the Discharger's reasonable control, or
 4. The Discharger demonstrates to the Regional Board that any ADWEF above 120 MGD do not and will not further adversely impact rare and endangered species.
- C. On November 15, 1997 the Discharger submitted a report conditionally acceptable to the Executive Officer that identified factors deemed to be beyond the control of the Discharger, which may impact implementation of either the revised Action Plan or the contingency plan.

4. **Bioassessment/Biocriteria:**

The Discharger shall conduct a study to develop additional tools and measurements for characterizing water and sediment quality in Artesian Slough and areas of the lower South Bay immediately adjacent to the discharge location. (Note: This could be the same area defined in the chlorine reduction study). The Discharger shall work with the Regional Monitoring Program, local universities, and regulatory agencies to develop Bioassessment techniques for the South Bay that could lead to site-specific environmental indicators for the South Bay.

<u>Tasks</u>	<u>Completion Date</u>
A. Develop a study plan, acceptable to the Executive Officer, to include, but not limited to, determination of indicator species, reference condition, sampling locations, and tasks and schedules.	December 15, 1999
B. Following approval by the Executive Officer, commence work in accordance with the study plan and time schedule submitted pursuant to Task 4. A.	Within 60 days of EO approval
C. Coordinate efforts with the RMP and local universities as well as regulatory agencies pursuing alternative indicator efforts.	Ongoing
D. Submit results and final report of study.	December 15, 2002

5. **Source Control and Pollution Prevention Programs**

5.1 **Modify Pretreatment Program:** The Discharger shall continue to implement programs that reduce the impacts of commercial and industrial discharges to the collection systems and the Plant. A primary goal of the pretreatment program is to strive to maintain permitted industrial headworks loading at 1997 levels for copper and nickel during the period of this permit. Loading for copper and nickel will be calculated monthly. The goal will be implemented by a two tiered approach which includes, but is not limited to, the following program items.

Tier 1: Tier 1 will be initiated if permitted industrial loading to headworks exceeds 1997 levels. Tier 1 activities include:

- Review data trends for Group 1 Dischargers to identify companies that have increased loadings.
- Review Group 2 Dischargers data to identify companies that have reached the Group 1 loading thresholds and require mass audit studies.
- Increase industrial monitoring for companies that can reasonably be expected to discharge pollutants of concern.
- Perform upstream and surveillance monitoring of commercial and industrial Dischargers to identify and/or verify sources of pollutant loading.

Tier 2: Tier 2 will be initiated if permitted industrial headwork's loading exceeds 120% of 1997 levels. Tier 2 activities include:

- Require all Group 1 Dischargers to review and amend their mass audit studies.
- Require all Group 2 Dischargers to complete and implement a Reasonable Control Measures Plan.
- Require the implementation of all applicable flow reduction reasonable control measures approved by the Director of Environmental Services Department.

5.2 Headworks Loading Analysis: The Discharger shall develop an appropriate methodology to quantify flows and concentrations from various sectors including: residential, commercial, unpermitted industrial, and inflow & infiltration. This information will be used to evaluate and modify the pretreatment program and local limits as well as focused outreach and enforcement activities.

The study workplan will be provided to the Executive Officer January 31, 1999

5.3 Industrial Recycle and Reuse: The Discharger shall continue to develop and implement private/public partnership research studies and or pilot programs with the largest Dischargers of the different industrial sectors to investigate copper, nickel and flow reduction technologies. The Discharger shall continue to provide financial assistance programs and technical support for the pilot studies. The level of effort by the Discharger to control any pollutant through pilot studies, can be changed if new data indicates that other programmatic approaches have a greater impact on the protection of beneficial uses.

5.4 New Industry Requirements: The Discharger shall review development applications submitted to the San Jose Planning Department to address wastewater and recycled water issues related to business expansions and new development prior to any building permit(s) being issued. The Discharger will coordinate with Planning Departments within the tributary area to develop a comparable review process. Best Management Practices (BMPs), Reasonable Control Measure Plans (RCMPs), and/or Mass Audit Studies (MASSs) will be required of all new industrial Dischargers.

5.5 Pretreatment Program Flexibility: The Discharger may implement a non-substantial modification to the pretreatment program if the Executive Officer does not disapprove it within 45 days of being notified of the change.

6. Watershed Management Initiative Support

The Discharger shall participate with the Regional Board staff, other Dischargers in the Lower South Bay, representatives of the public and other concerned parties as described below in carrying out the Santa Clara Basin Watershed Management Initiative (WMI) tasks set forth in the Bay Monitoring and Modeling Workplan dated July 29, 1997 aimed at development of a TMDL. The Discharger shall participate in such a manner by attending through its representatives meetings of the Core Group of the WMI, as well as meetings of the Bay Modeling and Monitoring Subgroup and the Regulatory Subgroup. The Discharger shall review and comment upon all technical and other proposals developed by the foregoing groups of the WMI. The Discharger shall make technical information in its possession available to the appropriate groups of the WMI necessary to develop the watershed management reports. The Discharger shall report to the Executive Officer every six months, beginning January 31, 1999 as part of the watershed programs status update, describing its efforts for the prior six months in cooperating with the WMI.

7. Special Studies Supporting SSO and TMDL Development

The Discharger shall conduct the following technical work and special studies in support of the development of a TMDL for copper and nickel in the South San Francisco Bay. These special studies will assist the regulatory community to develop site-specific water quality criteria for copper and nickel in the South Bay. The Discharger will conduct the following technical investigations, as appropriate:

- Assess Pollutant Levels and Levels of Impairment
- Develop technical information to support a site-specific objective for copper and nickel
- Assess ambient conditions and effluent levels. Evaluate whether discharge or ambient water exceeds proposed objectives; continue with remaining steps as necessary
- Prepare a Conceptual Model of Pollutant Sources
- Identify and Recommend Short and Long-term Studies and Implement Short-term Investigations
- Evaluate Existing 2-D/3-D Models
- Modify Selected Model (as appropriate)
- Establish and Support a Stakeholder TMDL Group
- Establish and Support a TMDL Technical Review Committee

The Discharger shall develop and submit a schedule and workplan to conduct the appropriate special studies in support of TMDL development that is acceptable to the Executive Officer within 60 days of adoption of this order. The Discharger shall report to the Executive Officer every six months, beginning January 31, 1999 as part of the watershed programs status update, describing its efforts for the prior six months.

8. Operations and Maintenance Manual, Contingency Plan, and Reliability Report Updates

The Discharger has recently completed several plant improvement projects that necessitate updating the O&M manual and aspects of the Contingency Plan. The Discharger has not updated its WPCP Reliability Report for approximately ten years. As part of reviewing requests for exceptions to the Basin Plan discharge prohibitions the Board is required to evaluate the reliability of the Discharger's system in preventing inadequately treated wastewater from being discharged to the receiving waters. The Discharger will review and update the O&M manual, Contingency Plan, and Reliability Report according to the following tasks and time schedule:

Task	Compliance Date
a. Submit a work plan, acceptable to the Executive Officer, for updating the WPCP O&M manual, Contingency Plan, and Reliability Report.	December 1, 1998
b. Following approval by the Executive Officer, commence work in accordance with the work plan and time schedule submitted pursuant to Task 8.a.	60 days after EO approval
c. Submit updated versions of the O&M manual, Contingency Plan, and Reliability Report completed pursuant to Task 8.a for Executive Officer review and approval.	Per schedule in approved work plan in Task 8.a.

9. Special Effluent Study for Certain Organic Pollutants

The Discharger shall, jointly with the other lower South Bay Dischargers, conduct low-level monitoring with ultra clean procedures for those pollutants in B.4.2. The Dischargers shall utilize 3-5 laboratories and determine the reproducibility of results over a two-year period conducting sampling on a semi-annual basis. The purpose of this work is to establish the pollutant levels in the effluent using ultra-clean sampling procedures and low-level analytical procedures. To the extent that non-EPA approved (40CFR136) methods are used, the results will not be used for compliance purposes.

Submit Work Plan	December 1, 1998
Submit Final Report	January 31, 2001

10. Selected Organics Source Investigation

The Discharger shall determine whether its permitted industrial Dischargers discharge any organochlorine pesticides, PCBs, and dioxins to the wastewater treatment plant. The investigation shall at a minimum review the types of facilities that may be contributing these organic pollutants to the waste stream in the Discharger's service area. Other potential sources shall also be reviewed in order to reasonably account for these chemicals that are noted or suspected in the plant's influent. The Discharger shall carry out the workplan pursuant to a time schedule approved by the Executive Officer. The Discharger shall submit the results of its investigation, including source control and pollution prevention opportunities, to the Executive Officer.

Due Date for Workplan Submittal: January 31, 1999

11. Mercury TMDL Participation

The Discharger shall participate with the Regional Board and other South Bay Dischargers in identifying cross media watershed-wide sources of mercury impacting the receiving water and potential control measures. The Discharger shall also participate in Regional Board TMDL process development of site specific objectives and/or a wasteload allocation and mass effluent limits for mercury. This study shall be conducted in accordance with the following tasks and time schedule:

a. Submit a participation plan, acceptable to the Executive Officer, for participation in Region-wide mercury phased TMDL investigations.	December 1, 1998
b. Following approval by the Executive Officer, commence work in accordance with the study plan and time schedule submitted pursuant to Task 5.a.	60 days after EO approval

12 **Avian Botulism Control Program**

The Discharger shall continue to monitor Artesian Slough, Coyote Creek, and Alviso Slough for the presence of avian botulism, and control outbreaks through the prompt collection of sick and dead vertebrates. The Discharger shall continue to submit annual reports to the Regional Board, the California Department of Fish and Game, and the US Fish and Wildlife Service. Annual reports shall be due on February 1 each year.

13. **Pretreatment Program.**

The Discharger shall implement and enforce its approved pretreatment program in accordance with Board Order 95-015 and its amendments thereafter. The Discharger's responsibilities include, but are not limited to:

- a. Enforcement of National Pretreatment Standards (e.g., prohibited discharges, Categorical Standards) as provided in 40 CFR 403.5 and 403.6;
- b. Development and enforcement of local limits that implement the requirements of 40 CFR 405.3(c);
- c. Implementation of the pretreatment program in accordance with legal authorities, policies, procedures, and financial provisions described in the General Pretreatment regulations (40 CFR 403) and its approved pretreatment program.
- d. Submission of annual and semiannual reports to EPA and the State as described in Board Order 95-015, and its amendments thereafter.

14. The following constituents (i.e. arsenic, cadmium, chromium, lead, and silver) do have detection limits below water quality criteria but have been found not to have a reasonable potential to exceed effluent water quality limits. If a pollutant concentration increases significantly, the Discharger shall conduct weekly (or other frequency approved by the Executive Officer) monitoring to establish a dataset (greater than 20 values) to perform a reasonable potential analysis. Results shall be reported to the Regional Board and if the Executive Officer determines that significant increases in the concentrations of these constituents have occurred, the Discharger shall redo the reasonable potential analysis and investigate the source of the increases and establish remedial measures if increases pose a threat to water quality.

15. **Self Monitoring Program**

The Discharger shall comply with the attached Self-Monitoring Program. The Executive Officer may make minor amendments to the Self-Monitoring Program pursuant to federal regulations (40 CFR 122.63).

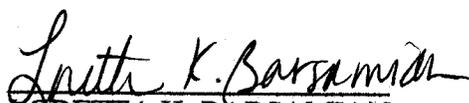
16. **Watershed Program Updates, Modifications, and Reporting Requirements:**

The Discharger shall report to the Executive Officer any updates, changes or modifications to its watershed programs found in this Order semi-annually: January 31 and July 31. The program modifications will be included as a part of the semi-annual pretreatment program reports. The Discharger may implement modifications to individual program elements if the Executive Officer has not disapproved of the change within 45 days of being notified.

17. The Discharger shall comply with all items in the attached "Standard Provisions, Reporting Requirements, and Definitions".

18. The Discharger shall review and update its Operation and Maintenance Manual annually, or in the event of significant facility or process changes, shortly after such changes occur. Annual revisions, or letters stating that no such changes are needed shall be submitted to the Regional Board by April 15 of each year.
19. The Discharger shall annually review and update its Contingency Plan. The discharge of pollutants in violation of this Order, where the Discharger has failed to develop and/or 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 Water Code.
20. The requirements of this Order supersede the requirements of Orders 93-117, Cease and Desist Order 93-118, and Order 97-111. Orders 93-117, Cease and Desist Order 93-118, and Order 97-111 are hereby rescinded.
21. This Order expires on June 17, 2003. The Discharger must file a report of waste discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code not later than 180 days before this expiration date as application for reissuance of waste discharge requirements.
22. 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 Regional Administrator, US EPA, has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

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 17, 1998.


LORETTA K. BARSAMIAN
EXECUTIVE OFFICER

Attachments:

- A: History of 1993 Permits
- B: Organic Pollutant Definitions
- Self Monitoring Program
- Standard Provisions and Reporting Requirements

ATTACHMENT A

HISTORY OF 1993 PERMIT LIMITS.

1. Statewide Plans and Basin Plan Amendments 1991-1993. The State Board adopted two statewide water quality control plans in April 1991: the Enclosed Bays and Estuaries Plan and the Inland Surface Waters Plan (Statewide Plans). The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) in December 1991, based on the Statewide Plans. The Regional Board amended the Basin Plan in October 1992 to adopt a site-specific objective of 4.9 g/l for copper for San Francisco Bay. The Regional Board amended the Basin Plan in June 1993 to adopt a region-wide wasteload allocation for copper. The provisions of the 1993 Permit, when adopted, were based in part upon these latter two Basin Plan amendments which had been adopted by the Regional Board but not yet been approved by the State Board.
2. Objectives in Statewide Plans as Basis for 1991 and 1993 Permits. The 1993 Permit contains, as did the Dischargers NPDES Permit issued in April 1991, effluent limits for metals and organics based on objectives in the State Board's 1991 Statewide Plans which were rescinded in 1994 and are no longer in effect. The effluent concentration limits in the 1991 permit and in the 1993 Permit are the more stringent of the freshwater or the salt water Statewide Plan's objectives, without incorporation of dilution credit. The cadmium limit in both permits was calculated from the freshwater objective formula assuming an ambient hardness of 50 mg/L. Copper limits in the 1993 permits were based on a Basin Plan amendment that was remanded for reconsideration.
3. Plant Performance Based Limits. For certain constituents, namely arsenic, chromium (VI), selenium, and phenol, the effluent limitations contained in the Discharger's February 20, 1990 NPDES permit amendments were lower than the numeric water quality objectives contained in the Statewide Plans. The February 20, 1990 effluent limitations were based on plant performance (the 95th percentile values of 1989 effluent data), with compliance evaluated on a matching 95th percentile basis. The Board carried these performance based effluent limitations over into both the Discharger's April 17, 1991 NPDES permit amendments and, in turn, into the 1993 Permits.
4. Mass Limits. State Board Order WQ 90-5 required the Board to impose an anti-degradation baseline on the Discharger in the form of mass limits for certain toxic pollutants. These mass limits were required to be calculated on the basis of average flow data from 1985-1988 (representing drought and non-drought years) and average concentration data from 1989. Mass limits were imposed by the Board in the Discharger's April 17, 1991 NPDES permit amendments and were carried forward into the 1993 Permits, unchanged except for copper, where a new mass limit was imposed, which was based on the wasteload allocation adopted by the Board in June 1993 and remanded in 1994. Given the remand of authority upon which the new mass limit was based, the mass limit for copper contained in this Order is based on the original formula for calculating such a limit contained in WQ 90-5.
5. Interim Limits for Copper and Nickel in CDO. Since the 1993 Permit daily maximum copper and nickel limits were not attainable, the concurrently issued 1993 CDO contains interim limits based on plant performance. The interim daily maximum limits were set at the 95th percentile of plant performance concentrations during the period from January 1992 to May 1993. Compliance was evaluated based on the 95th percentile of plant effluent quality.

6. **Source Control.** In October 1993 the Board, concurrently with the issuance of the 1993 Permit, issued the 1993 CDO. The 1993 CDO contained requirements for the Discharger to implement a comprehensive program for regulating indirect discharges of pollutants (primarily copper and nickel) from commercial and industrial sources. This program was based, in part, upon an agreement between the Discharger and certain environmental groups. In taking this step, the Board found "Source control, including waste minimization, is a more desirable pollutant reduction technique than structural modification at the Discharger's plant."

ATTACHMENT B

ORGANIC AND PRIORITY POLLUTANTS SPECIAL DEFINITIONS

CHLORDANE shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

CHROMIUM VI limit may be met by analysis for total or hexavalent chromium.

DDT shall mean the sum of the p,p' and o,p' isomers of DDT, DDD (TDE), and DDE.

ENDOSULFAN shall mean the sum of endosulfan-alpha, endosulfan-beta, and endosulfan sulfate.

ENDRIN shall mean the sum of endrin and endrin aldehyde.

HALOMETHANES shall mean the sum of bromoform, bromomethane (methyl bromide), chloromethane (methyl chloride), chlorodibromomethane, and dichlorobromomethane.

PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene, and pyrene.

PCBs (polychlorinated biphenyls) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.

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

**SELF-MONITORING PROGRAM
FOR
CITIES OF SAN JOSE AND SANTA CLARA**

SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT

SANTA CLARA COUNTY

NPDES NO. CA0037842

ORDER NO. 98-052

**CONSISTING OF
PART A (Dated August 1993) and PART B**



SELF-MONITORING PROGRAM
FOR
CITIES OF SAN JOSE AND SANTA CLARA

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT AND INTAKE

Station	Description
A-001	At any point in the treatment facilities headworks at which all waste tributary to the system is present.

B. EFFLUENT

Station	Description
E-001	At any point in the outfall from the treatment facilities between the point of discharge and the point at which all waste tributary to that outfall is present (May be the same as E-001-D).
E-001-D	At any point in the disinfection facilities for waste at which point adequate contact with the disinfectant is assured.

C. RECEIVING WATERS

Station	Description
C-3-0	At a point in Coyote Creek at the Southern Pacific Railroad crossing over Coyote Creek.
C-7-0	At a point on the south mudflat of Coyote Creek between the mouths of Alviso Slough and Guadalupe Slough.

D. LAND OBSERVATIONS

Station	Description
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P-1 thru P-'n'	Located at the corners and midpoints of the perimeter fenceline surrounding the treatment facilities. (A sketch of the locations of these facilities will accompany each report)
L-1 thru L-'n'	Located along the perimeter levee at equidistant intervals not to exceed 500 feet. (A sketch of the locations of these stations will accompany each report)

E. OVERFLOWS AND BYPASSES

Station	Description
OV-1 thru OV-'n'	Bypasses or overflows from manholes, pump stations, or collection systems.

F. SLUDGE

The discharger shall continue to analyze sludge pursuant to the pretreatment requirements of Order 95-015.

II. SCHEDULE OF SAMPLING

The schedule of sampling and analysis shall be that given in Table 1, except for sludge. Sludge sampling shall follow the schedule and analyses specified by Order 95-015, as amended.

III. MODIFICATIONS TO PART A

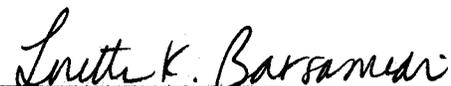
Include in each monthly report the following:

Annual tabulations of all data collected through the year up to the reported month to date for acute toxicity, monthly flow, and influent and effluent metals and cyanide. For metals and cyanide, include influent and effluent concentration and mass data. On a monthly basis, report the minimum, maximum, 95th percentile, and average metals and cyanide concentration values for the year, through the reported month. Report most recent twelve months total mass discharged for metals and cyanide.

Receiving water data shall be summarized and reported to the Board annually. Annual reporting shall be consistent with Regional Monitoring Program reporting format and shall be coordinated with the receiving water monitoring programs of the Palo Alto RWQCP and the Sunnyvale WPCP.

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

1. Has been developed in accordance with the procedures set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Board Order 98-052.
2. Has been amended and ordered by the Board on June 17, 1998.
3. May be revised by the Executive Officer pursuant to federal regulations (40 CFR 122.36); other revisions may be ordered by the Board.


LORETTA K BARSAMIAN
Executive Officer

Attachments:

Table 1
Part A (dated August 1993)

Table 1
Schedule of Sampling, Measurement, and Analysis (3)
Cities of San Jose and Santa Clara

Sampling Station --->	A-001	E-001			L	C-3-0 (5)	C-7-0 (5)	All P Stations	All OV Stations
Type of Sample --->	C-24	G (2)	Cont.	C-24	G	G	G	G	G
Flow Rate (mgd)	D		D						
BOD, 5-day, 20 C (1) (mg/l & lb/day)	W			W					
Total Suspended Solids (1) (mg/L & lb/day)	W			W					
Oil and Grease (mg/L & lb/day)		Q							
Total Coliform (6) (MPN/100 ml)				3/W					
Chlorine Residual & Dosage (4) (mg/l & lb/day)			cont.						
Acute Toxicity-96 hr, Flow- through (7) (% survival in undiluted effluent)				M					
Chronic Toxicity (8)				M					
Dissolved Oxygen (mg/L & % Saturation)		D							
Dissolved Sulfides (mg/L if DO<5.0 mg/L)		W							
pH (units)		D							
Ammonia Nitrogen (mg/L & lb/day)				M					
Nitrate Nitrogen (mg/L & lb/day)				M					
Total Organic Nitrogen (mg/L & lb/day)				M					
Total Phosphate (mg/L & lb/day)				M					
Turbidity, Nephelometric (NTU)				M					
Arsenic (µg/L & lb/day)	M			M					
Cadmium (µg/L & lb/day)	M			M					
Chromium, Total (µg/L & lb/day)	M			M					
Copper (µg/L & lb/day)	W			W					
Cyanide (µg/L & lb/day)	M			M					
Lead (µg/L & lb/day)	M			M					

Table 1
Schedule of Sampling, Measurement, and Analysis (3)
Cities of San Jose and Santa Clara

Sampling Station --->	A-001	E-001			L	C-3-0 (5)	C-7-0 (5)	All P Stations	All OV Stations
Type of Sample --->	C-24	G (2)	Cont.	C-24	G	G	G	G	G
Mercury (µg/L & lb/day)	M			M					
Nickel (µg/L & lb/day)	W			W					
Selenium (µg/L & lb/day)	M			M					
Silver (µg/L & lb/day)	M			M					
Zinc (µg/L & lb/day)	M			M					
Tributyltin (µg/L & lb/day)	M			M					
Phenolic compounds (ug/l & lb/day)	Q			Q					
PAH's (9) (µg/L & lb/day)	Q			Q					
All Applicable Standard Observations		W						W	E
Organic Priority Pollutants (10) (ug/L & lb/day)	2/Y			2/Y					

**Table 1 -- Abbreviations and Footnotes
CITIES OF SAN JOSE AND SANTA CLARA**

Abbreviations used in Table 1:

<u>Type of Samples</u>	<u>Type of Stations</u>
G = grab sample	A = treatment facility influent stations
C-24 = composite sample (24 hour)	E = treatment facility effluent stations
Cont. = continuous sampling	L = basin and/or pond levee stations
O = Observations	C-n-n = receiving water stations
	P = treatment facility perimeter stations
	OV = bypasses or overflows from manholes, pump stations, or collection systems

Frequency of Sampling

E = each occurrence	3/W = 3 days per week
D = once each day	
W = once each week	
M = once each month	
Y = once each year	Cont = continuous
Q = quarterly	

Table 1 Footnotes:

- (1) Percent removal (effluent vs. influent) shall also be reported.
- (2) Grab samples shall be taken on day(s) of composite sampling.
- (3) If any effluent sample is in violation of limits, except those for metals, cyanide, and organics, sampling shall be increased for that parameter to at least daily or greater until compliance is demonstrated in two successive samples. Compliance measurements represent compliance status for the time period between measurements.
- (4) 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 taken every 30 minutes until compliance is achieved.
- (5) Receiving water and sediment monitoring is suspended based on participation in the Regional Monitoring Program per Board Resolution No. 92-043.
- (6) Compliance with the bacteriological effluent limit may be demonstrated via monitoring for fecal coliform pursuant to Effluent Limitation B.7 of this permit.
- (7) Acute Toxicity testing to be performed pursuant to Limitation B.3.1 of this permit.
- (8) While the discharger is conducting its TIE/TRE study, effluent chronic toxicity monitoring will be twice per year, once during the wet season and once during the dry season. Upon

completion of the TIE/TRE study, monitoring will revert to the frequency indicated in Table 1. Chronic toxicity monitoring is to be carried out upon the species determined by the screening study as the most appropriately sensitive test organism.

- (9) PAHs = Polynuclear Aromatic Hydrocarbons. PAHs shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzogluroanthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, fluorene, indeno[1,2,3-c,d]pyrene, phenanthrene, and pyrene. PAH analysis must be done by EPA Method 610 or 625.
- (10) Analytical definitions of organic priority pollutants are found in Attachment 2 of the permit, "Organic Priority Pollutants Definitions".