

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

**NOVATO SANITARY DISTRICT
NPDES PERMIT**

ORDER NO. 99-036

NPDES PERMIT NO. CA0037958

WASTE DISCHARGE REQUIREMENTS FOR:

NOVATO SANITARY DISTRICT, MARIN COUNTY

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

1. The Novato Sanitary District, hereinafter referred to as the discharger, applied to the Board for reissuance of waste discharge requirements and permit to discharge wastewater to waters of the State and the United States under the National Pollutant Discharge Elimination System (NPDES).

PURPOSE OF ORDER

2. This NPDES permit regulates the discharge of treated wastewater to San Pablo Bay, waters of the State and the United States. This discharge was previously governed by Waste Discharge Requirements in Order No. 92-091, adopted by the Board on August 19, 1992. This Order was amended by Order No. 96-049, adopted by the Board on April 17, 1996.

FACILITY DESCRIPTION

3. The discharger owns and operates two municipal wastewater treatment facilities with one combined effluent discharge outfall to the intertidal mud flats of San Pablo Bay, adjacent to the former Hamilton Air Force Base. The treatment facilities collect sanitary waste from a primarily residential service area serving the Novato area. This is a shallow water discharger, and therefore discharge is prohibited during three summer months, from June 1 through August 31, during which the effluent is collected in ponds and used for reclamation. The summer prohibition can be limited to three months since the discharge is to the San Pablo Bay intertidal area, and so will not have a strong increase in impact immediately before and after the dry weather season, as some dilution probably occurs year round under most circumstances. The discharger presently discharges an average dry weather flow of 5.4 million gallons per day (mgd), from the Novato and Ignacio plants into San Pablo Bay, a water of the State and the United States.

Treatment Process Description

4. The Novato Treatment Plant (E-001) contains the following treatment units:

Primary clarification, activated sludge, secondary clarification, nitrification, gravity filtration, and disinfection with chlorine. The treatment processes vary depending on influent flow.

Average Dry Weather Flow (up to 4.53 mgd): Treatment with all unit processes.

Wet Weather Flows: All flows up to 9 mgd receive complete treatment.

Flows between 9 mgd and 16 mgd receive only primary treatment plus gravity filtration and disinfection.

All flows above 16 mgd receive only gravity filtration and disinfection.

5. The Ignacio Treatment Plant (E-002) contains the following treatment units:

Primary clarification, biofiltration, secondary clarification, nitrification, gravity filtration and disinfection with chlorine. The treatment processes vary depending on influent flow.

Average Dry Weather Flow (up to 2.02 mgd): Treatment with all unit processes.

Wet Weather Flows: All flows up to 4.04 mgd receive complete treatment.

All flows above 4.04 mgd receive only primary treatment plus nitrification, gravity filtration and disinfection.

Discharge Description

6. The flows from both plants join a combined outfall (E-003) where the effluent is dechlorinated prior to discharge during the months of September through May. The treated wastewater is discharged through an outfall and multi-port diffuser about 950 feet offshore at Latitude 122 deg. 29min. 00 sec. and Longitude 39 deg. 04 min. 00 sec. The discharge is in the intertidal zone adjacent to the former Hamilton Air Force Base. From June 1 through August 31 the combined effluent is discharged to storage ponds for sprinkler irrigation on discharger controlled pasture lands.
7. The discharge does not receive an initial dilution of 10:1 at all times. The discharge diffuser is located in the intertidal zone and is submerged at the +1 foot Mean Lower Low Water (MLLW) tidal elevation and above. At lower tidal elevations, the outfall is exposed and the San Pablo Bay water line can range from 1000 to 3500 feet from the end of the diffuser.
8. The treatment facilities are designed to produce an effluent with an average of 15 mg/l biological oxygen demand (BOD) and 10 mg/l suspended solids (TSS) for dry weather flows. The annual BOD and TSS of the combined effluent has historically been 6 mg/l and 5 mg/l respectively. At higher flows, the effluent may have an average of up to 10 mg/l for BOD and 12 mg/l for TSS.
9. The U.S. Environmental Protection Agency (USEPA) and the Board have classified this discharger as a major discharger.

Sludge Handling and Disposal

10. Both plants have primary and secondary anaerobic digestors for sludge digestion, followed by storage ponds for thickening. The secondary sludge digester at the Ignacio Plant is not used. The thickened sludge is applied on a 14.4 acre dedicated land disposal site at the reclamation area.

11. The Board has adopted waste discharge requirements covering sludge storage and disposal in Order No. 84-36. These requirements have been superseded by the EPA's 503 regulatory program, therefore Order No. 84-36 is rescinded by Provision D.1. of this Order.

Treated Wastewater Reclamation

12. From June 1 through August 31, the combined effluent is discharged to storage ponds for sprinkler irrigation of 820 acres of discharger controlled pasture lands, which are used for beef cattle grazing and irrigated hay production. The discharger typically reclaims wastewater and irrigates five or more months per year. Reclamation requirements are contained in Order No. 92-065. Water from the storage ponds may be discharged directly through the outfall during the allowed discharge period, if the effluent in the storage ponds meets all effluent limits at the time of discharge to San Pablo Bay. Pre-discharge monitoring will be required if the discharge takes place during the dry weather discharge period, as defined in Effluent Limitation B. In addition to the storage ponds and spray irrigation, there is a wildlife management pond that is maintained pursuant to the reclamation requirements. Reclamation can be increased through storage capacity increase if the stormwater accumulated over the wet season can be discharged prior to the beginning of the reclamation season. Provision 9. outlines a study to monitor coliform and sediment levels in this discharge.

Pretreatment and Pollution Prevention Program Description and Pretreatment

13. The discharger has a formal pretreatment program and also a pollution prevention program, which are two facets of one overall effort. The primary focus of this effort currently is copper, but may include mercury in the near future. The components of these programs are programs for commercial business, corrosion control of source water piping, source identification, and public outreach. The discharger has an active and ongoing program for inspection and regulation of commercial sources, primarily automotive service shops and clothing dyers, with plans to look at printing shops, machine shops and cooling towers in the future. The drinking water purveyor has been consulted on the subject of corrosion control, which is considered the primary source of copper to the treatment plant. The Sonoma County Water Agency has instituted pH control, which has reduced copper influent concentrations to the plant by over 50%. An additional anti-corrosion option is the addition of an ortho-phosphate corrosion inhibitor, and this may be examined in the future on a pilot basis. Public outreach employed by the discharger to date includes efforts to eliminate use of copper-based root control products by plumbers and homeowners, general outreach programs to schools, and specific information to owners of swimming pools and spas.

FUTURE PLANNING

14. **Ignacio Treatment Plant Upgrade and Treatment Plant Capacity Transfer.** The discharger anticipates future growth in the collection system area of the Ignacio Treatment Plant, and has requested a flow capacity re-allocation or transfer of 0.5 mgd from the Novato Plant to the Ignacio Plant. This represents a request for flow capacity increase for the Ignacio Plant which will require construction of additional treatment units. The design and treatment capacity study for this requested flow capacity increase have been reviewed. The design is based on a biotower with an additional polishing clarifier and filtration. The design data submitted appear to ensure adequate performance and reliability with regard to achieving the secondary treatment standard of technology based limits, 85% removal of BOD and TSS to 30mg/l expressed as a monthly average limit. The adequacy of treatment to meet the very stringent water quality based effluent limits of this and future Orders can

not be readily determined from the design data submitted. The request is granted, and this permit allows reallocation of capacity should the discharger decide to proceed with the project.

APPLICABLE PLANS, POLICIES AND REGULATIONS

15. *Basin Plan.* The 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 (SWRCB) and the Office of Administrative Law on July 20, 1995 and November 13, 1995, respectively. A summary of the regulatory provisions is contained in Title 23 of the California Code of Regulations, Section 3912. The Basin Plan identifies beneficial uses and water quality objectives for waters of the state in the Region, including surface waters and groundwaters. The Basin Plan also identifies effluent limitations and discharge prohibitions intended to protect beneficial uses. This Order implements the plans, policies and provisions of the Basin Plan.

BENEFICIAL USES

16. The beneficial uses identified in the Basin Plan for San Pablo Bay in the vicinity of the discharge include:

- Industrial Service Supply
- Navigation
- Water Contact Recreation
- Non-contact Water Recreation
- Ocean Commercial and Sport Fishing
- Wildlife Habitat
- Preservation of Rare and Endangered Species
- Fish Migration
- Fish Spawning
- Shellfish Harvesting
- Estuarine Habitat

REGULATORY BASIS FOR EFFLUENT LIMITS AND DISCHARGE REQUIREMENTS

17. Effluent limitations in this permit are based on the plans, policies and water quality objectives and criteria of the 1995 Basin Plan, *Quality Criteria for Water* (EPA 440/5-86-001, 1986 and subsequent amendments...“Gold Book”), applicable Federal Regulations (40 CFR Parts 122 and 131), National Toxics Rule (57 CFR 60848, 22 December 1992; 40 CFR Part 131.36(b), “NTR”), National Toxics Rule Amendment (Federal Register Vol. 60, No. 86, 4 May 1995 pg. 22229-22237), and best professional judgment as defined in the Basin Plan. Where numeric effluent limitations have not been established in the Basin Plan, 40 CFR 122.44(d) specifies that water quality based effluent limits may be set based on USEPA criteria and supplemented where necessary by other relevant information to attain and maintain narrative water quality criteria to fully protect designated beneficial uses.

18. U.S. EPA guidance documents upon which best professional judgment (BPJ) was developed may include in part:

- Technical Support Document for Water Quality Based Toxics Control, March 1991,
- Region 9 Guidance For NPDES Permit Issuance, February 1994,
- Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria, October 1, 1993,
- Whole Effluent Toxicity (WET) Control Policy, July 1994,
- Draft National Guidance for the Permitting, Monitoring, and Enforcement of Water Quality-based Effluent Limitations set Below Analytical Detection/Quantitation Levels, March 18, 1994,
- National Policy Regarding Whole Effluent Toxicity Enforcement, August 14, 1995,
- Clarifications Regarding Flexibility in 40 CFR Part 136 Whole Effluent Toxicity (WET) Test Methods, April 10, 1996,
- Interim Guidance for Performance - Based Reductions of NPDES Permit Monitoring Frequencies, April 19, 1996,
- Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Programs - Final, May 31, 1996,
- Draft Whole Effluent Toxicity (WET) Implementation Strategy February 19, 1997, and
- National Toxics Rule, 57 FR 60848, December 22, 1992 (NTR).

Discharge Prohibition Exception

19. The Basin Plan prohibits the discharge of any wastewater which has particular characteristics of concern to beneficial uses at any point at which the wastewater does not receive an initial dilution of at least 10:1, or into any nontidal water, dead-end slough, similar confined waters, or any immediate tributaries thereof. This discharge of wastewater to San Pablo Bay in the shallow intertidal zone is contrary to this prohibition, since, as described above, this discharge does not consistently meet the 10:1 dilution requirement. The discharge is classified as a shallow water discharge; therefore, effluent limitations are calculated assuming no dilution.
20. The Basin Plan states that exceptions to the above prohibition will be considered for discharges which can show (1) a net environmental benefit as a result of the discharge, or (2) that the project is part of a reclamation project, or (3) that the discharge will provide equivalent protection through increased plant operational safety and redundancy to reduce the impacts of a plant upset in a manner equivalent to the 10:1 dilution.
21. The Board granted an exception to the prohibition in the two previous Orders based on the discharger's operation of a significant reclamation program. In addition, this Order and the two previous Orders maintain a prohibition of discharge to the Bay during the months of June through August. In addition to the reclamation requirements, the discharger currently operates one pond for wildlife habitat as mitigation for past wetland fill.

The discharger currently reclaims treated wastewater for irrigation of agricultural lands. The reclamation period is typically June 1 through October of each year. In 1997, the discharger reclaimed approximately 25% of its annual average flow and 46% of its dry season flow.

The Board hereby grants an exception to the discharge prohibition for wet weather discharges to San Pablo for a nine month period from September 1 through May 31 each year. This exception is subject to the following conditions. The discharger shall:

- a. Continue to operate all treatment facilities to assure high reliability and redundancy of treatment

and containment of wastewater;

- b. Continue to implement a source control program for any regulated chemical constituents that are measured at levels in violation of permit effluent limitations;
- c. Continue to implement measures to maintain, repair, and upgrade the existing wastewater facilities so as to ensure continued operation and treatment capability in conformance with permit requirements; and
- d. Continue to promote and encourage beneficial reuse of treated wastewater.

Basis for Existing Limits

22. *Technology Based Limits.* Permit effluent limits for conventional pollutants are technology based and are the same as in the prior permit. These constituents include: BOD, TSS, settleable matter, oil and grease, and chlorine residual. Technology-based effluent limitations are put in place to ensure that true secondary treatment is achieved by an individual sewage treatment facility. Therefore in this order, these effluent limits are the only limits applied to the effluent of the two separate treatment plants individually.

23. *Marine and Fresh Water Quality Objectives and Limits.* San Pablo Bay is a tidally influenced salt water to brackish regime, with significant fresh water inflow from the Petaluma River and Delta during the wet season. The Basin Plan states that freshwater effluent limitations shall apply to discharges to receiving waters with salinities less than 5 parts per thousand (ppt) at least 75 percent of the time, while saltwater effluent limitations shall apply to discharges to receiving waters with salinities greater than 5 ppt at least 75 percent of the time in a normal water year. The Basin Plan further states that for discharges to waters with salinities in between these two categories, or to tidally influenced freshwater that supports estuarine beneficial uses, effluent limitations shall be the lower of the marine or freshwater effluent limitation, based on ambient hardness. Data indicate that the discharge's receiving water meets the Basin Plan marine conditions during the nine month discharge season, and previous permit limits were based on saltwater standards. Therefore, this Order's effluent limitations are based on the marine water quality objectives based on the receiving waters having salinities above 5 ppt more than 75% of the time.

24. *Shallow Water Discharge.* The discharge to San Pablo Bay is into shallow water in that the discharge does not receive greater than 10:1 initial dilution at all times. An exception to the Basin Plan prohibition of shallow discharges was granted due to the discharger's strong reclamation program and reasonable plant treatment reliability.

The actual dilution received by the discharge has been the subject of a study by the discharger, included with the NPDES permit reissuance application. This dilution study is considered as one partial component of an application for exemption from the Basin Plan policy of granting no dilution to a shallow water discharge. The necessary components of such an application are listed in the Basin Plan (p. 4-12), as described in Finding 25. below. The study employed mathematical modeling of the dilution received by the discharge under a variety of flow conditions. The results of this study have been reviewed by staff. The models chosen appear conceptually sound, and have been extensively calibrated. Some additional independent model confirmation would be appropriate, and currently there is no Basin Plan language describing an allowable mixing zone. However, since at this time the receiving water body, the San Pablo Bay, is listed as impaired under Section 303(d) of

the Clean Water Act, this request to consider dilution credit for this tidally submerged outfall, which has not been previously granted, cannot be acted upon at this time. The 303(d) listing implies a likelihood that numerous water quality objectives are exceeded in the receiving water body. Thus, the discharger's request for the granting of dilution, averaged over tidal cycles and less than 10:1, is held in abeyance. Therefore, effluent limitations for this permit are calculated assuming no dilution (D=0).

25. The 1995 Basin Plan (p.4-12) states that shallow water dischargers may apply to the Board for exceptions to the assigned dilution ratio of D=0 (and thus the shallow water effluent limitations) based on demonstration of compliance with water quality objectives in the receiving waters and implementation of an aggressive pretreatment and source control program, based on an approved plan of action, and with assignment of specific resources. The cited Basin Plan Shallow Water Discharges section specifies the issues that must be addressed to support requests for the Board to consider granting limited dilution credit where needed to meet effluent limits in the form of revised effluent or mass loading limits.

Basis for Revised Effluent Limits

26. *Water Quality Based Effluent Limitations.* Toxic substances are regulated by water quality based effluent limitations derived from USEPA national water quality criteria listed in Basin Plan Tables 3-3 and 3-4, the National Toxics Rule, the USEPA Gold Book, and/or best professional judgment. Further details about the effluent limitations are given in the associated Fact Sheet, which is incorporated as part of this Order.

27. a. *Applicable Water Quality Objectives.* The Basin Plan (page 3-4) established a narrative objective for toxicity in order to protect beneficial uses: "All waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental responses in aquatic organisms". The Basin Plan also directs that ambient conditions shall be maintained until site specific objectives are developed. Effluent limitations and provisions contained in this Order are designed to implement this objective, based on available information.

b. *San Pablo Bay Water Quality.* The Section 303(d) List of Impaired Water Bodies and Priorities for Development of Total Maximum Daily Loads for the San Francisco Bay Region, dated March 9, 1998, was approved by the State Board on May 27, 1998. Pollutants contributing to the impairment of San Pablo Bay include mercury, copper, exotic species, diazinon, PCBs, selenium, and nickel.

28. Reasonable Potential Analysis

As specified in 40 CFR 122.44(d) (1)(i), permits are required to include limits for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard." Using the method described in the "Proposed Policy for Implementation of Toxics Standards for Inland Surface Water, Enclosed Bays, and Estuaries in California" (Draft, September 1997), and USEPA guidance documents, Board staff have analyzed the 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"). In the absence of state-adopted numeric water quality objectives, the RP analysis compares the effluent data with the USEPA Gold Book, a Board site-specific study for copper, and the Basin Plan objective for tributyltin. The RP analysis conservatively assumed that the effluent would receive no dilution. The results of the RP analysis are described in this finding and

in Provision B: Effluent Limitations.

For all parameters that have "reasonable potential" to contribute to an exceedance of a water quality objective, numeric water quality-based effluent limitations (WQBELs) are established. For copper and mercury, WQBELs are established with compliance schedules. If revised WQBELs for copper and mercury are not established at the end of 7 years from the date of this permit's reissuance, then the WQBELs, based on USEPA water quality criteria and the Basin Plan objectives, 4.9 and 0.025 µg/L, respectively, will go into effect. While site-specific objectives and Total Maximum Daily Loads (TMDLs) are being developed, the discharger will be held accountable for maintaining ambient conditions to the receiving water, San Pablo Bay, by complying with interim performance based limits for copper and mercury, which are based on current treatment plant performance at the 99.7th and 95th percentile level, respectively.

Review of the discharger's 1996-1998 data showed that the toxic constituents present in the discharger's effluent at concentrations greater than the detection limit were arsenic, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, cyanide, and several organic compounds. Of these constituents, copper, lead, mercury, nickel, silver, zinc, and cyanide have reasonable potential to cause or contribute to exceedance of water quality objectives based on the RP analyses. All of the other toxic constituents were found at levels well below the corresponding effluent limitations; i.e., based on continued consistent plant performance, arsenic, halomethanes, chloroform, toluene, and phenols did not show reasonable potential to cause or contribute to exceedance of applicable water quality objectives. For some toxic constituents, particularly bis-2-(ethylhexylphthalate), reasonable potential could not be determined conclusively due to data validation and detection level problems. For these constituents, increased monitoring and alternative analytical techniques are required as they become available. For bis-2-(ethylhexylphthalate), there is concern that this is a common laboratory contaminant, so particular attention will be focused on determining the validity of this analytical data.

It was not possible to determine Reasonable Potential for PAHs, since PAHs were never detected in the plant effluent at the relatively high detection limit used. From January 1995 to March 1998, PAHs were analyzed for six times, and all results were non-detect. Additional monitoring at a lower detection limit will be required under this order to determine if reasonable potential exists for effluent limits. The limit for PAHs, as defined by the Basin Plan, is the sum of about sixteen constituents measured in USEPA Method 610. The NTR, which is based on more updated data, lists standards for just ten of the PAHs measured in Method 610. The USEPA criteria for three of the ten are higher than the other seven; these are anthracene (NTR objective at 110,000 ppb), fluorene (14,000 ppb), and pyrene (11,000 ppb). Therefore, the PAH objectives in the current permit are for the other seven PAHs that may be present in the discharge at concentrations which pose a reasonable potential to contribute to water quality impacts. The USEPA criteria for each of these seven PAHs are 0.049 ppb based on updated cancer potency factors (q*) from USEPA's Integrated Risk Information System (IRIS). Therefore, the reporting level for these seven PAHs is set at the practical quantitation level (PQL), or five times the method detection level. The seven PAHs are listed in Provision 11 of this Order and in Footnote 10, Table 1A, of the SMP.

The water quality objectives (WQO) that had reasonable potential to be exceeded, and the projected maximum concentrations (PEQ) computed from the analyses are listed in the following table for each constituent analyzed. The PEQ was computed based on concentration data measured during discharge periods from 1995 through 1997. No dilution was used in the determination. If the projected maximum concentration is greater than the WQO (or is significantly close), then there is

reasonable potential for that constituent to cause or contribute to exceedance of the objective.

Constituent	PEQ (99%) (µg/L)	WQO (µg/L)	Reasonable Potential
Copper	74	4.9	yes
Mercury	1.26	0.025	yes
Lead	5.6	5.6	yes
Nickel	18	7.1	yes
Selenium	1	5	no
Silver	4.4	2.3	yes
Zinc	68.8	58	yes
Phenol	12	30	no
Tributyltin	no data	0.04	no
PAHs	all values N.D., above WQO	0.049	no
Cyanide	57	5	yes
Arsenic	3.6	36	no
Cadmium	1.12	9.3	no
Chromium	19.2	50	no

The Board cannot determine whether several organic constituents (PCBs, semi-volatile and volatile organics) have the reasonable potential to cause or contribute to exceedance of applicable water quality objectives because the historical effluent limitations were lower than current analytical techniques can measure. The discharger will continue to monitor for these constituents and to use new commercially available analytical methodologies to improve detection limits. If detection limits improve to the point where a new reasonable potential analysis would be feasible, the decision would be made whether to add numeric effluent limits to the permit or to continue monitoring.

A reopener provision is included in this Order that allows numeric limits to be added to the permit for any constituent that in the future exhibits reasonable potential to cause or contribute to exceedance of applicable water quality objectives. This determination, based on monitoring results, will be made by the Board.

29. Total Maximum Daily Load

For pollutants, such as copper and mercury, with interim performance-based limits, based on the reasons stated above, the Board intends to revise the WQBELs established in this Order after intensive literature review and data collection to determine appropriate local water quality objectives and cost-effective measures to achieve these objectives. Based on the final Water Quality-Limited Waterbodies (303(d)) list, the Board may adopt Total Maximum Daily Loads (TMDLs) which may result in revising the WQBELs established in this Order. The Board's plan for conducting these reviews, data collection and potentially developing TMDLs has been prioritized and incorporated into the Watershed Management Initiative (WMI) for implementation. The WMI is the Board's plan for coordinating resources and approaches to water quality issues on a watershed basis.

The following summarizes the Board's strategy to collect water quality data and general approaches to policy and TMDL development with associated time frames, and funding mechanism for this work:

- Data collection - The Board will require individual point and non-point discharger or dischargers collectively to develop analytical techniques capable of detecting these pollutants at levels of concern and to characterize loadings from their facilities into the water quality-limited waterbodies. The results will be used to (1) revise the 303(d) list and (2) support watershed-specific pollutant policy development.
- Policy and TMDL development - A draft region-wide Mercury TMDL proposed strategy has been prepared by the Board staff and was distributed for public review and comment in June 1998. Adoption of the Mercury TMDL will be considered by the Board as part of the Basin Plan triennial review. This process will refine the timing and mechanism for development of other pollutant-specific TMDLs.
- Funding mechanism - The Board anticipates receiving resources from federal agencies for addressing non-point source pollution, which is part of the TMDL strategy. The Board intends to supplement these resources to ensure timely development of the TMDL by allocating development costs among all dischargers through Regional Monitoring Program (RMP) or other appropriate group funded mechanisms. The discharger has shown a willingness to participate in such a Board-initiated group effort as long as criteria are established to allocate the costs among all dischargers in the watershed equitably.

30. Copper Site Specific Water Quality Approach

- EPA Guidance.* On October 1, 1993, in recognition that the dissolved fraction of a metal may be a better representation of the biologically active portion of the metal than is the total or total recoverable fraction, the USEPA Office of Water recommended that State water quality standards for the protection of aquatic life (with the exception of chronic mercury criterion) be based on dissolved metals. USEPA amended the NTR in 1995 to include factors to convert total metals to dissolved metals for both fresh and salt water objectives. The August 1997 proposed 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.

The discharger has submitted a translator study as part of the NPDES permit application and Report of Waste Discharge (ROWD) for the permit reissuance. This information will become relevant once the California Toxics Rule (CTR) is promulgated or the Basin Plan is amended to establish water quality objectives in dissolved form.

- Water Effects Ratios.* In order to assure that the metals criteria are appropriate for the chemical conditions under which they are applied, USEPA promulgated the 1992 NTR criteria in terms of total recoverable metals and provided for adjustment of the criteria through application of the "water-effect ratio" (WER) procedure. A WER is a means to account for a difference between the toxicity of the free ionic metal in laboratory dilution water and its toxicity in the water at the discharge site, which usually will contain organic complexing agents, further reducing free ionic metal. The NTR was a formal rulemaking process with notice and comment by which EPA pre-authorized the use of a correctly applied WER by states subject to the NTR. EPA published updated interim guidance on WER on February 22, 1994, that superseded all prior guidance. Both total and dissolved criteria can be modified by a site-specific adjustment. The proposed

1997 CTR criteria are expressed as dissolved.

- c. *Basin Plan Water Quality and Site Specific Objectives.* The Basin Plan (p.3-2 Water Quality Objectives) states that "In general, water quality objectives are intended to govern the concentration of pollutant constituents in the main water mass. The same objectives cannot be applied at or immediately adjacent to submerged effluent discharge structures. Zones of initial dilution within which higher concentrations can be tolerated will be allowed for such discharges." It continues (p.3-2) that "Compliance with water quality objectives may be prohibitively expensive or technically impossible in some cases. The Regional Board will consider modification of specific water quality objectives as long as the discharger can demonstrate that the alternate objective will protect existing beneficial uses, is scientifically defensible, and is consistent with the state Anti-degradation Policy. This exception clause properly indicates that the Regional Board will conservatively compare benefits and costs in these cases because of the difficulty in quantifying beneficial uses."
- d. *Copper Water Quality Objectives.* In 1984, USEPA promulgated a national saltwater and freshwater copper criterion of 2.9 µg/L, measured as total recoverable copper. The Board developed a proposed Bay-wide site specific water quality objective for copper for San Francisco Bay of 4.9 µg/L in 1991. The site specific objective for copper employed the WER approach developed by USEPA. This approach provides a measure of the binding capacity of natural waters (dependent on particulate matter) relative to the binding capacity of reference waters (filtered oceanic water). In the best professional judgment of the Board, from a technical standpoint, the Bay-wide site-specific objective was protective of the most sensitive designated beneficial use of San Francisco Bay water with respect to copper: habitat for aquatic organisms. The study and associated staff analysis are described in a September 25, 1992, Board staff report entitled "Revised Report on Proposed Amendment to Establish a Site Specific Objective for Copper for San Francisco Bay".
- e. The Board amended the Basin Plan on October 21, 1992, to include the site specific water quality objective of 4.9 µg/L for copper for San Francisco Bay based on a Bay-wide WER of 1.7 and the criterion of 2.9 µg/L. On June 16, 1993, the Board amended the 1986 Basin Plan to incorporate a wasteload allocation for copper. On April 21, 1994, the SWRCB remanded both of these Basin Plan amendments as a consequence of the court decision which invalidated the State's Enclosed Bays and Estuaries Plan and Inland Surface Waters Plan. Therefore, neither the site specific water quality objective nor the wasteload allocation have been legally promulgated.
- f. In 1996, USEPA promulgated a revised national saltwater dissolved copper criteria of 3.1 µg/L. This revised criteria incorporates new scientific data generated during site specific studies of both New York Harbor and the San Francisco Bay. In order for the Board to consider application of the dissolved criteria to the discharge, an appropriate translator based on effluent and receiving water data must be developed. The discharger has submitted a translator calculation based on 3 years of Regional Monitoring Program data from San Pablo Bay. This translator analysis was not incorporated in the development of the effluent limits in this permit, as policy guidance on data adequacy are in development. In addition, until the CTR is adopted, there currently is no dissolved form objective for copper.
- g. The 1995 Basin Plan Table 3-3 does not list a copper criterion in the body of the Table. Footnote "f" to Table 3-3 states that the USEPA criterion is 2.9 µg/L, but that 4.9 ug/L is believed to be a more appropriate site-specific number based on the Board's studies between 1986 and 1992.

- h. *Treatment Plant Performance and Attainability.* Total recoverable copper concentrations measured in the discharger's effluent during the past three year period from January 1995 through December 1997 ranged from 5 to 25 $\mu\text{g/L}$ and averaged 12 $\mu\text{g/L}$. Average copper concentrations dropped from 16 $\mu\text{g/L}$ in 1995 to 13 $\mu\text{g/L}$ in 1996 to 10 $\mu\text{g/L}$ in 1997.
- i. *WQBEL.* This Order establishes an interim performance-based effluent limitation for copper, as well as a water quality based effluent limit (WQBEL) with the time schedule specified in Provision 3. When additional site specific information is available that would allow derivation of an appropriate limit that considers the binding capacity (WER) of the receiving waters, a different WQBEL may be established by the Board. This information may be developed by the discharger, the Board, and/or other parties. The discharger is required in Provision 3 to implement a testing program that could lead to development of a site specific objective for copper for San Pablo Bay. The discharger shall also report mass loading of copper each month on a year-round basis for both influent and effluent. This data shall be used to develop a mass-emission study as part of a region-wide TMDL effort for copper.
- j. *Interim Limit.* This Order establishes an interim performance based limit for copper applicable to the discharge. The numeric interim performance based effluent limit for copper of 22 $\mu\text{g/L}$ is the calculated 99.7th percentile of recent plant performance (January 1996 through December 1998), as used in recent North and South Bay permits. The Board may revise or amend this permit, to apply a new limit that reflects up-to-date performance. A different WQBEL, other than the default 4.9 $\mu\text{g/L}$ established in this Order, may be included in a subsequent permit revision after additional information on such factors as attainability, impacts on beneficial uses, and site specific limits is developed.
- k. *Special Studies.* The process for development of a different WQBEL for copper may result in the establishment of a limit that is lower than the discharger is currently able to achieve. If the final water quality objective for copper is based on the national dissolved criteria, it will be important to also consider protection of beneficial uses that could be impacted by particulate copper. Due to the uncertainties about the quantities of copper that could be a stress to the ecosystem, particularly in mediums other than the water column (such as sediments, and/or organisms that take in particulate matter), Provision 2. requires the discharger to continue to participate in efforts to reduce influent copper concentrations. Continued implementation of the discharger's source control program will also provide information that can be used to assess the discharger's ability to comply with a different WQBEL.
- l. If this permit is not revised with a different water quality based effluent limit for copper, then the WQBEL established in this Order, 4.9 $\mu\text{g/L}$, shall go into effect according to the time schedule specified in Provision 3. The interim limit will be solely for the purposes of this permit. A revised WQBEL or interim limit may be included in a subsequent permit revision after additional information on such factors as attainability, impacts on beneficial uses, and site specific limits is developed.
- m. The Basin Plan limits the use of compliance schedules in discharger permits to those situations where 'new objectives or standards are adopted' and not yet attained by a permittee. The discharger has not met the effluent limitations of 2.9 $\mu\text{g/L}$ for copper adopted by Order No. 92-091. Time schedules with performance-based interim limits were established in Order No. 92-091 and were extended by Order No. 96-049 till the end of the permit term. The basis for the

1992 limits was the numerical water quality objectives from the invalidated California Inland Surface Waters Plan and the California Enclosed Bays and Estuaries Plan (State Plans). In contrast, the basis for the current copper limit of 4.9 ug/L is new interpretation of the existing narrative water quality objective in the Basin Plan. Time schedules are therefore established in the permit because the WQBEL for copper is considered anew standard, which is consistent with anti-backsliding policy.

31. Mercury

- a. *Mercury Water Quality Objectives.* For mercury, the national chronic criterion is based on protection of human health. The criterion is intended to limit the bioaccumulation of methyl-mercury in fish and shellfish to levels which are safe for human consumption. As described in the Gold Book, the saltwater criterion of 0.025 µg/L was similarly derived using the bioconcentration factor of 40,000 obtained for methyl-mercury with the Eastern oyster. This criterion is below levels that have produced acute and chronic toxicity in salt water aquatic species.
- b. *Treatment Plant Performance and Attainability.* Effluent mercury concentrations measured during the past three year period, 1995 through 1997, ranged from less than 0.02 to 0.28 µg/l with an average of 0.04 ug/L and were in excess of the national saltwater criterion of 0.025 µg/L on all 29 sampling occasions. Therefore, there is cause for concern about the discharger's ability to comply with an effluent limit based on the 0.025 µg/L national objective.
- c. *WQBEL.* This Order establishes an interim performance-based effluent limitation for mercury, as well as a WQBEL with a compliance schedule. The WQBEL of 0.025 µg/L is established in this Order according to the compliance schedule specified in Provision 4. A different WQBEL may be included in a subsequent permit revision after additional information on such factors as attainability, impacts on beneficial uses, and site specific limits is developed. This information may be developed by the discharger, the Board, and/or other parties per Provision 4.
- d. *Mass Limit and Trigger.* In addition to the performance-based limit and WQBEL with a time schedule, a mass-based annual limit and a mass loading monthly maximum for mercury are established in this Order (Effluent Limitation B.8). The mass limit is based on the highest calculated 12-month moving average load using total annual plant flows and concentrations from June 1995-May 1998. The mass loading monthly maximum (or "trigger") initiates additional actions if exceeded as specified in Provision 5 and is based on the highest calculated 12-month moving average load using discharge season flows.
- e. *Mercury Strategy.* Board staff are in the process of developing a plan to address mercury compliance for North Bay shallow water dischargers, including the discharger. Review of recent data indicates that in the absence of dilution credit (as allowed for deep water dischargers), the discharge concentrations for these facilities are all generally higher than the objectives. There is uncertainty as to the discharger's ability to reduce mercury effluent concentrations through source control efforts, and consistently comply with the WQBEL of 0.025 µg/L. As such, it may be appropriate to apply a mass loading limit to this and other North Bay dischargers, and focus mercury reduction efforts on more significant and controllable sources. Although the municipal dischargers are generally not considered to be significant contributors to the bulk mercury loading to the San Francisco Bay (3% by one estimate), there does remain the possibility of

localized impacts related to their discharges. As such, the discharger is required to maximize control over influent mercury sources, with consideration of relative costs and benefits. The discharger is encouraged to continue working with other shallow water dischargers to optimize both source control efforts and assessment of alternatives for protecting beneficial uses of receiving waters.

- f. *Board's June 1998 Draft Mercury Strategy Report.* The Mercury Strategy Report focuses on the North Bay and notes that "concentration based effluent limits (set at maximum concentrations) do not provide the appropriate link between potential mercury bioaccumulation." It also states that "controllable inputs generally represent less than 25% of the total mercury entering treatment plants" and that "effluent limits and permit conditions must reflect the fact that water column toxicity is not an environmental concern and that downstream bioaccumulation is an environmental concern." A final observation was that despite our best efforts "it will take several decades for the historical sink of mercury in the Bay to be buried in deep sediments or flushed out and for fish tissue levels to change."
- g. *Source Control.* This Order requires the discharger to develop and implement a source control program as necessary to comply with, or to evaluate its ability to comply with a 0.025 µg/L limit, and to reduce any significant, controllable sources that may be contributing to mercury impairment in the receiving waters. The Board intends to work toward the derivation of mercury effluent limitations for the North Bay dischargers, that will lead towards overall reduction of mercury mass loadings in the watershed. This permit will be revised after additional information on such factors as attainability, impacts on beneficial uses, mass loadings, and site specific limits is developed. This permit contains a time schedule for the mercury source control program. The discharger will also participate in watershed based activities and studies, as directed by Board staff, that are aimed at mercury source identification and reduction. Based on these studies, the Board may amend this permit to specify a different limit for mercury.

32. Coliform

- a. *Total and Fecal Coliform.* The Basin Plan specifies water quality objectives for both total and fecal coliform and, to date, the effluent limitation has been based on total coliform. The Basin Plan (Table 4-2, footnote "d") allows the Board to substitute fecal coliform limits for total coliform limits, provided that it can be conclusively demonstrated through a program approved by the Board that such a substitution will not result in unacceptable adverse impacts on the receiving waters. This Order specifies a total coliform limit (as in the previous permit), but allows the discharger to conduct a study to evaluate the feasibility of utilizing an effluent limit based on the fecal coliform objective. If the discharger can demonstrate, to the satisfaction of the Board, that the use of fecal coliform limits will not impair the beneficial uses of the receiving waters, then the fecal coliform limit specified as an alternative under the Effluent Limitations section shall apply to the discharge. If necessary, based on the results of the study, this permit may be amended to include a different fecal coliform limit.

33. Chronic Toxicity

- a. *Program History.* The Basin Plan contains a narrative toxicity objective stating that "All waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental responses to aquatic organisms" and that "there shall be no chronic toxicity in ambient waters." The Board initiated the Effluent Toxicity Characterization Program (ETCP) in

1986 with the goal of developing and implementing toxicity limits for each discharger based on actual characteristics of both receiving waters and waste streams. Two rounds of effluent characterization were conducted by selected dischargers beginning in 1988 and 1991. A second round was completed in 1995, and the Board is evaluating the need for a third round. Board guidelines for conducting toxicity tests and analyzing results were published in 1988 and last updated in 1991.

Attempts have been made to include numeric chronic toxicity limits in NPDES permits. The Board adopted Order No. 92-104 in August 1992 amending the permits of eight dischargers to include numeric chronic toxicity limits, based on an eleven sample median value of 1 TUc and 90th percentile value of 2 TUc. However, due to the court decision which invalidated the State Plans, on which Order No. 92-104 was based, the SWRCB stated, by letter dated November 8, 1993, that the Board will have to reconsider the order. This letter also committed to providing the regional boards with guidance on issuing permits in the absence of the State Plans (*Guidance for NPDES Permit Issuance*, February 1994).

- b. *SWRCB Toxicity Task Force Recommendations.* The Toxicity Task Force provided several consensus-based recommendations in its October 1995 report to the SWRCB for consideration in redrafting the State Plans. A key recommendation was that permits should include narrative rather than numeric limits. The numeric test values should then be used as toxicity "triggers" to first accelerate monitoring and then initiate Toxicity Reduction Evaluations (TREs).
- c. *Board Program Update.* The Board intends to reconsider Order No. 92-104 as directed by the SWRCB, and to update, as appropriate, the Board's Whole Effluent Toxicity (chronic and acute) program guidance and requirements. This will be done based on analysis of discharger routine monitoring and ETCP results, and in accordance with current USEPA and SWRCB guidance. In the interim, decisions regarding the need for and scope of chronic toxicity requirements for individual dischargers will continue to be made based on best professional judgment as indicated in the Basin Plan.
- d. *Permit Requirements and Reopener.* In accordance with USEPA guidance, this Order includes the Basin Plan narrative toxicity objective as a chronic toxicity limit, implemented via monitoring. Numeric test values will be used as toxicity "triggers" to initiate accelerated monitoring and perform a chronic toxicity reduction evaluation (TRE). If significant non-artifactual toxicity is consistently detected and the discharger fails to aggressively implement all reasonable control measures included in the TRE workplan, the Board will consider amending the permit to include numeric toxicity limits.

34. Cyanide

The saltwater objective for cyanide is 1 µg/L as a 1-hour average. However, the detection limit for weak acid dissociable cyanide is generally 3-5 µg/L. Uncertainty exists as to the persistence of cyanide in the environment and as to whether compounds interfering with the cyanide analysis are generated during chlorinated disinfection. The discharger has reported cyanide results of <3 ug/l since October 1996. These results were obtained by analysis of the dechlorinated effluent prior to discharge. The Basin Plan (page 4-70, Footnote f) states that "the Regional Board will consider information on the persistence of cyanide in evaluating alternate limit proposals". Effluent chlorination may be creating cyanide or compounds that are also detectable by cyanide analyses (positive interferences). The discharger will investigate potential analytical interferences, in-plant

sources of cyanide and potential reduction measures as cited in the Provisions.

STORM WATER

35. Federal Regulations for storm water discharges were promulgated by the USEPA on November 19, 1990. The regulations [40 Code of Federal Regulations (CFR) Parts 122, 123, and 124] require specific categories of industrial activity (industrial storm water) to obtain a NPDES permit and to implement Best Available Technology Economically Available (BAT) and Best Conventional Pollutant Control Technology (BCT) to control pollutants in industrial storm water discharges.
36. The State Board adopted a statewide NPDES permit for storm water discharges associated with industrial activities (NPDES General Permit CAS000001, adopted November 19, 1991, amended September 17, 1992, and reissued April 17, 1997). The General Permit is applicable to municipal wastewater treatment facilities. The discharger filed a Notice of Intent for coverage by the General Permit, and a Storm Water Pollution Prevention Plan has been developed and implemented at the site for storm water flows that are not directed to the treatment plants' headworks. All pump stations serving the plant are constructed such that rainfall and stormwater in contact with pump station equipment and/or sewage is self-contained and flows to the treatment plant.
37. In order to consolidate permits for the facility, storm water flows from the site will henceforth be regulated by this Order, and coverage under the General Permit is terminated. These stormwater flows constitute all industrial storm water at this facility and consequently this Order regulates all industrial storm water discharges at this facility, through continued implementation of the Storm Water Pollution Prevention Plan.

OPERATION AND MAINTENANCE

38. Operations and Maintenance procedures are 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. In order to remain useful and relevant, the procedures shall be kept updated to reflect significant changes in treatment facility equipment and operation practices.

CEQA AND PUBLIC NOTICE OF ACTION

39. This Order serves as an NPDES Permit, adoption of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code [California Environmental Quality Act (CEQA)] pursuant to Section 13389 of the California Water Code.
40. The discharger and interested agencies and persons have been notified of the Board's intent to reissue requirements for the existing discharge and have been provided an opportunity to submit their written views and recommendations.
41. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

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

A. DISCHARGE PROHIBITIONS

1. Discharge of wastewater at any point where it does not receive a minimum initial dilution of 10:1, or into dead-end sloughs and similar confined waters, is prohibited, except as defined below. Based on Findings 19. and 20., an exception to this prohibition is granted for the discharge of treated effluent during the wet weather season, as described in Finding 6. of this Order. Discharge of treated wastewater at a location or in a manner different from that described in the findings of this Order is prohibited.
2. The bypass or overflow of untreated or partially treated wastewater to waters of the State, either at the treatment plant or from the collection system or pump stations tributary to the treatment plant, is prohibited except as allowed by Standard Provision A.13. Bypassing of individual treatment processes, for example during periods of high wet weather flow, is allowable provided that the combined discharge of fully treated and partially treated wastewater complies with the effluent and receiving water limitations contained in this Order.
3. The average dry weather flow discharge shall not exceed 6.55 mgd. The average dry weather flow shall be determined over three consecutive dry weather months each year. This dry weather flow discharge is currently apportioned between the two treatment plants as follows: Novato Treatment Plant discharges up to 4.53 mgd, Ignacio Treatment Plant discharges up to 2.02 mgd. Upon completion of the project associated with the capacity transfer and Provision 9., the dry weather flow discharge will be apportioned by transferring 0.5 mgd from the Novato Treatment Plant to Ignacio Treatment Plant.
4. Discharge to San Pablo Bay is prohibited during the dry weather period each year, from June 1 through August 31, unless the discharger submits a report, which may be submitted over the telephone to the Executive Officer, and the Executive Officer approves it. This report must fully explain the need for discharges and the calculated dilution the discharge may receive during this period (e.g., high flows related to late spring or early fall storm events, when reclamation is not feasible).
5. 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.

B. EFFLUENT LIMITATIONS

1. The effluent from E-001 and E-002, combined into a common outfall and discharged to San Pablo Bay during the wet weather period, defined as the period from November 1 through April 30 of each year, and each discharge monitored separately and individually, shall not exceed the following limits in Table 1.a.:
 - a. Conventional Pollutants Effluent Limitations for the period of November 1 through April 30 of each year:

<i>Constituent</i>	<i>Units</i>	<i>Annual Average</i>	<i>Monthly Average</i>	<i>Weekly Average</i>	<i>Daily Maximum</i>	<i>Instantaneous Maximum</i>
Biochemical Oxygen Demand (BOD ₅ , 20°C)	mg/L		30	45	60	--
Total Suspended Solids	mg/L		30	45	60	--
Settleable Matter	ml/L-hr		0.1	--	--	0.2
Oil & Grease	mg/L		10	--	20	--
Chlorine Residual ¹	mg/L		--	--	--	0.0
Total Ammonia as N	mg/L	4.0	6.0			

¹ Requirement defined as below the limit of detection in standard test methods defined in the 18th edition of *Standard Methods for the Examination of Water and Wastewater*, and applied after dechlorination (may be applied to combined effluent, E-003).

At times before and after the “wet weather period” defined above, the following effluent limits in Table 1.b. will be applied to E-001 and E-002 separately, when discharge occurs, with the exception described in 1.c.:

b. Conventional Pollutants Effluent Limitations for any discharge prior to November 1 or after April 30 of each year:

<i>Constituent</i>	<i>Units</i>	<i>Annual Average</i>	<i>Monthly Average</i>	<i>Weekly Average</i>	<i>Daily Maximum</i>	<i>Instantaneous Maximum</i>
Biochemical Oxygen Demand (BOD ₅ , 20°C)	mg/L		15		30	
Oil and Grease	mg/L		5		15	
Total Suspended Solids	mg/l		10		20	
Settleable Matter	mL/L/hr		0.1			0.2
Chlorine Residual ¹	mg/L					0.0
Total Ammonia as N	mg/L	4.0	6.0			

¹ Requirement defined as below the limit of detection in standard test methods defined in the 18th edition of *Standard Methods for the Examination of Water and Wastewater*, and applied after dechlorination (may be applied to combined effluent, E-003).

At times before and after the “wet weather period” defined above, the following effluent limits in Table 1.c. will be applied to E-002 separately, when discharge occurs. The Ignacio Treatment Plant will have 99.7th percentile performance based interim limits for BOD and TSS, listed on the last two rows of the table, until the 0.5 mgd capacity transfer and plant upgrade is operational. After the plant upgrade is operational, the BOD and TSS limits for Ignacio will be those listed in Table 1.b..

c. Interim Performance Based Conventional Pollutants Effluent Limitations for Ignacio Treatment Plant, E-002 discharge prior to November 1 or after April 30 of each year:

<i>Constituent</i>	<i>Units</i>	<i>Annual Average</i>	<i>Monthly Average</i>	<i>Weekly Average</i>	<i>Daily Maximum</i>	<i>Instantaneous Maximum</i>
Oil and Grease	mg/L		5		15	
Settleable Matter	mL/L/hr		0.1			0.2
Chlorine Residual ¹	mg/L					0.0
Total Ammonia as N	mg/L	4.0	6.0			
Interim Biological Oxygen Demand (BOD ₅ , 20°C)	mg/L		22		44	
Interim Total Suspended Solids	mg/L		23		46	

2. The pH of the discharge shall not exceed 8.5 nor be less than 6.5.
3. Coliform Bacteria: The treated wastewater, at some point in the treatment process prior to discharge, shall meet the following limits of bacteriological quality during the “wet weather” discharge period of November 1 through April 30 each year:
 - a. The moving median value for the MPN of total coliform bacteria in any seven consecutive samples shall not exceed 240 MPN/100 mL; and
 - b. Any single sample shall not exceed 10,000 MPN/100 mL.

During the period before and after the above defined “wet weather” discharge period, before November 1 and after April 30, any discharge shall meet the following coliform effluent limitations at some point in the treatment process prior to discharge:

- c. The moving median value for the MPN of total coliform bacteria in any seven consecutive samples shall not exceed 23 MPN/100 mL; and
- d. Any single sample shall not exceed 240 MPN/100 mL

If the discharger chooses to conduct a receiving water study (in accordance with a plan approved by the Executive Officer) to evaluate the feasibility of using a fecal coliform limit for the discharge, the following effluent limitations for bacteria shall apply for time period specified in the study. If the discharger can establish to the satisfaction of the Board that the use of the fecal coliform limit will not impact beneficial uses of the receiving waters, then the following limit shall apply to the effluent, in place of the total coliform limit specified above:

The five (5) day log mean fecal coliform density shall not exceed 200 MPN/ 100mL; and, the ninetieth (90th) percentile value for fecal coliform density shall not exceed 400 MPN/100 mL, for the wet weather discharger period.

4. 85 Percent Removal, BOD and TSS: The arithmetic mean of the biochemical oxygen demand (Five-day, 20°C) and total suspended solids values, by weight, for effluent samples collected in each calendar month shall not exceed 15 percent of the arithmetic mean of the respective values, by weight, for influent samples collected at approximately the same times during the same period for

each of the two treatment plants measured separately. Each treatment plant must meet the 85% removal standard individually.

5. **Acute Toxicity:** Representative samples of the effluent shall meet the following limits for acute toxicity: (see Provision 7. of this Order for more information)

The survival of organisms in undiluted effluent shall be an eleven (11) sample median value of not less than 90 percent survival, and an eleven (11) sample 90 percentile value of not less than 70 percent survival. The eleven 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: 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 bioassay tests show less than 70 percent survival.

6. **Chronic Toxicity:** Compliance with the Basin Plan narrative toxicity objective shall be demonstrated according to the following tiered requirements based on results from representative samples of the treated effluent meeting test acceptability criteria and Provision 8:

- a. routine monitoring;
- b. accelerate monitoring after exceeding a three sample median value of 1 TUC⁽¹⁾ or a single sample maximum of 2 TUC;
- c. return to routine monitoring if accelerated monitoring does not exceed either “trigger” in “b”;
- d. initiate approved TRE workplan and continue accelerated monitoring if monitoring confirms consistent toxicity above either “trigger” in “b”; and
- e. return to routine monitoring after appropriate elements of TRE workplan are implemented and toxicity drops below “trigger” levels in “b”, 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. These terms, their usage, and other chronic toxicity monitoring program requirements are defined in more detail in Attachment A of the Self-Monitoring Program of this Order. 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.

- 7.a. **Toxic Substances Effluent Limitations:** The discharge of combined effluent containing constituents in excess of the following limitations is prohibited [a]:

Constituent	Units	Daily Average [b]	Monthly Average [b]
Copper	µg/L	4.9	
Lead [d]	µg/L	5.6	
Mercury	µg/L		0.025
Nickel [d]	µg/L	7.1	

Silver	µg/L	2.3	
Zinc [d]	µg/L	58	
Cyanide [c]	ug/l	5.0	

- b. Interim Effluent Limitation: The following interim limits shall apply in lieu of the above limits until the date specified in the time schedule below and according to Provisions 3 and 4 for copper and mercury, respectively [a].

Constituent	Units	Daily Average [b]	Monthly Average [b]	Time Schedule
Copper	µg/L	22 [e]		May 25, 2006
Mercury	ug/l		0.052 [f]	May 25, 2006

Footnotes:

- a. All analyses shall be performed using current USEPA Methods, as specified in USEPA Water/Wastewater Methods (EPA-600 Series), except that mercury analyses may be performed using USEPA Method 1631. Metal limits are expressed as total recoverable metals.
 - b. Limits apply to the average concentration of all samples collected during the averaging period (Daily - 24-hour period; Monthly - Calendar month).
 - c. The discharger may demonstrate compliance with this limitation by measurement of weak acid dissociable cyanide.
 - d. Effluent limitation may be met as a 4-day average. If compliance is to be determined based on a 4-day average, then concentrations of four 24-hour composite samples shall be reported, as well as the average of four.
 - e. The interim copper limit will become effective in accordance with the compliance schedule specified in Provision 3. The WQBEL established in 7.a. shall become effective in 7 years unless a revised WQBEL is established prior to that time. The copper limit is based on the 99.7th percentile of the January 1996 through December 1998 data. This limit is solely for the purposes of this permit and only for the duration specified in the permit.
 - f. The interim limit in 7.b. shall apply for mercury until either a revised WQBEL is established or the 7-year compliance schedule is over, at which time the limit specified in 7.a. shall apply. The mercury limit is based on the 95th percentile of the 1996 through 1998 data. This limit is solely for the purposes of this permit and only for the duration specified in the permit.
8. Until TMDL and Waste Load Allocation (WLA) efforts for mercury provide enough information to establish a different WQBEL, the discharger shall demonstrate that the current mercury mass loading to the receiving water has not increased by complying with the following:
- a. Mass emission limit: The 12-month moving average annual load for mercury shall not exceed **0.655 kg/year**. This limit was calculated from the mean of the moving average loads taken from moving average flows times the corresponding moving average mercury concentrations during the entire year. Compliance shall also be calculated using moving average flows and concentrations from the entire year (during both discharge and reclamation months).
 - b. Mass emission trigger: If the 12-month moving average monthly mass loading for mercury exceeds **0.032 kg/month**, the actions specified in Provision 5 shall be initiated. This load was calculated based on moving average loads from flows and concentrations during the discharge

season only,
using a yearly moving average discharge flow (in mgd) times the corresponding moving average mercury concentration. The highest resulting moving average load, in kg per day, was used to calculate the **0.032 kg/month**.

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

The mass emission limit and trigger for mercury shall be calculated as follows:

Limit Flow (MGD) = Running average of last 12 months of effluent flow in mgd, measured at E-001 and E-002 prior to reclamation or discharge to San Pablo Bay.

Trigger Flow (MGD) = Running average of last 12 months of actual discharge season effluent flow in mgd, measured at E-001 and E-002 to San Pablo Bay.

Hg Conc.(ppb) = Running average of last 12 monthly mercury concentration measurements in $\mu\text{g/L}$ corresponding to the above flows, measured at E-001 and E-002.

Mass emission limit, in kg/year = Limit Flow x Hg Conc. x 1.3815

Mass emission trigger, in kg/month = Trigger Flow x Hg Conc. x 0.1151

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 to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;
 - c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - d. Visible, floating, suspended, or deposited oil or other products of petroleum origin; and/ or
 - e. Toxic or other deleterious substances to be present in concentrations or quantities that cause exceedance of the narrative toxicity objective contained in the Basin Plan.
2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State any one place within one foot of the water surface:
 - a. Dissolved Oxygen: 5.0 mg/L, minimum

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause

concentrations less than that specified above, then the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.

- b. Dissolved Sulfide: 0.1 mg/L, maximum
 - c. pH: Variation from normal ambient pH by more than 0.5 pH units.
 - d. Un-ionized Ammonia: 0.025 mg/L as N, annual median
0.16 mg/L as N, max.
 - e. Nutrients: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
3. The discharge shall not cause a violation of any particular water quality standard for receiving waters adopted by the Board or the SWRCB as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board may revise and modify this Order in accordance with such more stringent standards.
4. Storm Water Discharge
- a. Storm water discharges shall not adversely impact human health or the environment.
 - b. Storm water discharges shall not cause or contribute to a violation of any applicable water quality objective for receiving waters contained in the Basin Plan.

D. SLUDGE MANAGEMENT PRACTICES

1. All sludge generated by the discharger must be disposed of in a municipal solid waste landfill, reused by land application, or disposed of in a sludge-only landfill in accordance with 40 CFR Part 503. If the discharger desires to dispose of sludge by a different method, a request for permit modification must be submitted to the USEPA 180 days before start-up of the alternative disposal practice. All the requirements in 40 CFR 503 are enforceable by USEPA whether or not they are stated in an NPDES permit or other permit issued to the discharger. As it is currently redundant with 40 CFR 503, Board Order No. 84-36, regulating sludge disposal at the discharger's facility, is hereby rescinded.
2. Sludge treatment, storage, and reuse shall not create a nuisance, such as objectionable odors or flies, or result in groundwater contamination.
3. Duty to mitigate: The discharger shall take all reasonable steps to prevent or minimize any sludge use or disposal which has a likelihood of adversely affecting human health or the environment.
4. The discharge of sewage sludge shall not cause waste material to be in a position where it is, or can be carried from the sludge treatment and storage site and deposited in the waters of the State.
5. The sludge treatment and storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect boundaries of the site from erosion, and to prevent any conditions that

would cause drainage from the materials in the temporary storage site. Adequate protection is defined as protection from at least a 100-year storm and protection from the highest possible tidal stage that may occur.

6. For sludge that is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator as defined in 40 CFR 503, the discharger shall submit an annual report to the USEPA and the Board containing monitoring results and pathogen and vector attraction reduction requirements as specified by 40 CFR 503, postmarked February 15 of each year, for the period covering the previous calendar year.
7. Sludge that is disposed of in a municipal solid waste landfill must meet the requirements of 40 CFR 258. In the annual self-monitoring report, the discharger shall include the amount of sludge disposed of, and the landfill(s) to which it was sent.
8. Permanent on-site sludge storage or disposal activities are not authorized by this permit. A Report of Waste Discharge shall be filed and the site brought into compliance with all applicable regulations prior to commencement of any such activity by the discharger.
9. Sludge Monitoring and Reporting Provisions of this Board's "Standard Provisions and Reporting Requirements", dated August 1993, apply to sludge handling, disposal and reporting practices.

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 exceedance of applicable water quality objectives. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 92-091 and amendment No. 96-049. Order No. 92-091 and amendment No. 96-049 are hereby rescinded.

2. Copper Reduction Study and Schedule

The discharger completed copper reduction and control studies and activities under the previous permit. The discharger shall evaluate the feasibility of potential enhancements to current copper reduction and control activities, including enhancement of copper corrosion control in the water supply system, and develop and implement a copper reduction plan, with emphasis on the potential for additional corrosion control in water supply system piping. This program shall be aimed at taking all reasonable and economical steps to reduce influent copper concentrations and shall be developed and implemented in accordance with the following time schedule. The discharger has already accomplished progress on this issue both with individual industrial sources, and through corrosion control of water supply piping working in conjunction with the water supply agencies. The discharger shall also determine and report mass loading of copper during both the discharge and reclamation periods. This data shall be determined from both the influent and effluent and reported in the monthly and annual self-monitoring reports. All reports submitted shall be acceptable to the Executive Officer.

Tasks	Compliance Date
a. The discharger shall submit a report, acceptable to the Executive Officer, assessing the feasibility of further optimization of corrosion. This report may be prepared and submitted in conjunction with other wastewater facilities served by the same water purveyors.	June 1, 2000
b. The discharger shall submit a report, acceptable to the Executive Officer, documenting efforts to identify any other options for reducing effluent copper concentrations and loadings, and for further corrosion reduction measures through the water providers. Time schedules for anticipated actions associated with implementing a copper reduction plan shall be included, such as further corrosion control measures for water supply piping.	December 1, 2001
c. The discharger shall submit a report, acceptable to the Executive Officer, documenting efforts in further reducing the copper concentrations/ loadings.	June 1, 2002

3. Receiving Water Site Specific Copper Objective Study and Schedule

In order to develop information that may be used to establish a site specific WQBEL for copper, the discharger shall implement a study and sampling plan to collect data to assess whether the discharge causes or contributes to exceedance of the water quality objective for copper. The discharger has already accomplished some progress on this issue, including proposing a dissolved to total metals translator using Regional Monitoring Program data for San Pablo Bay and employing guidance from USEPA. The translator and its calculation method have not yet been confirmed for use by the discharger. The discharger has also made progress on modeling the impact of the outfall on copper concentrations in San Pablo Bay. This work needs to be confirmed with other studies, which may be conducted in conjunction with other dischargers' studies. This work shall be performed in accordance with the following time schedule:

Tasks	Compliance Date
a. The discharger shall submit a study plan, acceptable to the Executive Officer, for collection of data that can be used for development of a metals translator and/or water effects ratio, and to assess compliance with water quality objectives for copper, and, at the discretion of the discharger, to evaluate impacts on beneficial uses when operating under a fecal coliform standard, as discussed in the Findings. Within 30 days after Executive Officer approval, the discharger shall begin implementation of the study plan.	September 1, 1999
b. The discharger shall submit a report, acceptable to the Executive Officer, documenting the results of the receiving water studies, which may also include other site specific information that the discharger would like the Board to consider in development of WQBEL for copper.	May 1, 2001

The Board intends to hold a hearing to consider the results of this study, and any other site specific studies the discharger chooses to conduct, and to determine whether adequate information exists upon which to adopt a different WQBEL from the 4.9 µg/L established in this Order. This permit

establishes a WQBEL of 4.9 µg/L for which compliance will be required within seven years of the effective date of this permit. This limit may be revised in response to a site specific objective and TMDL studies to be conducted prior to the final compliance date. If the TMDL efforts are delayed by either the USEPA, the SWRCB or the Board, then this seven-year time schedule will be revised and extended up to an additional three years.

4. Mercury Reduction Study and Schedule

The discharger shall implement an aggressive source control program as well as assess the feasibility of attaining the U.S. EPA national saltwater mercury criterion of 0.025 µg/L as described in the Findings. This evaluation shall consider reductions in mercury effluent concentrations achieved through source control and economically feasible optimization of treatment plant removal efficiency. If necessary, alternative control strategies shall be investigated, through participation with the Board and other North Bay shallow water dischargers in identifying cross media watershed-wide sources of mercury impacting the receiving water, and potential control measures. The mercury reduction program shall be developed and implemented in accordance with the following time schedule.

Tasks	Compliance Date
<p>a. Submit a proposed Study Plan, acceptable to the Executive Officer, to investigate mercury sources, which shall include 1) sampling for mercury in residential and commercial wastewater at representative locations in the collection system over a reasonable period of time, 2) investigating means of optimizing mercury removal by treatment plant processes, 3) evaluating industrial contributions to mercury loadings, 4) evaluating possible means by which any significant sources can be reduced, and 5) evaluating alternative analytical methods to provide improved data reporting limits. Discharges from any industries and/or commercial establishments that are likely to contain mercury shall be characterized. This submittal shall include a proposed plan and time schedule for evaluation of source reduction measures.</p>	<p>August 1, 1999</p>
<p>b. Following approval by the Executive Officer or within 60 days of submission of the Study Plan to the Executive Officer, commence work in accordance with the Study Plan and time schedule submitted pursuant to Task 4.a. All significant sources shall be identified. Any sources of significance shall be evaluated for possible reduction.</p>	<p>February 1, 2000</p>
<p>c. Submit an interim report, acceptable to the Executive Officer, documenting the initial findings of source reduction options, and past and proposed efforts to encourage minimization of mercury discharges to the collection system.</p>	<p>July 1, 2000</p>
<p>d. Submit a final report, acceptable to the Executive Officer, documenting the findings of source reduction work and efforts made to minimize mercury in the collection system and treated effluent.</p>	<p>December 1, 2001</p>
<p>e. Develop a pollution prevention plan and time schedule, acceptable to the Executive Officer, based on the results of the report submitted pursuant to Task 4.d.</p>	<p>July 1, 2002</p>

This permit establishes a WQBEL of 0.025 µg/L for which compliance will be required within seven years of the effective date of this permit. This limit may be revised in response to a site specific

objective and TMDL studies to be conducted prior to the final compliance date. The Board intends to hold a hearing to consider the results of these studies, and determine whether adequate information exists upon which to adopt a final concentration or mass based mercury limit. The Board may adopt a revised interim limit, and/or schedules to require the discharger to conduct and/or participate in additional studies necessary to support development of a different limit. (Note: If mercury effluent concentrations are consistently maintained below 0.025 µg/L, these source control tasks are not required.) If the TMDL efforts are delayed by either the USEPA, the SWRCB or the Board, then this seven-year time schedule will be revised and extended up to an additional three years.

5. Mercury Mass Loading Reduction

If mass loading for Hg exceeds the trigger level specified in Effluent Limitation B.8.b. of this Order, then the following actions shall be initiated and subsequent reports shall include but not be limited to the following:

I. Notification: Any exceedance of the trigger specified in Effluent Limitation B.8 shall be reported to the Board in accordance with Section E.6.b. in the Standard Provisions and Reporting Requirements (August, 1993).
II. Identification of the problem: Resample to verify the increase in loading. If resampling confirms that the mass loading trigger has been exceeded, determine whether the exceedance is flow or concentration-related. If the exceedance is flow related, identify whether it related to changes in reclamation, increase in the number of sewer connections, increases in infiltration and inflow (I/I), wet weather conditions or unknown sources. If the exceedance is concentration-related, identify whether it is related to industrial, commercial, residential or unknown sources.
III. Investigation of corrective action: Investigate the feasibility of the following actions: <ul style="list-style-type: none"> • Improving public education and outreach • Reducing inflow and infiltration (I/I) • Increasing reclamation Develop a plan and time schedule, acceptable to the Executive Officer to implement all reasonable actions to maintain mercury mass loadings at or below the mass loading trigger contained in Effluent Limitation B.8.
IV. Investigation of additional prevention measures: In the event the exceedance is related to growth and the plan required under III is not expected to keep mercury loads below the mass load trigger, work with the local planning department to investigate the feasibility and potential benefits of requiring water conservation, reclamation, and dual plumbing for new development.

6. Cyanide Reduction Study and Schedule

The discharger shall conduct a study to evaluate cyanide removal, possible cyanide generation within its treatment process, and possible analytical interferences per the findings, and in accordance with the following tasks and time schedule:

Tasks	Compliance Date
a. Submit a study plan, acceptable to the Executive Officer, for investigating source control options and treatment options to reduce cyanide concentrations in the treated effluent. The study plan shall include, but not	September 1, 1999

be limited to, a technical analysis of cyanide removals across the plants, and its potential for generating cyanide, as well as an evaluation of feasible source control measures to reduce influent cyanide concentrations, alternative treatment measures to reduce cyanide in treated effluent and alternate analytical methods to eliminate artificial results.	
b. Following approval by the Executive Officer, commence work in accordance with the study plan and time schedule submitted pursuant to Task 6.a.	60 days after EO approval
c. Submit a final report documenting the results of the study described in Task 6.a. The report, to the extent appropriate, shall include recommendations and an implementation time schedule on feasible source control measures to reduce influent cyanide concentrations, alternate treatment measures to reduce cyanide in treated effluent, and alternate analytical methods to eliminate artificial results. Influent and effluent concentration data shall be reported in both the monthly and annual self-monitoring reports.	January 1, 2001

If cyanide effluent concentrations are consistently maintained below the Basin Plan objective of 5 µg/L, these source control tasks are not required.

7. Compliance with Acute Toxicity Effluent Limitation

Compliance with Effluent Limitation B.5 (Acute Toxicity) of this Order shall be evaluated by measuring survival of test fish exposed to undiluted effluent for 96 hours in flow-through bioassays. The species to be used is identified in the Self-Monitoring Program.

All bioassays shall be performed according to protocols approved by the USEPA or the SWRCB, or published by the American Society for Testing and Materials (ASTM) or American Public Health Association. The discharger is allowed to continue using the current test protocols until further guidance is provided by SWRCB or Board staff on conducting the new tests and interpreting the compliance results compared to current test results.

8. Routine Chronic Toxicity Monitoring and TRE for Chronic Toxicity

Monitoring for chronic toxicity is required in three separate stages: routine, accelerated for confirmation, and monitoring under TRE. The monitoring under TRE will be specified in the TRE workplan. Routine monitoring, employing the three sensitive species determined under the previous screening phase, will occur quarterly under this permit.

If there is a consistent exceedance of either of the chronic toxicity monitoring triggers, the discharger shall implement a TRE in accordance with a TRE work plan acceptable to the Executive Officer. The TRE shall be initiated within 15 days of the date that consistent exceedance is found to exist. TREs need to be site specific but should follow USEPA guidance and be conducted in a step-wise fashion. Tier I includes basic data collection, followed by Tier 2 which evaluates optimization of the treatment system operation, facility housekeeping, and the selection and use of in-plant process chemicals.

If unsuccessful in reducing toxicity, Tier 3, a Toxicity Identification Evaluation (TIE) should be initiated and all reasonable efforts using currently available TIE methodologies employed. Assuming successful identification or characterization of the toxicant(s), Tier 4 is to evaluate final effluent treatment options and Tier 5 is to evaluate within plant treatment options. Tier 6 consists of follow-up and confirmation once the toxicity control method has been selected and implemented.

Many recommended TRE elements parallel source control, pollution prevention, and storm water control program best management practices (BMPs). To prevent duplication of effort, evidence of complying with those requirements may be sufficient to comply with TRE requirements if the pollutants targeted by those programs are suspected to be the cause of the chronic toxicity. Support for this may include results of a Phase I TIE or other data as acceptable to the Executive Officer. By requiring the first steps of a TRE to be accelerated testing and review of the facility's TRE workplan, a TRE may be ended in its early stages.

The Board recognizes that identification of causes of chronic toxicity may not be successful in all cases. Consideration of enforcement action by the Board will be based in part on the discharger's actions in identifying and reducing sources of consistent toxicity.

9. Plant Capacity Transfer from Novato Treatment Plant to Ignacio Treatment Plant

The discharger shall submit the following technical reports, acceptable to the Executive Officer, to comply with Discharge Prohibition 3. for transferring 0.5 mgd of treatment capacity from E-001 to E-002:

1. Pre-design/ 10% design report,
2. Construction completion report,
3. Updated Operational and Maintenance Manual,
4. Monitoring program during the start-up period, and
5. Implementation report of all mitigation measures required by CEQA associated with the treatment capacity transfer.

10. Storage Pond Direct Discharge Study

The discharger can greatly increase reclamation capacity, by as much as 36 days per year, if final effluent and rain water collected in the storage ponds over the winter months can be directly discharged through the outfall pipe before the start of the no-discharge season on June 1. This is final effluent that has met all of the effluent limits. The only concern is the possibility of coliform regrowth and the entrainment of silt during discharge. In order to assess these issues, the discharger will monitor the pond water for total coliform prior to and during discharge. In addition, the discharger will submit a plan to monitor suspended sediment during discharge, and for prevention of silt entrainment. These monitoring plans and the sediment control plan will be submitted for the approval of the Executive Officer, by October 1, 1999.

11. PAHs and Other Organic Compounds Monitoring Detection Limits

If the analytical methods for PAHs, or other organic compounds are improved or new methods developed which lower the analytical quantification limit below that specified in the Self-Monitoring

Program, and the discharger, using the new or improved methods, finds these constituents consistently present at levels above their respective water quality objectives, the discharger shall notify the Executive Officer. The discharger shall also accelerate monitoring for these constituents to characterize the discharge, and, within 90 days of such notice to the Executive Officer, develop and initiate a source identification and reduction investigation acceptable to the Executive Officer. During this time, compliance shall be determined at the former analytical quantification limit specified in the Self-Monitoring Program. "Consistently" as stated above is defined as present at levels above the respective objective in more than two consecutive monitoring events.

The discharger shall participate in a regional study to determine if alternative analytical methods with lower detection levels for PAHs and other organic compounds are currently available through commercial laboratories. To the extent that non-EPA approved (40 CFR 136) methods are used, the results will not be used for compliance purposes.

Furthermore, if one of the following seven PAHs is found at levels equal to or greater than the practicable quantitation limit (PQL), then the discharger shall accelerate monitoring to one sample per month for each of the seven PAHs. The PQL shall be five times the method detection limit. If any of the eight PAHs is detected consistently for two consecutive months at or above the PQL, then the discharger shall notify the Executive Officer, accelerate monitoring, and initiate a source identification and reduction investigation. This program will include an investigation and evaluation of the collection system and pretreatment program.

Constituent	Unit	PQL
1,2-Benzanthracene	µg/L	0.8
3,4-Benzofluoranthene	µg/L	0.8
Benzo[k]fluoranthene	µg/L	0.8
Benzo[a]pyrene	µg/L	0.8
Chrysene	µg/L	0.8
Dibenzo[a,h]anthracene	µg/L	0.8
Indeno[1,2,3-cd]pyrene	µg/L	0.8

12. Storm Water Pollution Prevention Plan

The discharger shall continue to implement its Storm Water Pollution Prevention Plan (SWPPP) in accordance with the attached "Standard Storm Water Provisions". The SWPPP shall be reviewed and updated as appropriate by October 1, every year. Full compliance with the "Standard Storm Water Provisions" shall be an enforceable requirement of this permit. The SWPPPs shall include a storm water monitoring program, designed to meet the following objectives:

- a. To monitor the quality of storm water discharges relative to Discharge Prohibitions, Effluent Limitations, and Receiving Water Limitations,
- b. To aid in the implementation of the SWPPP, and
- c. To measure the effectiveness of control measures and management practices in removing pollutants in storm water discharges.

13. Pretreatment Program

The discharger shall implement and enforce its pretreatment program in accordance with the substantive requirements contained in Board Order No. 95-015 and federal regulations, except that the discharger is not required to have a pretreatment program that meets the criteria established in 40 CFR 403.8 and 403.9 or requires approval in accordance with 40 CFR 403.11:

- a. Enforcement of National Pretreatment Standards (e.g., prohibited discharges, Categorical Standards) in accordance with 40 CFR 403.5 and Section 307 (b) and (c) of the Clean Water Act.
- b. Implementation of the pretreatment program in accordance with legal authorities, policies, procedures, and financial provisions described in the General Pretreatment regulations (40 CFR 403).
- c. Board Order No. 95-015, and its amendments thereafter.

14. Pollution Prevention Program

The discharger shall continue to participate in the Pollution Prevention Program, and shall continue to implement and expand its existing Pollution Prevention Program in order to reduce the loadings of targeted constituents to the treatment plant and, subsequently, to the receiving waters.

The discharger shall continue to submit annual reports by January 15th and progress reports by July 15th of each year that are acceptable to the Executive Officer. The reports should include (1) documentation of its efforts and progress, (2) evaluation of the program's accomplishments, and (3) identification of specific tasks and time schedules for future efforts. Duplicate copies of the reports shall be provided: one to the Board's NPDES Permit Case Handler and one to the Board's Pollution Prevention Coordinator.

15. Operations and Maintenance Procedures

The discharger shall review, and update as necessary, its Operations and Maintenance Procedures, annually, or within a reasonable time period after completion of any significant facility or process changes. The report describing the results of the review process including an estimated time schedule for completion of any revisions determined necessary, and a description or copy of any completed revisions, shall be submitted to the Board as part of the Annual Report, as described in Section F.5, Part A, of the attached Self-Monitoring Program.

16. Contingency Plan

Annually, the discharger shall review and update as necessary, its Contingency Plan as required by Board Resolution 74-10. The discharge of pollutants in violation of this Order where the discharger has failed to develop and/or adequately implement a contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code. Plan revisions, or a letter stating that no changes are needed, shall be submitted to the Board as a part of the Annual Report, as described in Section F.5, Part A, of the attached Self-Monitoring Program.

17. Wastewater Facilities Management

The discharger shall regularly review and evaluate its wastewater collection, treatment and disposal facilities in order to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary, in order to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the discharger's service responsibilities.

18. Self-Monitoring Program

The discharger shall comply with the Self-Monitoring Program for this order, as adopted by the Board and as may be amended by the Executive Officer.

19. Standard Provisions

The discharger shall comply with all applicable items of the attached "Standard Provisions and Reporting Requirements" dated August 1993, or any amendments thereafter, including Section A.12 concerning bypasses.

20. Change in Control or Ownership

In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the discharger, the discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation of this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. (Refer to Standard Provisions, referenced above). The request must contain the requesting entity's full legal name, the address and telephone number of the persons responsible for contact with the Board and a statement. The statement shall comply with the signatory paragraph described in Standard Provisions and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.

21. Reopener

The Board may modify, or revoke and reissue this Order and Permit, due to causes including, but not limited to, if present or future investigations demonstrate that the discharge(s) governed by this Order will cause, have the potential to cause, or will contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters.

22. Order Expiration

This Order expires on May 25, 2004. The discharger must file a Report of Waste Discharge in accordance with Title 23 of the California Administrative Code not later than 180 days before this expiration date as application for reissuance of waste discharge requirements.

23. Effective Date of Permit

This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to

Section 402 of the Clean Water Act or amendments thereto, and shall become effective on the date of adoption provided the Regional Administrator, USEPA, 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 May 25, 1999.

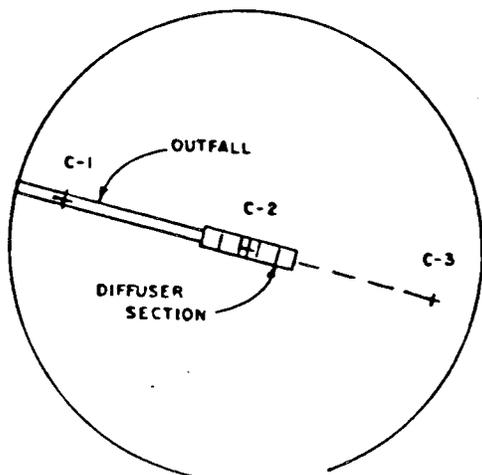
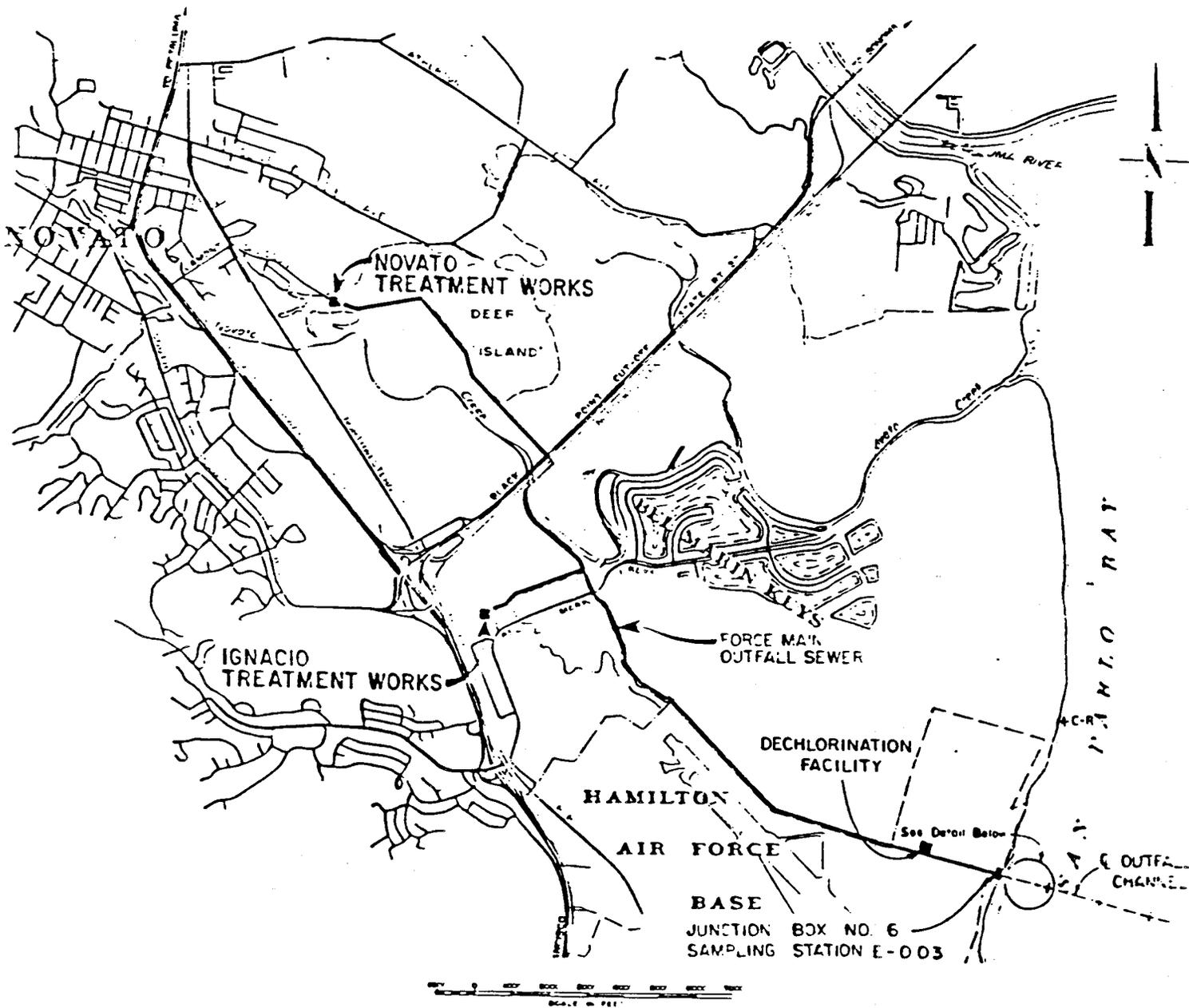


LORETTA K. BARSAMIAN
Executive Officer

Attachments:

- A. Location Map
- B. Wastewater Process Schematic
- C. Self-Monitoring Program
- D. Standard Provisions and Reporting Requirements - August 1993

ATTACHMENT A.



NOVATO SANITARY DISTRICT

**NOVATO AND IGNACIO
TREATMENT PLANTS AND
OUTFALL FORCE MAIN**

ATTACHMENT B.

ATTACHMENT C.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

NOVATO SANITARY DISTRICT
WASTEWATER TREATMENT FACILITIES
MARIN COUNTY

NPDES NO. CA0037958
ORDER NO. 99-036

CONSISTS OF

PART A (August 1993) and PART B

SELF-MONITORING PROGRAM

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

<u>Station</u>	<u>Description</u>
A-001	At any point in the Ignacio Treatment Plant's treatment facilities headworks at which all waste tributary to the system is present, and preceding any phase of treatment.
A-002	At any point in the Novato Treatment Plant's treatment facilities headworks at which all waste tributary to the system is present, and preceding any phase of treatment.

B. EFFLUENT

<u>Station</u>	<u>Description</u>
<u>1. Ignacio Plant</u>	
E-001	At any point in the outfall from the treatment facilities between the point of discharge and the point at which all flow 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 flow E-001, at which point adequate contact with the disinfectant is assured.
E-001-S	At any point in the treatment and disposal facilities following dechlorination.
<u>2. Novato Plant</u>	
E-002	At any point in the outfall from the treatment facilities between the point of discharge and the point at which all flow tributary to that outfall is present. (May be the same as E-001-D).
E-002-D	At any point in the disinfection facilities for flow E-001, at which point adequate contact with the disinfectant is assured.
E-002-S	At any point in the treatment and disposal facilities following dechlorination.
<u>3. Combined Effluent Outfall</u>	
E-003-S	The combined effluent of the Novato and Ignacio Treatment Plants at any point downstream of the junction of their effluents, after dechlorination.

D. LAND OBSERVATIONS

<u>Station</u>	<u>Description</u>
P-1 through P-'n'	Located along the corners and midpoints of the perimeter of the waste treatment facilities at equidistant intervals, not to exceed 200 feet. (A sketch showing the locations of these stations will accompany each annual report).

E. OVERFLOWS AND BYPASSES

<u>Station</u>	<u>Description</u>
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O-1 through O-'n'

At points in the collection system including manholes, pump stations, or any other location where overflows and bypasses occur.

F. SLUDGE

The discharger shall chemically analyze sludge as necessary to comply with requirements for landfill disposal, or for reuse and/or disposal of sludge ash.

II. CHRONIC TOXICITY MONITORING REQUIREMENT

- A. Test Species and Frequency: The discharger shall collect 24-hour composite samples of treatment plant effluent at the compliance point station specified in Table 1 of this Self-Monitoring Program, for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.

Test Species

Mysidopsis bahia (Mysid shrimp), or
Pimephales promelas (Fathead minnow)

Frequency

Quarterly (during discharge season)

- B. Conditions for Accelerated Monitoring: The discharger shall accelerate the frequency of monitoring to monthly (or as otherwise specified by the Executive Officer) when there is an exceedance of either of the following conditions:

1. three sample median value of 1 TUc, or
2. single sample maximum value of 2 TUc

- C. Methodology: Sample collection, handling and preservation shall be in accordance with EPA protocols. The test methodology used shall be in accordance with the references cited in the Permit, or as approved by the Executive Officer. A concurrent reference toxicant test shall be performed for each test.

- D. Dilution Series: The discharger shall conduct tests at 50%, 25%, 10%, 5%, and 2.5%. The "%" represents percent effluent as discharged.

III. CHRONIC TOXICITY REPORTING REQUIREMENTS

- A. Routine Reporting: Toxicity test results for the current reporting period shall include at a minimum, for each test:

1. sample date(s)
2. test initiation date
3. three test species
4. end point values for each dilution (e.g., number of young, growth rate, percent survival)
5. NOEC value(s) in percent effluent
6. IC₁₅, IC₂₅, IC₄₀, and IC₅₀ values (or EC₁₅, EC₂₅ ... etc.) in percent effluent

7. TUC values (100/NOEC, 100/IC₂₅, and 100/EC₂₅)
 8. Mean percent mortality (\pm s.d.) after 96 hours in 100% effluent (if applicable)
 9. NOEC and LOEC values for reference toxicant test(s)
 10. IC₅₀ or EC₅₀ value(s) for reference toxicant test(s)
 11. Available water quality measurements for each test (ex. pH, D.O., temperature, conductivity, hardness, salinity, ammonia)
- B. Compliance Summary: The results of the chronic toxicity testing shall be provided in the most recent self-monitoring report and shall include a summary table of chronic toxicity data from at least eleven of the most recent samples. The information in the table shall include the items listed above under Section A item numbers 1, 3, 5, 6 (IC₂₅ or EC₂₅), 7, and 8.
- C. Reporting Raw Data in Electronic Format: The discharger shall report all chronic toxicity data upon completion of chronic toxicity testing in the format specified in "Suggested Standardized Reporting Requirements for Monitoring Chronic Toxicity," February 1993, SWRCB. The data shall be submitted in either high or low density, double sided 3.5-inch floppy diskettes.

IV. SCHEDULE OF SAMPLING AND ANALYSIS

- A. The schedule of sampling and analysis shall be that given in Table 1 (attached).
- B. Sample collection, storage, and analyses shall be performed according to requirements in the latest 40 CFR 136, in the Permit, or as specified by the Executive Officer.

V. REPORTING REQUIREMENTS

- A. General Reporting Requirements are described in Section E of the Board's "Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits", dated August 1993.
- B. Self-Monitoring Reports for each calendar month shall be submitted monthly, by the twentieth day of the following month in accordance with Section F.4 of Part A.
- C. An Annual Report for each calendar year shall be submitted to the Board within 60 days after the end of the year. The required contents of the annual report are described in Section F.5 of Part A.
- D. Any overflow in excess of 1,000 gallons, any bypass, or any significant non-compliance incident that may endanger health or the environment shall be reported in accordance with Sections F.1 and F.2 of Part A as modified below, and any additional reporting guidance as may be provided by Board staff. Written reporting requirements for collection system spills and overflows may be satisfied by submittal of summary information with the monthly report.
- E. Flow Monitoring and Reporting: Influent and Effluent (A-001, A-002, E-001, E-001-D, E-001S, E-002, E-002-D, and E-002-S) Flows shall be measured continuously, and recorded and

reported daily. The following information shall also be reported, for each calendar month: Average, Maximum and Minimum Daily Flows (mgd).

- F. BOD and TSS Percent Removal.
Percent removal for BOD and TSS shall be reported for each calendar month, in accordance with Effluent Limitation B.4.
- G. Collection system sewage spills and overflows where the estimated quantity is over 100 gallons shall be reported in each monthly report. Summary information for each spill or overflow shall include the date, time, duration, location, estimated volume, cause, and any sampling data collected.

VI. MODIFICATIONS TO PART A & STANDARD PROVISIONS AND REPORTING REQUIREMENTS

- A. This monitoring program does not include the following sections of Part A: C.3, C.5, and E.3.
- B. The second sentence of Section F.1, Spill Reports, is revised to read as follows: "Spills shall be reported to this Regional Board (510-622-2300 on weekdays during office hours from 8 a.m. to 5 p.m.), and to the Office of Emergency Services (800- 852-7550 during non office hours) immediately after the occurrence.

Section F.1.b is revised to read: "Best estimate of volume involved".

Section F.1.d is revised to read: "Cause of spill or overflow".

Section F.1.i is revised to read: "Agencies or persons notified".

- C. Section G, Definitions, No. 14, Overflows is revised to read as follows: "Overflow is defined as the intentional or unintentional spilling or forcing out of untreated or partially treated wastes from a collection or transport system (e.g. collection points, sewer system manholes, pump stations) upstream from the treatment plant headworks caused by excess flows, capacity restrictions, stoppages (obstructions, blockages, and/or structural failure), and the actions of others."

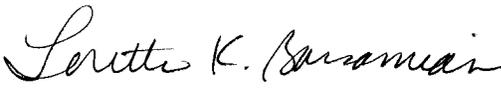
VII. MISCELLANEOUS REPORTING

- A. The discharger shall retain and submit (when required by the Executive Officer) the following information concerning the monitoring program for organic and metallic pollutants:
 - 1. Description of sample stations, times, and procedures.
 - 2. Description of sample containers, storage, and holding time prior to analysis.
 - 3. Quality assurance procedures together with any test results for replicate samples, sample blanks, and any quality assurance tests, and the recovery percentages for the internal surrogate standard.
- B. The discharger shall submit in the monthly self-monitoring report the metallic and organic test results together with the detection limits (including unidentified peaks). All unidentified

(non-Priority Pollutant) peaks detected in the USEPA 624 and 625 test methods shall be identified and semi-quantified. Hydrocarbons detected at <10 ug/L based on the nearest internal standard may be appropriately grouped and identified together as aliphatic, aromatic and unsaturated hydrocarbons. All other hydrocarbons detected at > 10 ug/L based on the nearest internal standard shall be identified and semi-quantified.

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

1. Has been developed in accordance with the procedure set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Order No. 99-036.
2. Is effective on the date shown below.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer, pursuant to 40 CFR 122.62 and 124.4.


LORETTA K. BARSAMIAN
Executive Officer

Effective Date: May 25, 1999

Attachments:

Table 1 - Schedule of Sampling, Measurement and Analysis Part A, dated August 1993

A. Chronic Toxicity Definition of Terms

B. Chronic Toxicity Screening Phase Monitoring Requirements

NOVATO SANITARY DISTRICT
 NOVATO AND IGNACIO
 WASTEWATER TREATMENT FACILITIES
 NPDES Permit No. CA0037958
 Self-Monitoring Program, Attachment A

TABLE 1

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station:	A-1\ A-2		E-001-D\ E-002-D				E-003			P	C	O
Type of Sample:	C-24		G	C-24	Co	G	C-2	Co	Ob	G	Ob	
Parameter	(units)	[notes]	[1]	[2]	[2]	[2]	[2]	[2]	[1]	[2]	[1]	
Flow Rate	(mgd)	[3]	D			D						
BOD ₅	(mg/L & kg/d)	- [4]	1/W		3/W							
Total Susp. Solids	(mg/l & kg/d)	- [4]	1/W		3/W							
Chlorine Residual	(mg/L)	[5]						Co				
Settleable Matter	(ml/L-hr)			5/W								
Oil & Grease	(mg/L & kg/d) - lbs/day	[6]		M								
Total Coliform (MPN/100 ml)				3/W								
Acute Toxicity	(% Surv.)	[7]					M					
Chronic Toxicity		[8]					3M					
Ammonia Nitrogen	(mg/L & kg/d)			3/W								
pH	(units)			5/W								
Temperature	(°C)			5/W								
Dissolved Oxygen	(mg/l & % Sat)			5/W								
Sulfides, Total & Dissolved (mg/L/l) (if D.O. < 2.0 mg/L/l)				5/W								
All Applicable Standard Observations									M		E	

Sampling Station:	A-1/ A-2	E-001/E-002 or E-003			E-001- S/E-002-S			L	C	O	
Type of Sample: Parameter (units) [notes]	C-24 [1]	G [2]	C-24 [2]	Co [2]	G [2]	C-24 [2]	Co [2]	Ob [1]	G [2]	Ob [1]	
Arsenic (ug/L & kg/d)	Q		Q								
Cadmium (ug/L & kg/d)	Q		Q								
Chromium VI (ug/L & kg/d)	Q		Q								
Copper (ug/L & kg/month)	M		2/M								
Cyanide (ug/L & kg/d)	M		M								
Lead (ug/L & kg/d)	M		M								
Mercury (ug/L & kg/month)	M		2/M								
Nickel (ug/L & kg/d)	M		M								
Selenium (ug/L & kg/d)	Q		Q								
Silver (ug/L & kg/d)	M		M								
Zinc (ug/L & kg/d)	M		M								
Table 1A Constituents			As indicated on Table 1A (Attached)								

LEGEND FOR TABLE 1:

Types of Samples

Co = Continuous
 C-24 = 24-hour composite
 G = Grab
 Ob = Observations

Frequency of Sampling

D = Once each day
 W = Once each week
 M = Once each month
 A = Once each year
 Q = Once each calendar quarter
 (with at least a two month interval)
 E = Each occurrence
 3/W = 3 days per week
 2H = Every 2 hours
 2M = Every 2 months
 3M = Every 3 months
 2/Y = Twice per year

Types of Stations

A = Treatment Plant Influent
 E = Treatment Plant Effluent
 O = Overflow and Bypass Points
 P = Treatment Facility Perimeters

TABLE 1A

Monitoring Frequency for Priority Pollutants [9]

<u>Constituent</u>	<u>Frequency</u>	<u>Notes/Comment</u>
1, 2 - Dichlorobenzene	Q	
1, 3 - Dichlorobenzene	Q	
1, 4 - Dichlorobenzene	Q	
2, 4 - Dichlorophenol	Q	

2, 4, 6 - Trichlorophenol	Q
4 - Chloro - 3 - Methylphenol	Q
Aldrin	Q
A - BHC	Q
Benzene	Q
Bis-2-Ethyl Hexyl Phthalate	Q
B - BHC	Q
Chlordane	Q
Chloroform	Q
DDT	Q
Dichloromethane	Q
Dieldrin	Q
Diazinon	Q
Endosulfan	Q
Endrin	Q
Fluoranthene	Q
G - BHC (Lindane)	Q
Halomethanes	Q
Heptachlor	Q
Heptachlor Epoxide	Q
Hexachlorobenzene	Q
PAH's	Q [10]
PCB's	Q [11]
Pentachlorophenol	Q
Phenol	Q
TCDD Equivalents	2/A [12]
Toluene	Q
Toxaphene	Q
Tributyltin	A

FOOTNOTES FOR TABLE 1 AND TABLE 1A

- [1] Indicated sampling is required during the entire year.
- [2] Indicated sampling is required during periods when effluent is being discharged to San Pablo Bay.
- [3] Flow Monitoring: Influent and effluent flows shall be measured continuously, and recorded and reported daily. For influent and effluent flows, the following information shall also be reported, monthly:

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

- [4] The percent removal for BOD and TSS shall be reported for each calendar month, in accordance with Effluent Limitation B.4.
- [5] Chlorine Residual: Monitor dechlorinated effluent (E-001-S) continuously or, at a minimum, every 2 hours. Report, on a daily basis, the maximum chlorine residual for samples taken following dechlorination. If a violation is detected, the maximum and average concentrations and duration of each non-zero residual event shall be reported, along with the cause and corrective actions taken.
- [6] Oil & Grease: Each Oil and Grease sample shall consist of three grab samples taken at equal intervals, no less than two hours apart, during the sampling day. Each grab sample shall be collected in a separate glass container, and analyzed separately. Results shall be expressed as weighted average of the three values, based upon the instantaneous flow rates occurring at the time of each grab sample.
- [7] Bioassays: Effluent used for fish bioassays must be dechlorinated prior to testing. Monitoring of the bioassay water shall include, on a daily basis, the following parameters: pH, dissolved oxygen, ammonia nitrogen, and temperature. These results shall be reported. If a violation of acute toxicity requirements occurs, bioassay testing shall continue back to back until compliance is demonstrated.
- The discharger shall use three-spined stickleback and fathead minnow as the compliance species for acute toxicity testing. Rainbow trout may be required as a compliance species, depending upon the outcome of testing pursuant to Provision E.6 of this Order.
- [8] Chronic Toxicity: Chronic toxicity shall be monitored twice during each discharge season, with at least three months between the samples. At least one test period shall take place during the first six weeks of discharge.
- [9] Selected Toxic Pollutant Monitoring: Monitoring for these constituents may be done in conjunction with that conducted for the Pretreatment Program; however, in addition to inclusion with Pretreatment submittals, the results shall be submitted with the monthly Self-Monitoring Report for the period of monitoring.
- [10] PAHs (Polynuclear Aromatic Hydrocarbons): Polynuclear aromatic hydrocarbons, PAHs, shall be analyzed using the latest version of USEPA Method 610 (8100 or 8300). The discharger shall attempt to achieve the lowest detection limits commercially available. If an analysis cannot achieve a quantification limit for a particular sample at or below the effluent limits for PAHs, the discharger shall provide an explanation in its self-monitoring report. Note that the samples must be collected in amber glass containers. These samples shall be collected for the analysis of the regulated parameters. An automatic sampler which incorporates glass sample containers, keeps the samples refrigerated at 4°C, and protected from light during compositing may be used. The 24-

hour composite samples may consist of eight grab samples collected at three hour intervals. The analytical laboratory shall remove flow proportioned volumes from each sample vial or container for the analysis.

PAHs shall mean the following constituents:

Constituent
1,2-Benzanthracene
3,4-Benzofluoranthene
Benzo[k]fluoranthene
Benzo[a]pyrene
Chrysene
Dibenzo[a,h]anthracene
Indeno[1,2,3-cd]pyrene

- [11] **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.
- [12] **Dioxins (or TCDD Equivalents):** Monitoring for TCDD Equivalents shall be twice each year during the discharge period over the three year period 1999 through 2001. Thereafter, monitoring frequency shall be as specified by the Executive Officer. TCDD Equivalents shall mean the Chlorinated dibenzodioxins (2,3,7,8 - CDDs) and chlorinated dibenzofurans (2,3,7,8 - CDFs) as listed below. Data submitted shall include detection limits and concentrations of each of the following:

2,3,7,8 - tetra CDD
1,2,3,7,8 - penta CDD
1,2,3,4,7,8 - hexa CDDs
1,2,3,4,6,7,8 - hexa CDDs
1,2,3,4,6,7,8 - hepta CDD
Total hepta CDDs
octa CDD
2,3,7,8 -tetra CDF
2,3,4,7,8 -penta CDF
1,2,3,4,7,8 -hexa CDF
1,2,3,6,7,8 -hexa CDF
2,3,4,6,7,8 -hexa CDF
1,2,3,7,8,9 -hexa CDF
Total hexa CDFs
1,2,3,4,6,7,8 -hepta CDF
1,2,3,4,7,8,9 -hepta CDF
Octa CDF

General Notes

1. **Bypass Monitoring:** During any time when bypassing occurs from any treatment process (primary, secondary, chlorination, dechlorination, etc.) in the treatment facilities, the self-monitoring program shall include the following sampling and analyses in addition to the Table 1 schedule:
 - a. When bypassing occurs from any primary or secondary treatment unit(s), composite samples on an hourly basis for the duration of the bypass event for BOD and TSS analyses, grab samples at least daily for Settleable Matter and Oil and Grease analyses; and continuous monitoring of flow.
 - b. When bypassing the chlorination process, grab samples at least daily for fecal coliform analyses; and continuous monitoring of flow.
 - c. When bypassing the dechlorination process, grab samples hourly for chlorine residual; and continuous monitoring of flow.
 - d. Daily receiving water sampling and observations shall be performed until it is demonstrated that no adverse impact on the receiving water is detected.
2. Percent removal for BOD and TSS (effluent vs. influent) shall also be reported.
3. If any sample is in violation of limits, sampling frequency shall be increased for that parameter until compliance is demonstrated in two successive samples. Frequency shall be increased as follows:
 - BOD, TSS, Sett. Solids, Coliform: Daily
 - Oil & Grease: Weekly
 - Acute Toxicity: As indicated in Footnote [7] of Table 1 and 1A
 - Metals & other priority pollutants: Monthly
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 at a minimum every 30 minutes until compliance is achieved.
5. Acute and chronic toxicity shall be conducted using dechlorinated effluent.
6. Grab samples shall be taken for volatile organic compound analyses.
7. Overflows:
 - (a) Flow: For all overflow events, a best estimate of the total overflow volume (gallons) shall be reported.
 - (b) BOD and Coliform: For any overflow event which involves discharge of wastewater to any surface water or waterway (including dry streams and drainage channels), grab samples shall be taken and analyzed for BOD, and both Total and Fecal Coliform.
8. Receiving water monitoring is to be done by high slack tide sampling.

9. All flow other than to the outfall (e.g., sludge) shall be reported monthly. Daily records shall be kept of the quantity and solids content of dewatered sludge disposed of and the location of disposal.

ATTACHMENT A

CHRONIC TOXICITY - DEFINITION OF TERMS

- A. No observed effect level (NOEL) for compliance determination is equal to IC₂₅ or EC₂₅. If the IC₂₅ or EC₂₅ cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.
- B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Kärber. EC₂₅ is the concentration of toxicant (in percent effluent) that causes a response in 25% of the test organisms.
- C. Inhibition Concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal, non-quantal biological measurement, such as growth. For example, an IC₂₅ is the estimated concentration of toxicant that would cause a 25% reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as EPA's Bootstrap Procedure.
- D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

ATTACHMENT B

CHRONIC TOXICITY - SCREENING PHASE REQUIREMENTS

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

CHRONIC TOXICITY

TABLE B-1

CRITICAL LIFE STAGE TOXICITY TESTS FOR ESTUARINE WATERS

SPECIES	EFFECT	TEST DURATION	REFERENCE
alga (<u>Skeletonema costatum</u>) (<u>Thalassiosira pseudonana</u>)	growth rate	4 days	1
red alga (<u>Champia parvula</u>)	number of cystocarps	7-9 days	3
giant kelp (<u>Macrocystis pyrifera</u>)	percent germination; germ tube length	48 hours	2
abalone (<u>Haliotis rufescens</u>)	abnormal shell development	48 hours	2
oyster (<u>Crassostrea gigas</u>) mussel (<u>Mytilus edulis</u>)	abnormal shell development; percent survival	48 hours	2
Echinoderms (urchins - <u>Strongylocentrotus purpuratus</u>); (sand dollar - <u>Dendraster excentricus</u>)	percent fertilization	1 hour	2
shrimp (<u>Mysidopsis bahia</u>)	percent survival; growth	7 days	3
shrimp (<u>Holmesimysis costata</u>)	percent survival; growth	7 days	2
Topsmelt (<u>Atherinops affinis</u>)	percent survival; growth	7 days	2
silversides (<u>Menidia beryllina</u>)	larval growth rate; percent survival	7 days	3

TOXICITY TEST REFERENCES

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for conducting static 96-hour toxicity tests with microalgae. Procedure E 1218-90. ASTM, Philadelphia, PA.
2. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms. EPA/600/R-95/136. August 1995
3. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. EPA-600/4-90/003. July 1994
4. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. Third edition. EPA/600/4-91/002. July 1994

**TABLE B-2
CRITICAL LIFE STAGE TOXICITY TESTS FOR FRESH WATERS**

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

**TABLE B-3
TOXICITY TEST REQUIREMENTS FOR STAGE ONE SCREENING PHASE**

REQUIREMENTS	RECEIVING WATER CHARACTERISTICS		
	DISCHARGES TO COAST	DISCHARGES TO SAN FRANCISCO BAY[1]	
		Ocean	Marine
Taxonomic Diversity	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type:			
Freshwater[2]	0	1 or 2	3
Marine	4	3 or 4	0
Total number of tests	4	5	3

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

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

[2] The fresh water species may be substituted with marine species if:

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