CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. R2-2003-0072
NPDES PERMIT NO. CA0038024

WASTE DISCHARGE REQUIREMENTS FOR:

FAIRFIELD-SUISUN SEWER DISTRICT

FAIRFIELD, SOLANO COUNTY

August 20, 2003

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

DISCHARGER AND PERMIT APPLICATION

1. The Fairfield-Suisun Sewer District, hereinafter referred to as the Discharger, applied to the Board for reissuance of its NPDES permit for discharge of pollutants into waters of the State and the United States.

FACILITY DESCRIPTION

2. The Discharger owns the Fairfield-Suisun Wastewater Treatment Plant (the Plant), located at 1010 Chadbourne Road, Fairfield, Solano County, California. The Plant provides tertiary level treatment of wastewater from domestic, commercial and industrial sources within the City of Fairfield, City of Suisun City and, by contract, some unincorporated properties in Solano County. The Discharger's service area currently has a population of approximately 130,000 people (2003).

3. The U.S. Environmental Protection Agency (U.S. EPA) and the Board have classified this discharge as a major discharge.

PURPOSE OF ORDER

4. This discharge was previously governed by Waste Discharge Requirements in Order No. 98-077. This NPDES permit reissues/modifies Order No. 98-077 which regulates the discharge of treated wastewater to Boynton Slough. Boynton Slough is a part of Suisun Marsh, and a tributary to Suisun Slough and Suisun Bay, which are waters of the State and the United States.

DISCHARGE DESCRIPTION

5. The Plant has an average dry weather flow design capacity of 17.5 million gallons per day (mgd) and can treat up to approximately 34.8 mgd during wet weather. The Plant presently treats an annual average flow of 16.1 mgd (2000-2002), with an average dry weather flow of 14.1 mgd (total effluent, 2000-2002). Of the total flow treated, an annual average of 14.4 mgd was discharged, with 1.7 mgd reclaimed for agricultural irrigation. A map showing the location of the Plant is included as Attachment A.

6. Approximately 90% of the treated effluent is discharged to the Boynton Slough Outfall (E-001). Treated effluent is also discharged intermittently from turnouts located on the Boynton Slough

Outfall pipeline to privately owned and managed duck ponds in the Suisun Marsh (E-002 and E-003). The Solano Irrigation District and the Department of Fish and Game determine the frequency and volume of these discharges (primarily based on seasonal rainfall). These duck ponds are waters of the State and United States. Discharges to the duck ponds from the Plant are regulated by this Order.

Approximately 10% of the treated effluent is recycled for agricultural irrigation, landscape irrigation, and industrial cooling through the Recycling Outfall (E-004), which discharges into irrigation water conveyance and distribution facilities owned and operated by the Solano Irrigation District and the Fairfield-Suisun Sewer District. The discharges of reclaimed water to land are regulated by a separate Order, Water Reclamation Requirements Order No. 91-147, adopted by the Board on October 16, 1991.

7. The names and locations of the Plant's discharge points are as follows:

Discharge Point Name	Code	Latitude	Longitude
Boynton Slough outfall	E-001	38° 12' 33"	122° 03' 24"
Duck Club Turnout No. 1	E-002	38° 12' 52"	122° 03' 56"
Duck Club Turnout No. 2	E-003	38° 12' 35"	122° 03' 29"
Irrigation Reuse outfall*	E-004	38° 13' 23"	122° 05' 00"

*Reclaimed water discharges to land only.

A map illustrating the discharge points is included as **Attachment A** of this Order.

8. *Treatment Plant Expansion Plan.* During the past three years (2000-2002), the Plant's average dry weather flows range from 13.2 to 14.8 mgd (determined based on three consecutive dry weather months of each year). The Plant's actual dry weather flows are up to 85% of the Plant's design capacity (17.5 mgd). In October 2001, the Discharger completed a Sewer System and Treatment Plant Master Plan update which concluded that a treatment plant expansion to 21.5 MGD was required to meet growth in the community in the near future. During this permit term, the Discharger expects to expand the treatment plant capacity to 21.5 mgd (dry weather flow) and to construct a second outfall line. The second outfall line will provide for maintenance of the existing line, seismic redundancy, an alternate discharge point, and will increase wet weather flow discharge capacity. Pursuant to the California Code of Regulations, Title 23. Waters, § 2232 Ensuring Adequate Capacity, there is a provision requiring the Discharger to submit an engineering analysis of the updated dry weather performance and capacity of the Plant. This engineering analysis, along with an antidegradation study and certification of compliance with California Environmental Quality Act are required prior to the Board considering any increase in the maximum allowable discharge of dry weather effluent.

COLLECTION SYSTEM AND TREATMENT PROCESS DESCRIPTION

9. *Collection System and Pump Stations.* The Discharger's wastewater collection system includes 57 miles of trunk sewer (lines 12 inches in diameter and larger) and eleven pump stations. Eight of the eleven pump stations have on-site emergency power systems. Of the remaining three, one has an auxiliary gravity flow line and the other two have sufficient sewer line surcharge capacity to allow for mobilization of portable electrical generation equipment. The Discharger has ongoing preventive maintenance and capital improvement programs for the sewer lines, both gravity and force mains, and for the pump stations to ensure adequate collection system reliability and capacity. Sewers less than 12 inches in diameter are owned and maintained by separate jurisdictions from the Discharger,

namely the City of Fairfield, the City of Suisun City, and Travis Air Force Base. Each of these "satellite" collection system agencies is independently responsible for an ongoing program of maintenance and capital improvements for sewer lines and pump stations within their respective jurisdiction in order to ensure adequate capacity and reliability of the collection system.

Treatment Process and Effluent Flow Description

10. *Treatment Process.* The treatment process consists of comminution (3 units), grit removal (2 aerated chambers), primary sedimentation (4 rectangular basins), biological roughing filters (3 biooxidation towers), intermediate clarification (2 square clarifiers), biological treatment by a nitrifying activated sludge process (4 aeration basins), secondary clarification (4 square clarifiers), flow balancing by temporary storage in reservoirs (2 reservoirs, 12.7 million gallons (MG) total volume), tertiary treatment by filtration (8 dual-media filters with anthracite and sand) with chemical coagulation, disinfection by chlorination (2 contact tanks), and dechlorination using sulfur dioxide. Plant treated effluent flow is measured through a venturi style flow meter. The Plant is designed to provide a 90% removal rate for ammonia nitrogen, and to meet all statewide requirements for reclaimed water of unrestricted reuse quality. A treatment process schematic diagram is included as **Attachment B** of this Order.

11. *Disinfection Study.* The Board required the Discharger by the previous Order to investigate the feasibility of alternative disinfectants to replace chlorine. The 1999 study revealed that, at the time of the study, use of disinfectants other than chlorine was not economically feasible.

12. *Effluent Flow Measurement.* Plant effluent flow is diverted either directly to the irrigation distribution system, to the final treated effluent holding reservoirs (3 reservoirs, 20.4 MG total volume), or to the Boynton Slough outfall pipeline. Total effluent flow (E-001-A) and reclamation flow (E-004) are measured separately. A lesser amount of treated effluent, unmetered, can be diverted directly to irrigation from the outfall pipeline prior to the Boynton Slough discharge point. Discharges to the duck ponds (E-002 and E-003) are metered by the Solano Irrigation District.

13. *Effluent Monitoring.* Currently, the effluent compliance monitoring point is at the chlorine contact chamber effluent (E-001-A). E-001-S is the compliance point for chlorine residual, pH, and chronic and acute toxicity. Chlorinated final effluent (E-001-A) flows to either the Boynton Slough outfall or to a distribution box, where depending on recycled water irrigation demand, it flows to the irrigation distribution system or to the final effluent holding reservoirs. While stored in the reservoirs, the effluent may be subject to potential changes due to natural causes. The 20.4 MG earthen reservoirs are relatively shallow (8-10 feet) and retention times can range from a few hours to several weeks.

14. *Effluent Monitoring Study.* During periods of low irrigation demand and/or low (diurnal) Plant flow, stored water flows to the Boynton Slough outfall. The dechlorinated effluent discharged to Boynton Slough (E-001-S) is therefore a combination of chlorine contact basin effluent (E-001-A) and reservoir effluent. The actual percentage of this blend varies daily based on Plant effluent flow and irrigation demands. Thus, this Order specifies that flow, chlorine residual and pH be monitored continuously at E-001-S plus daily grab samples for dissolved oxygen and temperature. The Discharger was required by the previous Order to conduct a study to evaluate the impact of the reservoir releases on the treated effluent discharged from E-001-S. The major conclusion of this study is that the effluent storage reservoirs had little or no impact on the dechlorinated effluent discharged to Boynton Slough (E-001-S). The study recommended that all compliance sampling remain at Station E-001-A except for pH, chlorine residual, and acute and chronic toxicity

(compliance sampling is at E-001-S). No difference was observed between E-001-A and E-001-S. There was no justifiable reason to expend the funds to permanently change sampling locations.

Wet Weather Flow Handling

15. *Flow Equalization Facilities.* The Plant has a wet weather treatment capacity of 34.8 mgd with additional wet weather facilities (flow equalization) to contain and treat peak wet weather flows. These facilities include 75 million gallons of equalization storage and an equalization sedimentation basin with comminution and prechlorination. Flows greater than 34.8 mgd are diverted to flow equalization. Flows diverted to flow equalization are returned to the Plant for treatment after storm flows recede. The Plant and flow equalization facilities provide containment and tertiary treatment of all wastewater flows up to a 20-year recurrence interval storm event.

16. *Design Storm Study.* In 2000, the Discharger completed a study that evaluated alternative recurrence interval storm events as the standard for design of the Discharger's collection system. The 5-year, 10-year, 15-year, and 20-year storm events were evaluated in the context of balancing the level of protection of beneficial uses with costs. This cost-effectiveness study also evaluated the environmental and public health impacts of sewer system overflows expected with these four storm magnitudes. The results of the evaluation supported adoption of a "hybrid" 5-year design approach, by which a majority of the collection system would be designed to a 5-year storm criteria, but high volume and high exposure risk sections of the collection system would be designed to a higher standard. On February 16, 2002, the Executive Officer approved the study and concurred with the study's recommendations, which specified a "hybrid" 5-year approach, provided that the "higher standard" with which high volume and high exposure risk sections would be designed to a 20-year design criteria.

Solids Handling and Disposal

17. *Solids Handling.* Solids removed from the wastewater stream are treated by dissolved air flotation thickening (2 units), anaerobic digestion (2 digesters), and then dewatering either by plate and frame filter press (2 units) or by open-air solar drying beds (10 acres total). Methane gas from the digesters is recovered, stored (1 spherical tank), and used to operate electrical generators (3 engines) for in-plant electrical needs.

18. *Solids Disposal.* Stabilized, dewatered biosolids are hauled away for off-site disposal. The primary point of disposal is the Potrero Hills Landfill, a permitted municipal solid waste landfill. Biosolids are also disposed through land application to agricultural land, in accordance with federal regulations. The land application of municipal wastewater biosolids is regulated by the U.S. EPA under federal regulations found in 40 Code of Federal Regulations (CFR) 503 (Standards for the Use or Disposal of Sewage Sludge), published as a final rule on February 19, 1993. Annual biosolids production in 2002 was about 3,564 dry metric tons (dmt); all of the biosolids were reused as alternative daily cover at the Potrero Hills Landfill.

APPLICABLE PLANS, POLICIES AND REGULATIONS

Basin Plan

19. 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 State Water Resources Control Board (SWRCB) and the Office of Administrative Law approved the revised Basin Plan 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 (WQOs) for waters of the state in the Region, including surface waters and ground waters. The Basin Plan also identifies discharge prohibitions intended to protect beneficial uses. This Order implements the plans, policies and provisions of the Board's Basin Plan.

Beneficial Uses

20. *Beneficial Uses.* The beneficial uses identified in the Basin Plan for waters of Suisun Slough (SS), Suisun Bay (SB), and Suisun Marsh (SM) are:

Industrial Service Supply	(SB)
Navigation	(SB, SS)
Water Contact Recreation	(SB, SS, SM)
Non-contact Water Recreation	(SB, SS, SM)
Commercial and Sport Fishing	(SB)
Wildlife Habitat	(SB, SS, SM)
Preservation of Rare and Endangered Species	(SB, SM)
Fish Migration	(SB, SM)
Fish Spawning	(SB, SS, SM)
Estuarine Habitat	(SB, SM)
Warm Freshwater Habitat	(SS)

21. *Boynton Slough Beneficial Use.* When considering specific beneficial uses for a water body, the Basin Plan provides the Tributary Rule. The Tributary Rule interprets which beneficial uses are currently or potentially supported where beneficial uses have not been specifically designated. Various sloughs in the watershed, including Boynton Slough and Suisun Slough, support the Suisun Marsh. Suisun Marsh is designated in the Basin Plan (page 2-25, Table 2-7) as supporting Estuarine Habitat. By applying the Tributary Rule, Boynton Slough supports the Estuarine Habitat beneficial use.

    In addition, the Discharger performed a receiving water study as required by the previous Order, which in part investigated the appropriate beneficial uses for Boynton Slough. Surveys performed in 2000 and 2001 on the vegetation species along the Boynton Slough indicate that although the plant community can be classified as tidal freshwater marsh, brackish marsh plants are found throughout the study area. Therefore, the study proposes a beneficial use designation of Estuarine Habitat for Boynton Slough (Boynton Slough Beneficial Use Classification, January 24, 2002).

State Implementation Plan (SIP)

22. The SWRCB adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (also known as the State Implementation Policy or SIP) on March 2, 2000 and the Office of Administrative Law (OAL) approved the SIP on April 28, 2000. By letter dated May 1, 2001, EPA approved "those portions of the Policy that are subject to EPA's water quality standard approval authority under section 303(c) of the CWA." The letter indicated that EPA would comment on NPDES permit-related provisions separately. The letter also indicated that the longer TMDL-related compliance schedule provisions continue to be under EPA review. EPA approved Sections 1.1; 1.4.2 (mixing zones and dilution credits); 2 (through 2.2.1) (compliance

schedules, except as noted above); 5.2 (site-specific objectives); 5.3 (exceptions) and Appendices 1 and 3. The SIP applies to discharges of toxic pollutants in the inland surface waters, enclosed bays and estuaries of California subject to regulation under the State's Porter-Cologne Water Quality Control Act (Division 7 of the Water Code) and the Federal Clean Water Act. The SIP establishes implementation provisions for priority pollutant criteria promulgated by the U.S. EPA through the National Toxics Rule (NTR) and California Toxics Rule (CTR), and for priority pollutant objectives established by the Regional Water Quality Control Boards (RWQCBs) in their water quality control plans (basin plans). The SIP also establishes monitoring requirements for 2,3,7,8-TCDD equivalents, chronic toxicity control provisions, and Pollutant Minimization Programs.

California Toxics Rule (CTR)

23. On May 18, 2000, the U.S. EPA published the *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (Federal Register, Volume 65, Number 97, 18 May 2000 or the CTR). The CTR specified water quality criteria for numerous pollutants, of which some are applicable to the Discharger's effluent discharges.

Other Regulatory Bases

24. Water quality objectives (WQOs) and effluent limitations in this permit are based on the SIP; the plans, policies and WQOs and criteria of the Basin Plan; California Toxics Rule (Federal Register Volume 65, 97); *Quality Criteria for Water* (EPA 440/5-86-001, 1986 and subsequent amendments, "U.S. EPA Gold Book"); applicable Federal Regulations (40 CFR Parts 122 and 131); the National Toxics Rule (57 FR 60848, 22 December 1992 and 40 CFR Part 131.36(b), "NTR"); NTR Amendment (Federal Register Volume 60, Number 86, 4 May 1995, pages 22229-22237); U.S. EPA December 10, 1998 "*National Recommended Water Quality Criteria*" compilation (Federal Register Vol. 63, No. 237, pp. 68354-68364); and Best Professional Judgment (BPJ) as provided for in the Basin Plan. Where numeric effluent limitations have not been established or updated in the Basin Plan, 40 CFR 122.44(d) specifies that water quality-based effluent limits may be set based on U.S. EPA criteria and supplemented where necessary by other relevant information to attain and maintain narrative water quality criteria to fully protect designated beneficial uses. EPA guidance allows adoption of specific numeric effluent limitations based on narrative criteria if the Board adopts a translator procedure to translate narrative criteria for priority toxic pollutants. Discussion of the specific bases and rationale for effluent limits are given in the associated Fact Sheet for this permit, which is incorporated as part of this Order.

25. In addition to the documents listed above, other U.S. EPA guidance documents upon which BPJ was developed may include in part:

- Region 9 Guidance For NPDES Permit Issuance, February 1994;
- U.S. EPA Technical Support Document for Water Quality-Based Toxics Control (March 1991) (TSD);
- Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria, October 1, 1993;
- Whole Effluent Toxicity (WET) Control Policy, July 1994;
- National Policy Regarding Whole Effluent Toxicity Enforcement, August 14, 1995;
- Clarifications Regarding Flexibility in 40 CFR Part 136 Whole Effluent Toxicity (WET) Test Methods, April 10, 1996;

- Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Programs Final, May 31, 1996;
- Draft Whole Effluent Toxicity (WET) Implementation Strategy, February 19, 1997.

BASIS FOR EFFLUENT LIMITATIONS

General Basis

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

27. The technology-based limits for conventional pollutants are established in accordance with the Basin Plan and 40 CFR 125.

28. *Applicable Water Quality Objectives.* The water quality objectives (WQOs) applicable to the receiving water of this discharge are from the Basin Plan, the CTR, and the NTR.

    a. The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in freshwater, lead, mercury, nickel, silver, and zinc. The narrative toxicity objective states in part "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms"(BP, page 3-4). The bioaccumulation objective states in part "[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered. " (BP, page 3-2). Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information.

    b. The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries such as here, except that where the Basin Plan's Tables 3-3 and 3-4 specify numeric objectives for certain of these priority toxic pollutants, the Basin Plan's numeric objectives apply over the CTR (except in the South Bay south of the Dumbarton Bridge).

    c. The NTR established numeric aquatic life criteria for selenium and cyanide for waters of San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta. This includes the receiving water for this discharge.

29. *Basin Plan Receiving Water Salinity Policy.* The Basin Plan states that the salinity characteristics of the receiving water shall be considered in determining the applicable water quality objectives. Freshwater objectives apply to discharges to waters both outside the zone of tidal influence and with salinities lower than 5 parts per thousand (ppt) at least 75 percent in a normal water year. Marine water objectives shall apply to discharges to waters with salinities greater than 5 ppt at least 75 percent in a normal water year. For discharges to waters with salinities in between these two categories or tidally influenced freshwaters that support estuarine beneficial uses, the objectives shall

be the lower of the marine water or fresh water objectives, based on ambient hardness, for each substance (BP, page 4-13). For constituents with water quality objectives specified in the Basin Plan, it is appropriate to use the Basin Plan definition for determining if the receiving water is fresh water, marine water, or estuarine.

30. *CTR Receiving Water Salinity Policy.* The CTR states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable water quality criteria. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than 1 ppt at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to waters with salinities in between these two categories, or tidally influenced freshwaters that support estuarine beneficial uses, the criteria shall be the lower of the salt or freshwater criteria (the freshwater criteria are calculated based on ambient hardness), for each substance. In applying CTR criteria, it is appropriate to use the CTR definition for determining if the receiving water is fresh, marine, or estuarine.

31. *Receiving Water Salinity and Hardness*
    a. Salinity. The Discharger samples its receiving water salinity at eight stations in Boynton and adjacent sloughs in the vicinity of the discharge (see **Attachment C** for the receiving water sampling stations). The past five years (1998-2002) of salinity monitoring data range from 0.0 to 12.2 ppt, with approximately 82% of the data below 5 ppt, 33% of the data below 1 ppt, and less than 1% of the data above 10 ppt. Although the salinity data indicates a freshwater classification based on one of the Basin Plan's salinity criteria, the Basin Plan further states that "for discharges to tidally-influenced fresh waters that support estuarine beneficial uses, effluent limitations shall be the lower of the marine, or freshwater effluent limitation based on ambient hardness "(BP, page 4-13). Based on the Tributary Rule, Boynton Slough supports estuarine beneficial use, as it is part of the Suisun Marsh. Furthermore, Boynton Slough is tidally influenced freshwater, and supports estuarine beneficial uses according to the Boynton Slough Beneficial Use Study dated January 24, 2002. Based on the Basin Plan, CTR, and BPJ, the receiving water is classified as estuarine. Therefore, the applicable water quality criteria are the lower of the marine and freshwater water quality criteria.

    b. Hardness. Ambient hardness value is used to calculate WQOs that are hardness dependent. 268 mg/L as $CaCO_3$ is the ambient hardness value used to calculate the hardness dependent WQOs. The calculation of the 268 mg/L value was based on an analysis of 145 data points. The hardness data set are censored (from 472 data points to 145 data points) to eliminate hardness values above 400 mg/L and to eliminate hardness values obtained when the receiving water salinity was above 1.0 ppt. From the censored data set, the adjusted geometric mean (AGM, which is the value that 30% of the data points fall below the AGM) is calculated to be 268 mg/L (see Fact Sheet for more details).

32. *Technology-Based Effluent Limits.* Permit effluent limits for conventional pollutants are technology based. Limits in this permit are the same as those in the prior permit for the following constituents: biochemical oxygen demand (BOD), total suspended solids (TSS), 85% removal of BOD and TSS, total coliform organisms, pH, settleable matter, oil and grease, ammonia nitrogen, turbidity and chlorine residual.

33. *Water Quality-Based Effluent Limitations.* Toxic substances are regulated by water quality-based effluent limitations (WQBELs) derived from U.S. EPA national water quality criteria listed in the

Basin Plan Tables 3-3 and 3-4, the National Toxics Rule, or U.S. EPA Gold Book, the CTR, the SIP, and/or best professional judgment (BPJ). WQBELs in this Order are revised and updated from the limits in the previous permit and their presence in this Order is based on the evaluation of the Discharger's data as described below under the Reasonable Potential Analysis. Numeric WQBELs are required for all constituents that have reasonable potential to cause or contribute to an excursion above any State water quality standard. Reasonable potential is determined and final WQBELs are developed using the methodology outlined in the SIP. If the Discharger demonstrates that the final limits will be infeasible to meet and provides justification for a compliance schedule, then interim limits are established, with a compliance schedule to achieve the final limits. Further details about the effluent limitations are given in the associated Fact Sheet, which is incorporated as part of this Order. WQBELs are expressed as a monthly average and daily maximum. Below is a justification for setting a daily maximum limit in lieu of a weekly average limit.

a. Maximum Daily Effluent Limits (MDEL) are used in this permit to protect against acute water quality effects. It is impracticable to use weekly average limitations to guard against acute effects. Although weekly averages are effective for monitoring the performance of biological wastewater treatment plants, the MDELs are necessary for preventing fish kills or mortality to aquatic organisms.

b. NPDES regulations, the SIP, and U.S. EPA's Technical Support Document (TSD) provide the basis to establish MDELs:
NPDES regulations at 40 Code of Federal Regulations section 122.45(d) state:
" For continuous discharges all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall *unless impracticable* be stated as:
(1) Maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works; and
(2) Average weekly and average monthly discharge limitations for POTWs." (Emphasis added.)

c. The SIP (page 8, Section 1.4) requires water quality based effluent limits be expressed as maximum daily effluent limitations (MDELs) and average monthly effluent limitations (AMELs).

d. The TSD (page 96) states a maximum daily maximum limitation is appropriate for two reasons:
   i. The basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards.
   ii. The 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge's potential for causing acute toxic effects would be missed. A maximum daily limit would be toxicologically protective of potential acute toxicity impacts.

34. *Receiving Water Ambient Background Data.* The receiving waters for the discharges are estuarine and subject to complex tidal influences from the Bay and freshwater input from the Delta. The reasonable potential analysis was performed using RMP data from 1993 through 2000 for Sacramento River RMP station. However, not all the constituents listed in the CTR were analyzed by the RMP during this time. By letter dated August 6, 2001, entitled, Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy, the Board's Executive Officer addressed this data gap by requiring the Discharger to conduct additional monitoring pursuant to section 13267 of the California Water Code. The Discharger has

participated in the BACWA Coordinated Receiving Water Monitoring Effort to collect and augment the ambient water quality data at some RMP stations including the above station.

35. *Constituents Identified in the 303(d) List.* On May 12, 1999, the U.S. EPA approved a revised list of impaired water bodies prepared by the State. The list [hereinafter referred to as the 303(d) list] was prepared in accordance with Section 303(d) of the federal Clean Water Act to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources. The U.S. EPA approved the State's 303(d) list and added dioxins, furans, dioxin-like polychlorinated biphenyls (PCBs), dieldrin, chlordane, and DDT to it. On February 4, 2003 the SWRCB adopted the California 2002 303(d) list, which included delisting of copper and nickel for Suisun Bay and San Francisco Bay, as recommended by the RWQCB. On June 6, 2003, U.S. EPA approved the 2002 303(d) list. California's current 303(d) list includes Suisun Bay, listed as impaired by:
    - mercury
    - selenium
    - dioxin compounds
    - furan compounds
    - chlordane
    - DDT
    - diazinon
    - dieldrin
    - PCBs, and
    - Exotic species

    The extent to which the Discharger is contributing to downstream impairment in Suisun Bay has to be evaluated on a pollutant-by-pollutant basis during the development of the Total Maximum Daily Loads (TMDLs) for the Bay. In addition, the Discharger's contribution and/or Waste Load Allocation (WLA) will be characterized further as TMDLs are developed for the Bay.

36. *Shallow Water Discharge.* The discharge to Boynton Slough is into shallow water, with the outfall located at the shoreline of the Slough. The outfall is submerged under all conditions except possibly during extreme low tides at which times it is partially submerged. It is currently classified by the Board as a shallow water discharge, and effluent limitations are calculated assuming no dilution (D=0).

    The Basin Plan states, "shallow water dischargers may apply to the Regional Board for exceptions to the assigned dilution ratio of D=0 based upon demonstration of compliance with water quality objectives in the receiving waters." Exceptions will only be considered on a pollutant by pollutant basis. "Exceptions will be granted only if needed to meet effluent limits and only after very rigorous scrutiny of source control and receiving water data."

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

    a. Based on the 303(d) list of pollutants impairing the Suisun Bay, the Board plans to adopt Total Maximum Daily Loads (TMDLs) for these pollutants no later than 2010, with the exception of dioxin and furan compounds. The Board defers development of the TMDL for dioxin and furan compounds to the U.S. EPA. Future review of the 303(d) list for the Suisun Bay may result in revision of the schedules and/or provide schedules for other pollutants.

b. The TMDLs will establish waste load allocations (WLAs) and load allocations for point sources and non-point sources, respectively, and will result in achieving the water quality standards for the water body. Depending upon whether the discharger is found to be impacting water quality in Suisun Bay, the TMDLs may include WLAs for the dischargers. If the TMDLs address the Discharger, the final effluent limitations for this discharge would be based on the applicable WLAs.

38. *Compliance Schedules*. Pursuant to Section 2.1.1 of the SIP, "the compliance schedule provisions for the development and adoption of a TMDL only apply when: (a) the discharger requests and demonstrates that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion; and (b) the discharger has made appropriate commitments to support and expedite the development of the TMDL. In determining appropriate commitments, the RWQCB should consider the discharger's contribution to current loadings and the discharger's ability to participate in TMDL development." As further described in a finding below, the Discharger has requested and demonstrated that it is infeasible to achieve immediate compliance for certain pollutants. Also, the Discharger has agreed to assist the Board in TMDL development through its affiliation with the Bay Area Clean Water Agencies (BACWA). The Board adopted Resolution No. 01-103, on September 19, 2001, with BACWA, and other parties to accelerate the development of Water Quality Attainment Strategies including the TMDLs for the San Francisco Bay-Delta and its tributaries.

39. The following summarizes the Board's strategy to collect water quality data and to develop TMDLs:

a. Data collection – The dischargers collectively may assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or water quality objectives. The Board will require dischargers to characterize the pollutant loads from their facilities into the water quality-limited water bodies. The results will be used in the development of TMDLs, but may also be used to update/revise the 303(d) list and/or change the water quality objectives for the impaired water bodies including the Suisun Bay.

b. Funding mechanism – The Board has received, and anticipates continued receipt of, resources from federal and state agencies for the development of TMDLs. To ensure timely development of TMDLs, the Board intends to supplement these resources by allocating development costs among dischargers through appropriate funding mechanisms.

40. *Interim Limits and compliance schedules.*

a. Until final WQBELs or WLAs are adopted, state and federal anti-backsliding and antidegradation policies, and the SIP, require that the Board include interim effluent limitations. The interim effluent limitations will be the lower of the following:
   - current performance; or
   - previous order's limits

   This Order establishes interim performance-based mass limits in addition to interim concentration limits to limit discharge of 303(d)-listed bioaccumulative pollutants' mass loads to their current levels. These interim performance-based mass limits are based on recent discharge data. Where pollutants have existing high detection limits, interim mass limits are not established because meaningful performance-based mass limits cannot be calculated for pollutants with non-detectable concentrations. However, the discharger has the option to investigate alternative

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

b. Compliance schedules are established based on Section 2.2 of the SIP for limits derived from CTR criteria or based on the Basin Plan for limits derived from the Basin Plan WQOs. If an existing discharger cannot immediately comply with a new and more stringent effluent limitation, the SIP and the Basin Plan authorize a compliance schedule in the permit. To qualify for a compliance schedule, both the SIP and the Basin Plan require that the discharger demonstrate that it is infeasible to achieve immediate compliance with the new limit. The SIP and Basin Plan require that the following information be submitted to the Board to support a finding of infeasibility:

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

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

41. *Antidegradation and Anti-backsliding.* The limitations in this Order are in compliance with the Clean Water Act Section 402(o) prohibition against establishment of less stringent WQBELs for the following reasons:

   (1) For impairing pollutants, the revised final limitations will be in accordance with TMDLs and WLAs once they are established;

   (2) For non-impairing pollutants, the final limitations are/will be consistent with current State WQOs/WQC.

   (3) Antibacksliding does not apply to the interim limitations established under previous Orders;

   (4) If antibacksliding policies apply to interim limitations under 402(o)(2)(c), a less stringent limitation is necessary because of events over which the Discharger has no control and for which there is no reasonable available remedy, and/or new information is available that was not available during previous permit issuance.

The interim limitations in this permit are in compliance with antidegradation requirements and meet the requirements of the SIP because the interim limitations hold the Discharger to performance levels that will not cause or contribute to water quality impairment or further water quality degradation. Pollutant-specific discussions regarding the applicability of the antidegradation and antibacksliding policies are in findings below (e.g. mercury and cyanide).

Specific Basis

Reasonable Potential Analysis (RPA)

42. As specified in 40 CFR 122.44(d)(1)(i), permits are required to include WQBELs for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard." Using the method prescribed in Section 1.3 of the SIP, Board staff has analyzed the effluent data to determine if the discharge, which is the subject of this Order, has a reasonable potential to cause or contribute to an excursion above a State water quality standard ("Reasonable Potential Analysis" or "RPA"). For all parameters that have reasonable potential, numeric water quality-based effluent limitations (WQBELs) are required. The RPA compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQOs from the U.S. EPA Gold Book, the NTR, and the CTR.

43. *RPA Methodology*. The method for determining reasonable potential involves identifying the observed maximum pollutant concentration in the effluent (MEC) for each constituent, based on effluent concentration data. The RPA for all constituents is based on zero dilution, according to section 1.3 of the SIP. There are three triggers in determining reasonable potential.

    a. The first trigger is activated when the maximum effluent concentration (MEC) is greater than the lowest applicable WQO, which has been adjusted for pH, hardness, and translator data, if appropriate. An MEC that is greater than the (adjusted) WQO means that there is reasonable potential for that constituent to cause or contribute to an excursion above the WQO and a WQBEL is required. (Is the MEC>WQO?)

    b. The second trigger is activated if observed maximum ambient background concentration (B) is greater than the adjusted WQO if the MEC is less than the adjusted WQO or the pollutant was not detected in any of the effluent samples and all of the detection levels are greater than or equal to the adjusted WQO. If B is greater than the adjusted WQO, then a WQBEL is required. (Is B>WQO?)

    c. The third trigger is activated after a review of other information determines that a WQBEL is required even though both MEC and B are less than the WQO or all data are non-detect. A limit is only required under certain circumstances to protect beneficial uses.

44. *Summary of RPA Data and Results.* The RPA was based on the effluent monitoring data from January 2000 through December 2002 for metals and inorganic priority pollutants, and from April 1998 through December 2002 for organic toxic pollutants. Based on the RPA methodology described above and in the SIP, the following constituents have been found to have reasonable potential to cause or contribute to an excursion above water quality objectives: cadmium, chromium (VI), copper, mercury, nickel, cyanide, TCDD-TEQ, dichlorobromomethane, bis (2-ethylhexyl) phthalate, 4,4'-DDE and dieldrin. Based on the RPA, numeric water quality based effluent limits are required for these constituents (except for TCDD-TEQ).

45. *RPA Determinations*. The MEC, WQOs, bases for the WQOs, background concentrations used and reasonable potential conclusions from the RPA are listed in Table 1 for selected CTR constituents including those with reasonable potential (RP). The RPA results for several constituents in the CTR were not able to be determined because of the lack of background data, or an objective/criterion, or effluent data are all non-detects. (A detailed RPA result for all 126 priority pollutants can be found in the Fact Sheet).

Table 1. Reasonable Potential Analysis (RPA) Results

CTR #	Constituent	Applicable (Most Stringent) WQO (µg/l)	Applicable (Most Stringent) WQO Basis [3]	MEC (µg/l) [5]	Maximum Ambient Background Conc. – Sacramento River Station (µg/l)	RP (Trigger Type) [6]
1	Antimony	4300	CTR hh	0.6	0.337	No
2	Arsenic	36	BP sw	4	3.65	No
3	Beryllium	No Criteria	NA	<0.06	0.126	Undetermined [7]
4	Cadmium	2.5	BP fw H=268 mg/L	4	0.06	**Yes (#1)**
5b	Chromium (VI)	34.2	BP fw, T=0.23/0.46 [4]	1.2	80.37	**Yes (#2)**
6	Copper	6.7	CTR sw T=0.46/0.64[4]	10	9.9	**Yes (#1)**
7	Lead	5.6	BP sw	3	2.35	No
8	Mercury [1]	0.025	BP sw/fw	0.021	0.0377	**Yes (#2)**
9	Nickel	13.8	BP sw, T=0.51/0.91[4]	6.6	21.8	**Yes (#2)**
10	Selenium [1]	5.0	NTR fw	2.0	0.3	No
11	Silver	2.3	BP sw	0.6	0.0566	No
12	Thallium	6.3	CTR hh	0.1	0.14	No
13	Zinc	81	BP sw, T=0.68/1.00 [4]	60	18.2	No
14	Cyanide	1.0	CTR sw	28	0.5	**Yes (#1)**
	TCDD-TEQ [2]	1.4×10^{-8}	BP narrative	ND	4.8×10^{-8}	**Yes (#2)**
27	Dichloro-bromomethane	46	CTR hh	55	<0.05	**Yes (#1)**
68	Bis(2-Ethylhexyl)Phthalate	5.9	CTR hh	13	0.68	**Yes (#1)**
109	4,4'-DDE [1]	0.00059	CTR hh	All ND	0.00092	**Yes (#2)**
111	Dieldrin [1]	0.00014	CTR hh	All ND	0.00038	**Yes (#2)**
CTR other pollutants (except those listed above)	Others including tributyltin, diazinon, chlorpyrifos	Various or NA	CTR hh or NA	Less than WQOs or ND	Less than WQOs, ND, or NA	No or Undetermined [7]

Footnotes for Table 1:

1. Constituents on 303(d) list.
2. Dioxin applies to Toxicity Equivalent Factors (TEQ) of 2,3,7,8-TCDD.

3. RPA based on the following: Hardness (H) = 268 mg/L as $CaCO_3$; BP = Basin Plan; CTR = California Toxics Rule; NTR=National Toxics Rule; fw = freshwater; sw = saltwater; hh = human health.
4. T – site-specific chronic/acute translators apply to chromium (VI), copper, nickel, and zinc, to convert chronic/acute dissolved WQOs to total chronic/acute WQOs, respectively. The Basin Plan WQOs expressed in total recoverable metals are first converted to dissolved WQOs using CTR conversion factors, then site-specific translators are used to convert the dissolved WQOs back to total WQOs (see Fact Sheet for details).
5. NA- not available, ND- non-detect.
6. See finding above for the definition of three RPA triggers.
7. Undetermined due to effluent data are all non-detect and the minimum detection limit>WQO, lack of background data, or lack of objectives/criteria.

46. *RPA Results for Impairing Pollutants.* While TMDLs and WLAs are being developed, interim concentration limits are established in this permit for 303(d) listed pollutants that have reasonable potential to cause or contribute to an excursion above the water quality standard. In addition, mass limits are required for bioaccumulative 303(d) listed pollutants that can be reliably detected. Constituents on the 303(d) list which the RPA determined a need for effluent limitations are mercury, dioxins, 4,4'-DDE, and dieldrin. This list also includes 4,4'-DDE because although 4,4'-DDE is not directly listed under the 303(d) list, it is a breakdown product of DDT, which is one of the pollutants impairing the Suisun Bay.

Interim Limits with Compliance Schedules

47. In an infeasibility study submitted by the Discharger on June 17, 2003 (see **Attachment J**), the Discharger has demonstrated according to the Basin Plan (page 4-14, Compliance Schedule) or SIP (Section 2.1, Compliance Schedule), that it is infeasible to immediately comply with the WQBELs calculated according to Section 1.4 of the SIP for copper, mercury, cyanide, dichlorobromomethane, bis (2-ethylhexyl) phthalate, 4,4'-DDE, and dieldrin. Therefore, this permit establishes a five-year compliance schedule of October 31, 2008 for final limits based on CTR or NTR criteria (copper, cyanide, dichlorobromomethane, bis (2-ethylhexyl) phthalate, 4,4'-DDE, and dieldrin). This permit establishes a compliance schedule of March 31, 2010 for final limits based on the Basin Plan (mercury).

48. Interim concentration limits were derived in this Order for copper and dichlorobromomethane based on recent treatment plant performance, and for mercury and cyanide based on the performance of Bay Area treatment plants with similar treatment processes, at the 99.87^{th} percentile of the effluent data (or pooled data). Mass limit is required for mercury based on previous permit limit. Due to the limited detected effluent data for bis (2-ethylhexyl) phthalate, the performance-based effluent limit is set at the MEC as daily maximum. For 4,4'-DDE and dieldrin, all the effluent data are non-detect; since the lowest detection limits and the minimum levels (MLs) are higher than the WQOs, the interim limits are set at the MLs as daily maximum limits.

49. Provision E.2 of this Order requires the Discharger to participate in an on-going group effort to conduct studies for determining a site-specific objective for cyanide. The group will submit reports to the Board. The Board intends to include, in a subsequent permit revision, a final limit based on the study results.

50. The Basin Plan provides for a 10-year compliance schedule for implementation of measures to comply with new standards as of the effective date of those standards. This provision has been construed to authorize compliance schedules for new interpretations of existing standards, such as the numeric water quality objectives specified in the Basin Plan, resulting in more stringent limits than in the previous permit. Due to the adoption of the SIP, the Board has newly interpreted these objectives. As a result of applying the SIP methodologies, the effluent limitations for some pollutants are more stringent than the prior permit. Accordingly, a compliance schedule is appropriate here for the new limits that are more stringent for these pollutants.

    Since the compliance schedules for CTR-derived and Basin Plan-derived final limits both exceed the length of the permit, these calculated final limits are intended as points of reference for the infeasibility demonstration and are only included in the findings by reference to the Fact Sheet. Additionally, the actual final WQBELs for these pollutants will very likely be based on either the Site Specific Objective (SSO) or TMDL/WLA as described in other findings specific to each of the pollutants.

Specific Pollutants

51. Dioxins and Furans.

    a. *Dioxin TEQ.* The CTR establishes a numeric human health WQC of 0.014 picograms per liter (pg/l) for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) based on consumption of aquatic organisms. The preamble of the CTR states that California NPDES permits should use toxicity equivalents (TEQs) where dioxin-like compounds have reasonable potential with respect to narrative criteria. In USEPA's National Recommended Water Quality Criteria, December 2002, USEPA published the 1998 World Health Organization Toxicity Equivalence Factor (TEF)[1] scheme. Additionally, the CTR preamble states U.S. EPA's intent to adopt revised WQC guidance subsequent to their health reassessment for dioxin-like compounds. The SIP applies to all toxic pollutants, including dioxins and furans. The SIP requires a limitation for 2,3,7,8-TCDD, if a limitation is necessary, and requires monitoring for a minimum of 3 years by all major NPDES dischargers for the other sixteen dioxin and furan compounds.

    b. The Basin Plan contains a narrative WQO for bio-accumulative substances: "Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered" (BP, page 3-2). This narrative WQO applies to dioxin and furan compounds, based in part on the scientific community's consensus that these compounds associate with particulates, accumulate in sediments, and bioaccumulate in the fatty tissue of fish and other organisms.

    c. The U.S. EPA's 303(d) listing determined that the narrative objective for bio-accumulative pollutants was not met because of the levels of dioxins and furans in the fish tissue. The maximum ambient background concentration of TCDD-TEQ in Sacramento River also exceeds the translated WQO, the Board has determined that there is reasonable potential for dioxin using Trigger 2 in the SIP.

[1] The 1998 WHO scheme includes TEFs for dioxin-like PCBs. Since dioxin-like PCBs are already included within "Total PCBs", for which the CTR has established a specific standard, dioxin-like PCBs are not included in this Order's version of the TEF scheme.

d. On March 28, 2001, the *South Bay/Fairfield Trace Organic Contaminants in Effluent Study* was submitted to the Board to fulfill this requirement. The purpose of this study was to provide measurements for pollutants present in POTW effluents at extremely low concentrations, and to evaluate the reliability of the methods by which these low concentrations can be measured. Board staff has reviewed the study results and data and find the results to be generally of an "experimental nature." Specifically, there was significant variability in the results from split samples analyzed by different laboratories. In addition, the specific method detection limits were not determined and there are other QA/QC questions about the study. The Board, therefore, has not used the results/data from the study in the RPA. The Discharger performed monitoring of all the 17 dioxins/furans congeners in 2002 (3 sampling events), all effluent data are non-detect and the levels of detection are above the WQOs. Therefore, the interim, performance-based effluent limits cannot be calculated at this time. This permit, as specified in the Self-Monitoring Program, requires additional dioxin monitoring using increased sample volumes to attempt to achieve lower detection limit to the greatest extent practicable.

52. Polynuclear Aromatic Hydrocarbons (PAHs).

The RPA was conducted on individual PAHs (not total PAHs) as required by the SIP and CTR. The effluent monitoring data set is based on limited sampling results from April 1998 to December 2002. Provision E.5 of this Order requires the Discharger to continue characterizing the effluent for individual PAH constituents. Upon completion of the required effluent monitoring, the Board will use the gathered data to complete the RPA for all individual PAH constituents (as listed in the CTR) and determine if a water quality-based effluent limitation is required.

Table 2. RPA Results for Individual PAH Constituents

CTR #	Constituent	WQO[1] (µg/L)	MEC (µg/L)	Maximum Ambient Background Conc. (µg/L)	RP[2]
60	Benzo(a)Anthracene	0.049	<0.02	0.00022	No
61	Benzo(a)Pyrene	0.049	<0.03	0.00006	No
62	Benzo(b)Fluoranthene	0.049	<0.02	0.00046	No
64	Benzo(k)Fluoranthene	0.049	<0.02	0.0002	No
73	Chrysene	0.049	<0.02	0.00061	No
74	Dibenzo(a,h)Anthracene	0.049	<0.04	0.00039	No
92	Indeno(1,2,3-cd) Pyrene	0.049	<0.04	0.00042	No

Footnotes for Table 2:

1. WQO based on the numeric WQO for CTR protection of human health through consumption of organisms only;
2. "No" since effluent data are all non-detect, minimum detection limits <WQOs, and background <WQOs.

53. 4,4'-DDE and Dieldrin.

a. Board staff could not determine an MEC for 4,4'-DDE and dieldrin because they were not detected in the effluent, and all detection limits are higher than the lowest WQOs (Section 1.3 of the SIP). Board staff conducted the RPA by comparing the WQO with RMP ambient background concentration data gathered using research-based sample collection, concentration,

and analytical methods. The RPA indicates that 4,4'- DDE and dieldrin have reasonable potential, and numeric WQBELs are required.

b. The current 303(d) list includes the Suisun Bay as impaired for dieldrin and DDT due to fish tissue data; 4,4'-DDE is chemically linked to the presence of DDT. The Board intends to develop TMDLs that will lead towards overall reduction of dieldrin and DDT. The water quality-based effluent limits specified in this Order may be changed to reflect the WLAs from this TMDL. To assist the Board in developing TMDL, the Discharger has the option to participate in a special study, through the RMP, or other mechanism, to investigate the feasibility and reliability of different methods of increasing sample volumes to lower the detection limit for these compounds. If analytical methodologies improve and the detection levels decrease to a point that show discharge concentrations above the limit in this Order, the Board will re-evaluate the Discharger's feasibility to comply with the limits and determine the need for a compliance schedule and revised interim limits at that time.

54. *Other organics.* The Discharger has generally performed organics sampling two to three times each year since 1998. This sampling effort has covered all the organic constituents listed in the CTR. This data set was used to perform the RPA for other organic pollutants. The full RPA is presented in the Fact Sheet. For some of the pollutants, such as 2,3,7,8-TCDD, DDT, 4,4'-DDD, endosulfan, heptachlor, all PCBs, the minimum detection limits are higher than the lowest WQOs. The Discharger will continue to monitor for these constituents in the effluent and the receiving water, with the option of using analytical methods that provide the best feasible detection limits. When sufficient data are available, a reasonable potential analysis will be conducted to determine whether to add numeric effluent limitations to the Order or to continue monitoring.

55. *Effluent RP Monitoring.* This Order does not include effluent limitations for constituents that do not show a reasonable potential, but continued monitoring for them is required as described in the Self-Monitoring Program (SMP). If concentrations of these constituents increase significantly, the Discharger will be required to investigate the source of the increases and establish remedial measures if the increases result in a reasonable potential to cause or contribute to an excursion above the applicable water quality standard.

56. *Permit Reopener.* The Order includes a reopener provision to allow numeric effluent limitations to be added or deleted in the future for any constituent that exhibits or does not exhibit, respectively, reasonable potential. The Board will make this determination based on monitoring results.

Development of Effluent Limitations

57. In a report dated June 17, 2003, the Discharger has demonstrated infeasibility to meet the WQBELs calculated according to Section 1.4 of the SIP for copper, mercury, cyanide, dichlorobromomethane, bis (2-ethylhexyl) phthalate, 4,4'-DDE, and dieldrin. Thereby complying with the infeasibility requirements in Section 2.1 of the SIP. This Order establishes compliance schedules for these pollutants that extend beyond one year. Pursuant to the SIP, and 40 CFR 122.47, the Board shall establish interim numeric limitations and interim requirements to control the pollutants. Except as authorized in the SIP and discussed elsewhere in this Order, this Order establishes interim limits for these pollutants based on the previous permit limits or plant performance, whichever is more stringent. Specific basis for these interim limits are described in the following findings for each pollutant. This Order also establishes interim requirements in a provision for development and/or improvement of a Pollution Prevention Program to reduce pollutant loadings to the treatment plant, and for submittal of annual reports on this Program. The Discharger has committed to support

development of TMDLs for pollutants which its discharge may be contributing to the impairment. BACWA, which the Discharger is a member of, has entered into a Memorandum of Understanding with the Board to accelerate development of these TMDLs to reduce overall loading of these pollutants to the Bay. In addition, the Discharger is participating in the Clean Estuary Partnership (CEP) Copper/Nickel Study, which addresses San Francisco Bay north of the Dumbarton Bridge for copper and nickel. The results of these studies will also apply to the Discharger.

58. Copper

a. *CTR Copper Water Quality Objectives.* The saltwater criteria for copper in the adopted CTR are 3.1 µg/L for chronic protection and 4.8 µg/L for acute protection (dissolved copper). The Discharger developed site-specific translators from its receiving water sampling data. The translators are 0.46 (median) and 0.64 (90th percentile) for converting the CTR chronic and acute dissolved WQOs into total WQOs, respectively. Using these translators, the translated criteria of 6.7 µg/L for chronic protection and 7.5 µg/L for acute protection were used to perform RPA and to calculate effluent limitations.

b. *Water Effects Ratios.* The CTR provides for adjusting the criteria by deriving site-specific objectives through application of the water effects ratio (WER) procedure. The U.S. EPA includes WERs to assure that the metal criteria are appropriate for the chemical conditions under which they are applied. A WER accounts for differences between a metal's toxicity in laboratory dilution water and its toxicity in water at the site. The U.S. EPA's February 22, 1994 *Interim Guidance on Determination and Use of Water Effects Rations for Metals* superseded all prior U.S. EPA guidance on this subject. If the Discharger decides to pursue SSOs, they shall be developed in accordance with procedures contained in Section 5.2 of the SIP.

c. *Interim Effluent Limitation for Copper.* Statistical analysis on the effluent data indicates that the Discharger cannot comply with the WQBELs (see Fact Sheet for details). Therefore, this Order establishes a performance-based interim copper limit of 12.3 µg/L as daily maximum, which is the 99.87th percentile of the effluent data. The previous permit had a copper limit of 20 µg/L as daily average. The final WQBEL for copper will be based on an SSO.

d. *Treatment Plant Performance and Compliance Attainability for Copper.* Effluent copper concentrations during the past three years (2000-2002) range from < 2 µg/L to 10 µg/L (78 samples). All samples are below the interim limit.

59. Mercury

a. *Mercury Water Quality Objectives.* Both the Basin Plan and CTR include objectives that govern mercury in the receiving water. The Basin Plan specifies objectives for the protection of aquatic life of 0.025 µg/L as 4-day average and 2.1 µg/L as 1-hour average. The CTR specifies a long-term average criterion for protection of human health of 0.051 µg/L.

b. *Mercury TMDL.* The current 303(d) list includes the Suisun Bay as impaired by mercury, due to high mercury concentrations in the tissue of fish from the Bay. Methyl-mercury is a persistent bioaccumulative pollutant. The Board intends to establish a TMDL that will lead towards overall reduction of mercury mass loadings into the Suisun Bay. If the Discharger is found to be contributing to mercury impairment in Suisun Bay, the final mercury effluent limitations will be based on the Discharger's WLA in the TMDL, and the permit will be revised to include the final water quality-based effluent limit as an enforceable limitation.

c. *Mercury Control Strategy.* Board staff is developing a TMDL to control mercury levels in the Suisun Bay. The Board, together with other stakeholders, will cooperatively develop source control strategies as part of TMDL development. Municipal discharge point sources may not be the most significant mercury loadings to Suisun Bay. Therefore, the currently preferred strategy is to apply interim mass loading limits to point source discharges while focusing mass reduction efforts on other more significant and controllable sources. While the TMDL is being developed, the Discharger will cooperate in maintaining ambient receiving water conditions by complying with a performance-based mercury mass emission limit. Therefore, this Order includes water quality based effluent limit concentration limits and interim mass loading effluent limit for mercury, as described in the findings below. The Discharger is required to implement source control measures and cooperatively participate in special studies as described below.

d. *Concentration-Based Mercury Effluent Limitation.* Based on background data, there is reasonable potential for exceedances of the WQO for mercury. WQBELs, therefore, are required. Pending completion of a TMDL, this Order establishes an interim effluent limitation of 23 ng/L as monthly average that the Board staff determined from pooled ultra-clean mercury data for POTWs throughout the Region using advanced secondary treatment (*Staff Report: Statistical Analysis of Pooled Data from Region-wide Ultra-clean Sampling, 2000*).

e. *Interim Mass-Based Mercury Effluent Limitation.* This Order establishes an interim mercury mass-based effluent limitation of **0.060 kilograms per month (kg/month)**. This limit is from the previous Order. This mass-based effluent limitation maintains current loadings until a TMDL is established and is consistent with state and federal antidegradation and anti-backsliding requirements. The final mass-based effluent limitation will be based on the WLA derived from the mercury TMDL.

f. *Mass Trigger.* This Order establishes a mercury mass trigger of **0.012 kg/month**. This mass trigger is based on the recent treatment plant's performance (from January 2000 through April 2003) at the 99.87 percentile (or average + 3 standard deviation) of the 12-month moving average mass loadings calculated with the mercury monthly average concentration and the total flow discharged to the receiving water. Exceedance of this mass trigger initiates the response actions specified in Provision E.14. The mass trigger is more stringent than the previous permit mass trigger which was 0.046 kg/month.

g. *Antibacksliding.* Antibacksliding does not apply because the mass limit and mass trigger is either equal to or more stringent than the previous permit limits.

h. *Antidegradation.*

(1) *San Francisco WaterKeeper Appeal on the Pervious Order Mass Limit/Mass Trigger.* The San Francisco BayKeeper (now known as the San Francisco WaterKeeper) petitioned to the State Water Resources Control Board the Discharger's NPDES permit, Order No. 98-077, in August 1998. In November 1999, the SWRCB dismissed the BayKeeper's appeal. In December 1999, BayKeeper filed a lawsuit against the Regional and State Boards in Sacramento County Superior Court. After a change of venue request by the plaintiff and the real parties in interest, the case was transferred to the Sonoma County Superior Court. In early 2002, the Sonoma Court ruled that the Regional Board appropriately set the mass limit/trigger for mercury while complying with antidegradation requirements. In May 2002, BayKeeper filed an appeal of the Sonoma Court ruling. This case was heard before the State

Appellate Court in April 2003. In May 2003, the State Appellate Court upheld the Sonoma Court's ruling.

(2) The BayKeeper appeal contended that mass limits for bioaccumulative 303(d) listed pollutants, in the absence of a TMDL, must be set at the discharger's current performance; to do otherwise would constitute a violation of Federal and State antidegradation policy.

(3) The Appellate Court, in its ruling, stated that (1) the Regional Board acted within its authority in establishing mass limits and mass triggers with response actions for 303(d) listed bioaccumulative pollutants, (2) the Regional Board acted within its authority to set mass limits to encourage reclamation, (3) the mass limit paired with mass trigger holds the discharger to current loading, and is consistent with the antidegradation policy.

(4) More details are included in the Fact Sheet.

i. *Treatment Plant Performance and Compliance Attainability.* Effluent concentrations from January 2000 through December 2002 range from 0.0026 to 0.021 µg/L (ultra-clean samples, 78 samples). All concentrations are below the interim concentration limit. The 12-month moving average mass loads calculated using concentration and flow data from January 2000 through April 2003, range from 13% to 19% of the mass limit, and 63% to 92% of the mass trigger.

j. *Mercury Source Control and Special Studies.* In 1998, as part of the NPDES permit reissuance, Order Number 98-077, the Board required a Mercury Reduction Study. Part of that study was to evaluate the impact of the Plant's effluent on the mercury methylation rate in Suisun Marsh. The Discharger collected receiving water data and coincident treatment plant effluent data from August 2000 through May 2001 (5 sampling events). The eight receiving water stations and the effluent were analyzed for total and dissolved mercury and total and dissolved methyl mercury concentrations as well as numerous other constituents. The Study showed two significant trends. The first was that discharge of the Plant's treated effluent generally tended to reduce methylation rates observed in this area of Suisun Marsh. The second was that total mercury concentrations in treated effluent from the Plant were on average 400% less than the concentrations observed in the receiving water. These observations demonstrate that the discharge of the Plant's effluent provides a net environmental benefit by reducing bioavailable methyl-mercury concentrations and by diluting mercury concentrations found in Suisun Marsh waters.

60. Cyanide

a. The CTR includes objectives that govern cyanide for the protection of aquatic life in the surface water. The CTR specifies the saltwater Criterion Maximum Concentration (CMC) and Criterion Chronic Concentration (CCC) of 1 µg/L. These CMC and CCC values are below the presently achievable reporting limits (range from approximately 3 to 5 µg/L).

b. Cyanide is a regional problem associated with the analytical protocol for cyanide analysis due to matrix interferences. A body of evidence exists to show that cyanide measurements in effluent may be an artifact of the analytical method. This question is being explored in a national research study sponsored by the Water Environment Research Foundation (WERF).

c. *Cyanide Reduction Study.* Concern has been raised by the Discharger about the occurrence of artifactual (false positive) cyanide as evidenced by effluent concentrations greater than influent concentrations. In 1998, as part of the NPDES permit reissuance, Order Number 98-077, the Board required Cyanide Reduction Study to evaluate cyanide removals, possible generation

within the treatment process, and analytical interferences. The study revealed no external or intra-plant sources of cyanide that account for the concentrations observed in the dechlorinated final effluent. The tendency for cyanide concentrations to appear then disappear then reappear at different stages of the treatment process (primarily associated with chlorination/dechlorination processes) raises the possibility that observed concentrations are an artifact of the chlorination/dechlorination process, although the exact chemical mechanism is unknown.

d. *Cyanide SSO Study.* The Discharger supports efforts to develop a site-specific objective for cyanide in the Bay, given that cyanide does not persist in the environment and that the current WQO was based on testing with East Coast species. A cyanide SSO for Puget Sound, Washington, using West Coast species has been approved by EPA Region X. The Discharger will participate in a regional discharger-funded effort to conduct a study for development of site-specific objective. The cyanide study plan was submitted on October 29, 2001. The Discharger is required to participate in the study, which will include submission of a final report to the Board. The Board intends to include, in a subsequent permit revision, a final limit based on the study results.

   It is possible that the Discharger will not be able to comply with a final limit even with the site-specific objective as currently envisioned. The Basin Plan states, "shallow water dischargers may apply to the Regional Board for exceptions to the assigned dilution ratio of D=0 based upon demonstration of compliance with water quality objectives in the receiving waters." Exceptions will only be considered on a pollutant by pollutant basis. "Exceptions will be granted only if needed to meet effluent limits and only after very rigorous scrutiny of source control and receiving water data. The Discharger may submit a work plan for such a study if the Discharger demonstrates compliance with the final limit will not be feasible, the permit revision will establish a maximum five-year compliance schedule.

e. *Interim Effluent Limitation for Cyanide.* The interim limit was calculated using a "pooled data" approach, which was based on the performance of Bay Area POTWs with similar treatment processes (advanced secondary treatment). Due to the large number of samples with results below detection limits, the interim limit was computed using the "log-Probit method" for estimating interim performance-based limits, and provides unbiased estimates of distribution parameters and percentiles. The interim limit was computed using the 99.87^{th} percentile (or three standard deviations above the mean) of the pooled effluent data, resulting in a value of 32 µg/L, expressed as a daily maximum limit.

f. *Antibacksliding/Antidegradation.* This interim limit is higher than the existing interim permit limit of 17.5 µg/L. Antibacksliding does not apply to interim limits when the final WQBELs based on the WQOs have not changed from the previous permit to this one. Antidegradation is satisfied because there is no evidence that the Suisun Bay is impaired by cyanide, and there is also evidence to suggest that, to some degree, cyanide measured in effluents may be an artifact of the analytical method used or the result of analytical interferences. In addition, it is not known whether the form(s) of cyanide that are measured in POTW effluents exhibit toxicity in the environment.

g. *Treatment Plant Performance and Compliance Attainability for Cyanide.* Effluent cyanide concentrations during the past three years (2000-2002, 77 samples) range from < 0.6 µg/L to 28 µg/L. All samples are below this interim limit.

h. Historically, dischargers in the San Francisco Bay Area have used Standard Methods Part 4500-CN C and Part 4500-CN I for total and weak acid dissociable cyanide measurements, respectively, in the effluent samples. From these sampling results, it appears that there are certain unknown constituents in the effluent that interfere with the measured results. U.S. EPA Method OI 1677, which is a continuous-flow, amperometric method, in some instances, may be less influenced by the interferences common to Standard Methods Part 4500-CN C and 4500-CN I, such as sulfide, sulfite, and certain other reducing substances which could cause false positive cyanide results. Upon the approval of the Executive Officer, the Discharger has the option of using Method OI 1677 for cyanide compliance monitoring.

61. Cadmium

a. *Cadmium Water Quality Objectives.* The most stringent WQOs for the discharge are from the Basin Plan. The Basin Plan contains cadmium freshwater numeric WQOs that are hardness dependent. Based on the ambient hardness value of 268 mg/L as $CaCO_3$, the calculated WQOs are 2.5 µg/L for chronic protection and 11.9 µg/L for acute protection.

b. *Cadmium WQBELs and compliance attainability.* Using the SIP procedure and effluent data, the calculated WQBELs are 1.3 µg/L as AMEL and 4.0 µg/L as MDEL. Effluent data (76 samples) from the past three years (2000-2002) range from <0.1 to 4 µg/L. Statistical analysis on the effluent data indicates that the Discharger can comply with these WQBELs (see Fact Sheet for details).

62. Chromium (VI)

a. *Chromium (VI) Water Quality Objectives.* The most stringent WQOs for the discharge are from Basin Plan. The Basin Plan contains chromium freshwater numeric WQOs, which are 11 µg/L for chronic protection and 16 µg/L for acute protection, as total recoverable metal. The CTR contains conversion factors for chromium (VI), which are 0.962 and 0.982 for converting total chronic and acute WQOs to dissolved WQOs, respectively, based on the laboratory conditions under which the WQOs were developed. The Discharger developed site-specific translators, which are 0.13 and 0.46 for converting dissolved chronic and acute WQOs to total WQOs. Using the above conversion factors and site-specific translators, the converted WQOs are 46 µg/L, and 34 µg/L as chronic and acute WQOs, respectively.

b. *Chromium (VI) WQBELS and compliance attainability.* The ambient background data in Sacramento River station exceeds the lowest WQO, thus triggers the RP. Using the SIP procedure and effluent data, the calculated WQBELs are 20 µg/L as AMEL and 34 µg/L as MDEL. Effluent data (78 samples) from the past three years (2000-2002) range from < 0.5 to 1.2 µg/L. Statistical analysis on the effluent data indicates that the Discharger can comply with these WQBELs (see Fact Sheet for details).

63. Nickel

a. *Nickel Water Quality Objectives.* The most stringent WQOs for the discharge are from Basin Plan. The Basin Plan contains nickel saltwater numeric WQOs, which are 7.1 µg/L for chronic protection and 140 µg/L for acute protection. The CTR contains conversion factors for nickel, which is 0.99 for converting both total chronic and acute WQOs to dissolved WQOs, based on the laboratory conditions under which the WQOs were developed. The Discharger developed site-specific translators, which are 0.51 and 0.91 for converting dissolved chronic and acute

WQOs to total WQOs. Using the above conversion factors and site-specific translators, the converted WQOs are 13.8 µg/L, and 152 µg/L as chronic and acute WQOs, respectively.

b. *Nickel WQBELs and compliance attainability.* The ambient background data in Sacramento River station exceeds the lowest applicable WQO, which triggers the RP. Using the SIP procedure and effluent data, the calculated WQBELs are 12.2 µg/L as AMEL and 19.7 µg/L as MDEL. The previous Order contains a WQBEL of 7.1 µg/L as daily average. To comply with the Antibacksliding Rule, this Order maintains the previous Order limit for nickel. Effluent data (78 samples) from the past three years (2000-2002) range from 2.4 to 6.6 µg/L. All effluent data are below the WQBEL.

64. Dichlorobromomethane

a. *Toxicity Facts.* Most dichlorobromomethane is formed as a by-product when chlorine is added to water to kill bacteria (chlorination-by-products, or trihalomethanes). Animal studies indicate that the liver, kidney, and central nervous system are affected by exposure to dichlorobromomethane. There is evidence that eating or drinking dichlorobromomethane causes liver, kidney, and intestinal cancer in rats and mice. The Department of Health and Human Services (DHHS) has determined that dichlorobromomethane is reasonably anticipated to be a human carcinogen.

b. *Dichlorobromomethane WQOs.* In the CTR, the lowest criterion for dichlorobromomethane is the human health value of 46 µg/L (based on consumption of organisms).

c. *Interim Limit for Dichlorobromomethane and Compliance Attainability.* Statistical analysis on the effluent data indicates that the Discharger cannot comply with the WQBELs (see Fact Sheet for details). Therefore, this Order establishes a performance-based interim limit of 75 µg/L as daily maximum, which is the 99.87th percentile of the effluent data. The past five years of effluent data (1998-2002, 11 samples) range from <0.46 to 55 µg/L. No sample exceeds the interim limit.

d. *Dichlorobromomethane Source Control.* This Order requires the Discharger to develop a program to maximize practicable control over the generation of trihalomethanes in the disinfection process.

65. Bis (2-Ethylhexyl) Phthalate (BEHP)

a. *Toxicity Facts.* BEHP, an abbreviation for bis (2-ethylhexyl) phthalate, present in many plastics, especially vinyl materials, which may contain up to 40% BEHP. It does not evaporate easily, and little will be present in the air even near sources of production. It dissolves more easily in materials such as gasoline, paint removers, and oils than it does in water. BEHP can enter the environment through releases from factories that make or use BEHP and from household items containing it. Over long periods of time, it can leach out of plastic materials into the environment. Therefore, BEHP is widespread in the environment. The Department of Health and Human Services (DHHS) has determined that BEHP may reasonably be anticipated to be a human carcinogen. EPA has determined that BEHP is a probable human carcinogen.

b. *BEHP WQOs.* The CTR establishes a human health value of 5.9 µg/L (based on consumption of organisms).

c. *Interim BEHP Effluent Limitation and Compliance Attainability.* There are 10 effluent monitoring data over the past 5 years, and only two of them are detected values, which are 13 and 11 µg/L, all others are non-detect, with a method detection limit (MDL) of 0.284 µg/L. Valid statistical analysis cannot be performed on the data set. Therefore, the interim limit is set at the MEC, which is 13 µg/L as monthly average.

d. *Special Study for BEHP.* It is suspected that detected BEHP in wastewater streams is created by contamination from plastic containers or plastic materials that are used when performing laboratory sampling and analysis. The BEHP that leaches out from the plastics may result in higher results that can cause inaccurate measurements of BEHP in the effluent. The Discharger will conduct a special study for BEHP that will investigate whether laboratory sampling, sample handling, and sample analysis of BEHP properly reflect the Discharger's final effluent (see Provision E.4).

66. 4,4'-DDE

a. *4,4'-DDE Water Quality Objectives.* In the CTR, the lowest criterion for 4,4'-DDE is the human health value of 0.00059 µg/L (based on consumption of organisms). The criterion is well below the SIP minimum level (ML) of 0.05 µg/L, identified in Appendix 4 of the SIP.

b. *Interim Effluent Limit for 4,4'-DDE.* The calculated WQBELs (0.00059 µg/L as AMEL and 0.00118 µg/L as MDEL) are both below the ML for 4,4'-DDE; all effluent data are non-detect, and the lowest minimum detection limit (MDL, 0.001 µg/L) is above the AMEL. The Discharger could not determine compliance with the final WQBELs, included in the Fact Sheet as a point of reference, as the MLs are higher than the final calculated WQBELs. As described in the Infeasibility Study, the Discharger will continue its existing pollution prevention efforts for these pollutants. Therefore, interim limitations are established at the respective MLs. The interim limit is set at the ML for 4,4'-DDE which is 0.05 µg/L as daily maximum.

c. *4,4'-DDE TMDL.* The current 303(d) list includes the Suisun Bay as impaired for DDT, which is a persistent bioaccumulative pollutant. 4,4'-DDE is a breakdown product of DDT. The Board intends to establish a TMDL that will lead towards overall reduction of dieldrin mass loadings into the Suisun Bay. If the Discharger is found to be contributing to dieldrin impairment in Suisun Bay, the final dieldrin effluent limitations will be based on the Discharger's WLA in the TMDL. To assist the Board in developing a TMDL, the Discharger can participate in a special study, through the RMP, or other mechanism, to investigate the feasibility and reliability of different methods of increasing sample volumes to lower the detection limit for this compound.

67. Dieldrin

a. *Water Quality Objectives.* In the CTR, the lowest criterion for dieldrin is the human health value of 0.00014 µg/L (based on consumption of organisms). The criterion is well below the SIP ML of 0.01 µg/L, identified in Appendix 4 of the SIP.

b. *Interim Effluent Limit for Dieldrin.* The calculated WQBELs (0.00014 µg/L as AMEL and 0.00028 µg/L as MDEL) are both below the ML for dieldrin; all effluent data are non-detect, and the lowest minimum detection limit (0.002 µg/L) is above the WQBELs. The Discharger could not determine compliance with the final WQBELs, included in the Fact Sheet as a point of reference, as the MLs are higher than the final calculated WQBELs. As described in the

Infeasibility Study, the Discharger will continue its existing pollution prevention efforts for these pollutants. The interim limit is set at the ML for dieldrin which is 0.01 µg/L as daily maximum.

c. *Dieldrin TMDL.* The current 303(d) list includes the Suisun Bay as impaired for dieldrin. Dieldrin is a persistent bioaccumulative pollutant. The Board intends to establish a TMDL that will lead towards overall reduction of dieldrin mass loadings into the Suisun Bay. If the Discharger is found to be contributing to dieldrin impairment in Suisun Bay, the final dieldrin effluent limitations will be based on the Discharger's WLA in the TMDL. To assist the Board in developing a TMDL, the Discharger can participate in a special study, through the RMP, or other mechanism, to investigate the feasibility and reliability of different methods of increasing sample volumes to lower the detection limit for this compound.

68. Dioxin TEQ

a. *Dioxin Water Quality Criteria.* The CTR establishes a numeric human health WQO of 0.014 picograms per liter (pg/L) for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) based on consumption of aquatic organisms. A finding above discusses the use of TEQ's for other dioxin-like compounds, the RPA procedures, and SIP requirements. Staff used TEQs to translate the narrative WQOs to numeric WQOs for the other 16 congeners.

b. *Dioxin Monitoring.* The final limitations for dioxin TEQ will be based on the waste load allocated to the Discharger from the TMDL. The detection limits historically used by the Discharger are insufficient to determine the concentrations of the dioxin congeners in the discharge. The SIP does not specify an ML for dioxin analysis. This permit requires additional dioxin monitoring to complement a special dioxin project being conducted by Clean Estuary Partnership (CEP). The special dioxin project will consist of impairment assessment and a conceptual model for dioxin loading into the Bay. The report will be submitted by mid 2004.

Whole Effluent Acute Toxicity

69. This Order includes effluent limits for whole effluent acute toxicity. Compliance evaluation is based on 96-hour flow-through bioassays. U.S. EPA promulgated updated test methods for acute and chronic toxicity bioassays on December 19, 2002, in 40 CFR Part 136. Dischargers have identified several practical and technical issues that need to be resolved before implementing the new procedures, currently referred to as the 5th Edition. The primary unresolved issue is the use of younger, possibly more sensitive fish, which may necessitate a reevaluation of permit limits. SWRCB staff recommended to the Boards that new or renewed permit holders be allowed a time period in which laboratories can become proficient in conducting the new tests. A provision is included in this Order requiring the Discharger to switch to the currently promulgated bioassay method by April 30, 2004. In the interim, the Discharger may continue using the test protocols as outlined in Order No. 98-077.

Whole Effluent Chronic Toxicity

70. *Chronic Toxicity Screening Phase Study.* The Discharger is using *Selenastrum capricornutum* (a freshwater algae, not indigenous to the Suisun Marsh), which was identified to be the most sensitive species during the first round of ETCP screening and variability testing in 1989-1990, for its routine chronic toxicity monitoring. During February to April 2003, the Discharger conducted a new screening phase study on five fresh water and marine water species, which are giant kelp, abalone, mysid, fathead minnow, and *ceriodaphnia.* The test results indicate that, abalone, with a species

mean sensitivity ranking (SMSR) of 1.3, was more sensitive to the effluent than fathead minnow or mysid, with SMSR values of 1.7 and 2.3, respectively. Therefore, abalone (*H. rufescens*) is identified as the most sensitive test organism for use in assessing compliance with the Discharger's chronic toxicity NPDES requirements (City of Fairfield-Suisun Wastewater Treatment Plant Effluent Chronic Toxicity Screening Study, Final Report, May 7, 2003).

71. *Permit Requirements*. In accordance with U.S. EPA and SWRCB Task Force guidance, and based on BPJ, this permit includes requirements for chronic toxicity monitoring based on the Basin Plan narrative toxicity objective. This permit includes the Basin Plan narrative toxicity objective as the applicable effluent limit, implemented via monitoring with numeric values as "triggers" to initiate accelerated monitoring and to initiate a chronic toxicity reduction evaluation (TRE). The permit requirements for chronic toxicity are also consistent with the CTR and SIP requirements.

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

Coliform Limits

73. 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.

DISCHARGE CHARACTERISTICS AND PERMIT CONDITIONS

Pollutant Prevention and Pollutant Minimization

74. The Discharger has established a Pollution Prevention Program under the requirements specified by the Board.

    a. Section 2.4.5 of the SIP specifies under what situations and for which priority pollutant(s) (i.e., reportable priority pollutants) the Discharger shall be required to conduct a Pollutant Minimization Program in accordance with Section 2.4.5.1.

    b. There may be some redundancy required between the Pollution Prevention Program and the Pollutant Minimization Program.

    c. Where the two programs' requirements overlap, the Discharger is allowed to continue/modify/expand its existing Pollution Prevention Program to satisfy the Pollutant Minimization Program requirements.

    d. For copper, mercury, cyanide, dichlorobromomethane, and bis (2-ethylhexyl) phthalate, 4,4'-DDE, and dieldrin, the Discharger will conduct any additional source control measures described in the Discharger's infeasibility study June 17, 2003, in accordance with California Water Code 13263.3 and Section 2.1 of the SIP. Section 13263.3 establishes a separate process outside of the NPDES permit process for preparation, review, approval, and implementation of pollution minimization measures.

75. The Board staff intends to require an objective third party to establish model programs, and to review program proposals and reports for adequacy. This is to encourage use of Pollution Prevention and does not abrogate the Board's responsibility for regulation and review of the Discharger's Pollution Prevention Program. Board staff will work with the Discharger and other interested parties to identify the appropriate third party for this effort.

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

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

77. *SIP- Required Dioxin study.* The SIP states that each Board shall require major and minor POTWs and industrial dischargers in its region to conduct effluent monitoring for the 2,3,7,8-TCDD congeners whether or not an effluent limit is required for 2,3,7,8-TCDD. The monitoring is intended to assess the presence and amounts of the congeners being discharged to inland surface waters, enclosed bays, and estuaries. The State Board will use these monitoring data to establish strategies for a future multi-media approach to control these chemicals.

78. On August 6, 2001, the Board sent a letter to all the permitted dischargers pursuant to Section 13267 of the California Water Code requiring the submittal of effluent and receiving water data on priority pollutants. This formal request for technical information addresses the insufficient effluent and ambient background data, and the dioxin study. The letter (described above) is referenced throughout the permit as the "August 6, 2001 Letter".

79. Pursuant to the August 6, 2001 Letter from Board Staff, the Discharger has submitted workplans and sampling results for characterizing the levels of selected constituents in the effluent and ambient receiving water. This finding references this August 6, 2001 Letter to the Discharger.

Self-Monitoring Program

80. *Monitoring Requirements (Self-Monitoring Program).* The SMP includes monitoring at the outfall for conventional, non-conventional, and toxic pollutants, and acute and chronic toxicity. Treatment plant influent monitoring is also required for selected parameters to assess treatment system performance. For the most part, the monitoring is the same as required by the previous order. Monthly metals, mercury, and cyanide monitoring is consistent with the previous Order. Monitoring for dichlorobromomethane, bis (2-ethylhexyl) phthalate, dieldrin, and 4,4'-DDE is required to demonstrate compliance with effluent limits. Dioxin and furan monitoring are required because these pollutants are listed as causing impairment in Suisun Bay and are required sampling in the SIP (Page 27-28). Finally, previous monitoring for toxic organic pollutants is replaced by more comprehensive monitoring as required by the August 6, 2001 Letter.

Optional Mass Offset

81. *Optional Mass Offset.* This Order contains requirements to prevent further degradation of the impaired water body. Such requirements include the adoption of interim mass limits that are based on treatment plant performance, provisions for aggressive source control, feasibility studies for wastewater reclamation, and treatment plant optimization. After implementing these efforts, the

Discharger may find that further net reductions of the total mass loadings of the 303(d)-listed pollutants to the receiving water can only be achieved through a mass offset program. This Order includes an optional provision for a mass offset program.

Basin Plan Discharge Prohibition

82. 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 non-tidal waters, dead-end slough, similar confined waters, or any immediate tributaries thereof. Discharge of wastewater to Boynton Slough is contrary to this prohibition. The discharge is classified as a shallow water discharge; therefore, effluent limitations are calculated assuming no dilution.

83. The Basin Plan provides that exceptions to the above prohibition will be considered for discharges where: 1) an inordinate burden would be placed on the discharger relative to beneficial uses protected, and an equivalent level of environmental protection can be achieved by alternate means such as an alternative discharge site, a higher level of treatment, and/or improved treatment reliability; or, 2) the discharge is approved as a part of a reclamation project; or, 3) it can be demonstrated that net environmental benefits will be derived as a result of the discharge.

84. In addition to the criteria stated above for exceptions, the Basin Plan requires that the Board consider the reliability of the discharger's system in preventing inadequately treated wastewater from being discharged to the receiving water, and the environmental consequences of such discharges.

85. *History of Compliance with Permit Discharge Conditions.*

    a. In 1985, as part of NPDES permit reissuance Order No. 85-53, the Board granted an exception to the prohibitions stated above, provided that the discharge affords a net environmental benefit and the Discharger complies with the requirements of its permit. The requirements of that permit included: maximize reclaimed water use for irrigation; prepare emergency wastewater storage; complete technical reports on maximizing reclaimed water use and discharge impacts on beneficial uses, and implement report recommendations.

    b. In 1990, as part of NPDES permit reissuance of Order No. 90-101, the Board found that the Discharger had achieved compliance with the requirements of Order No. 85-53, as described below:

        (1) Effluent discharged for reclamation through the Solano Irrigation District distribution system increased from 22%, in 1985, to 40%, in 1989, of the Plant's annual average effluent flow.

        (2) In 1987 the Discharger completed construction of flow equalization and storage facilities which included the required renovation of existing basins for emergency storage, as well as addition of a flow equalization clarifier and use of two existing on-site lagoons for additional storage capacity. These facilities provide storage capacity of 12.6 MG, and can be used for storage of peak wet weather flows, or for emergency storage in the event of a Plant upset.

        (3) In 1987 the Discharger completed the required technical report about the effects of the discharge on water quality and protection of beneficial uses (Technical Report on Water Quality, Fairfield-Suisun Sewer District Subregional Wastewater Treatment plant, September 1987). The report evaluated existing water quality data to determine the discharge's impacts on Boynton Slough, and the degree of environmental benefit, if any, from the effluent discharge. The report demonstrated that the discharge has some

measurable local effects on Boynton Slough, but that these effects do not significantly impair any beneficial uses. Those beneficial uses related to the input of fresh water were found to be more fully achieved as a result of the effluent discharge. The report concluded that overall, on a year-round basis, the discharge affords a net environmental benefit to Boynton Slough and the Suisun Marsh, and that no need to modify existing wastewater management practices was indicated.

c. In 1992, construction was completed on additional facilities to provide increased storage capacity for peak wet weather flows and to provide improved flexibility and redundancy in the treatment process. These facilities, identified by the Discharger as the Stage IA project, include a 55 MG capacity earthen equalization basin, an equalization flow clarifier with comminution and prechlorination equipment, and a third oxidation tower. The project increased flow equalization storage capacity from 12.6 MG to 55 MG and provided containment and treatment of all wastewater flows up to a twenty-year recurrence interval storm event. This approach to wet weather flow management is in accord with the Basin Plan's wet weather overflow control strategy. The third oxidation tower provides increased redundancy in the treatment process and allows for servicing of any one tower, without reducing treatment performance or reliability.

86. The Board finds that the water reuse program implemented by the Discharger complies with the exception provision of the Basin Plan. The Board hereby grants an exception to the discharge prohibition to discharge tertiary treated effluent to Boynton Slough and to the managed duck ponds of Suisun Marsh, provided the Discharger continues to:

a. Provide high quality treated effluent;

b. Continue to operate all treatment facilities to assure high reliability and redundancy;

c. Continue to implement a source control program for any regulated chemical constituents that are measured at levels in violation of permit effluent limitations;

d. 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;

e. Continue progress towards construction of expanded or upgraded treatment facilities. These facilities are to be designed to ensure adequate capacity for community wastewater needs, and an adequate and reliable treatment process developed with sufficient flexibility and redundancy to provide for compliance with permit requirements as necessary to protect beneficial uses of Boynton Slough, Suisun Marsh and Suisun Slough, in the vicinity of the discharge;

f. Continue to promote and encourage beneficial reuse of treated wastewater, e.g., provide treated effluent to the managed duck ponds of Suisun Marsh; and

g. Work to use the maximum feasible amount of reclaimed effluent for irrigation, and minimize discharges to Boynton Slough during dry weather.

Storm Water

87. *Federal Regulations.* Federal Regulations for storm water discharges were promulgated by the U.S.EPA on November 19, 1990. The regulations (40 CFR Parts *122,* 123, and 124) require specific

categories of industrial activity (industrial storm water) to obtain a NPDES permit and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to control pollutants in industrial storm water discharges.

88. *Coverage under Statewide Storm Water General Permit.* 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 has obtained coverage under the general permit (effective October 23, 1992, as facility ID number 2 48S001983), for storm water discharges from the Discharger's Plant.

89. *Fairfield Suisun Urban Runoff Management Program.* The Discharger holds a municipal storm water NPDES permit (Board Order No. 95-079) for the area within Fairfield (except Travis Air Force Base) and Suisun City boundaries. As such, the Discharger has true "watershed" responsibility and authority for its service area. The joint responsibilities (wastewater and storm water) provide significant watershed water quality control opportunities. These include: quick resolution of issues associated with non-storm water discharges to sanitary sewers; common pollution prevention themes and solutions; joint, broad based business inspection programs; and shared program goals and objectives.

    In addition, the Discharger's storm water program strives to reduce the discharge of pollutants to the northern Suisun Marsh through implementation of best management practices, public education, enforcement, and a new development pollution prevention program.

Pretreatment Program

90. *Pretreatment Program.* The Discharger has implemented and is maintaining an effective U.S. EPA approved pretreatment program in accordance with Federal pretreatment regulations (40 CFR Part 403) and the requirements specified in **Attachment D** "Pretreatment Requirements". Order No. 01-059 amended the Discharger's permit (as well as fourteen other dischargers' permits in the Region) to reflect the Board's most recent pretreatment requirements. The requirements of this Order supercede Order No. 01-059.

Other Discharge Characteristics and Permit Conditions

91. *O & M Manual.* An Operations and Maintenance Manual is maintained by the Discharger for purposes of providing plant and regulatory personnel with a source of information describing all equipment, recommended operation strategies, process control monitoring, and maintenance activities. The Discharger shall operate and maintain its wastewater collection, treatment and disposal facilities in a manner to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary, in order to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities. In order to remain a useful and relevant document, the manual shall be kept updated to reflect significant changes in treatment facility equipment and operation practices.

92. *CEQA Exemption.* 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. In addition, adoption of this Order is exempt from CEQA pursuant to California Code

of Regulations, Title 11, Section 15301, involving negligible or no expansion of use of an existing facility.

93. *Notification.* The Discharger and interested agencies and persons have been notified of the Board's intent to reissue requirements for the existing discharge and have been provided an opportunity to submit their written comments. Board's responses to those comments are hereby incorporated by reference.

94. *Public Hearing.* The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

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

A. DISCHARGE PROHIBITIONS

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

2. Discharge of wastewater at any point where it does not receive an initial dilution of at least 10:1, or into dead-end slough and similar confined waters is prohibited, except as defined below. Based on the findings, exceptions to this prohibition and the prohibition against discharge to Suisun Marsh during dry weather are granted, for the discharges described in the findings of this Order. These exceptions are conditional upon continued compliance with the requirements as specified in the provisions of this Order.

3. The bypass or overflow of untreated or partially treated wastewater to waters of the State, either at the treatment plant or from the collection system or pump stations tributary to the treatment plant, is prohibited. Bypasses is only allowed under the conditions stated in 40 CFR 122.41 (m)(4) in Standard Provision A.13. Bypassing of individual treatment processes, for example, but not limited to, during periods of high wet weather flow, is allowable provided that the combined discharge of fully treated and partially treated wastewater complies with the effluent and receiving water limitations in this Order.

4. The discharge of average dry weather flows greater than 17.5 million gallons per day is prohibited. The average dry weather flow shall be determined over three consecutive dry weather months each year.

5. Discharges of water, materials, or wastes other than storm water, which are not otherwise authorized by this NPDES permit, to a storm drain system or waters of the State are prohibited.

B. EFFLUENT LIMITATIONS

The term "effluent" in the following limitations means the treated effluent discharged from the Plant to receiving waters. Compliance with the effluent limits specified in Sections B.1(g), B.2, B.5 and B.6 shall be monitored at Station E-001-S. Compliance with all other effluent limits specified in Sections 1 through 7 below shall be monitored at Station E-001-D.

1. Conventional Pollutants

The effluent shall not exceed the following limits listed in Table 3.

Table 3. Conventional Pollutant Effluent Limitations

	Constituent	Units	Monthly Average	Weekly Average	Daily Maximum	Instantaneous Maximum
a	Biochemical Oxygen Demand (BOD_5, 20°C)	mg/L	10	15	20	
b.	Total Suspended Solids (TSS)	mg/L	10	15	20	
c.	Settleable Matter	ml/L-hr	0.1	--	0.2	
d.	Oil & Grease	mg/L	--	--	10	
e.	Ammonia Nitrogen	mg/L	2.0	3.0	4.0	
f.	Turbidity	NTU	--	--	10	
g.	Chlorine Residual (1)	mg/L	--	--	--	0.0

(1) Requirement defined as below the limit of detection in standard test methods defined in the latest officially approved edition of *Standard Methods for the Examination of Water and Wastewater*. The Discharger may elect to use a continuous on-line monitoring system(s) for measuring flows, chlorine and dechlorinating agent dosage (including a safety factor) and concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Board staff will conclude that these false positive chlorine residual exceedances are not violations of this permit limit.

2. Effluent Limitation for pH

The pH of the effluent shall not exceed 8.5 nor be less than 6.5. The Discharger may elect to use a continuous on-line monitoring system(s) for measuring pH. If the Discharger employs continuous monitoring, then the Discharger shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied: (i) The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and (ii) No individual excursion from the range of pH values shall exceed 60 minutes.

3. 85 Percent Removal, BOD and TSS

The arithmetic mean of the biochemical oxygen demand (BOD_5 20°C) and TSS values, for effluent samples collected in each calendar month shall not exceed 15 percent of the arithmetic mean of the respective values for influent samples collected at approximately the same times during the same period.

4. Total Coliform Bacteria

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

a. The moving median value for the MPN of total coliform bacteria in any seven consecutive samples shall not exceed 2.2 MPN/100 mL; and

b. Any single sample shall not exceed 23 MPN/100 mL.

The Discharger may use alternate bacteriological limits of fecal coliform or enterococci limits from the Basin Plan instead of meeting 4.a and 4.b above (total coliform limits) if the Discharger can establish to the satisfaction of the Board that the use of the alternate bacteriological limits will not result in unacceptable adverse impacts on the beneficial uses of the receiving water. During the study, the Discharger is exempt from the total coliform limit during the data collection period. If there is a total coliform exceedance during the data collection period, the Discharger shall demonstrate the exceedance is due to the study in order for the exemption to apply

5. Whole Effluent Acute Toxicity

Representative samples of the effluent shall meet the following limits for acute toxicity. Compliance with these limits shall be achieved in accordance with Provision E.12 of this Order.

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

b. These acute toxicity limits are further defined as follows:
   (1) 11-sample median limit:
   Any bioassay test showing survival of 90 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit, if five or more of the past ten or fewer bioassay tests also show less than 90 percent survival.
   (2) 90th percentile limit:
   Any bioassay test showing survival of 70 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit, if one or more of the past ten or fewer bioassay tests also show less than 70 percent survival.
   (3) If the Discharger demonstrates to the satisfaction of the Executive Officer that toxicity exceeding the levels cited above is caused by ammonia and that the ammonia in the discharge is not adversely impacting receiving water quality or beneficial uses, then such toxicity does not constitute a violation of this effluent limit.

c. Bioassays shall be performed using the "Methods for Measuring The Acute Toxicity of Effluents and Receiving Water To Freshwater and Marine Organisms", currently 5th. Edition, with exceptions granted the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

6. Whole Effluent Chronic Toxicity

Representative samples of the effluent shall meet the following requirements for chronic toxicity. Compliance with the Basin Plan narrative chronic toxicity objective shall be achieved in accordance with Provision E.12 of this Order and shall be demonstrated according to the following tiered requirements based on results from representative samples of the treated final effluent meeting test acceptability criteria:

a. Routine monitoring;

b. Accelerated monitoring after exceeding a three sample median value of 1 chronic toxicity (TUc)[2] or a single sample maximum of 2 TUc or greater. The 100% effluent should be replaced with the highest percent of effluent achievable if salt solution is used to increase the salinity of the effluent (e.g. 70%). Accelerated monitoring shall consist of monitoring at frequency intervals of one half the interval given for routine monitoring in the SMP of this Order;

c. Return to routine monitoring if accelerated monitoring does not exceed either "trigger" in 6.b, above;

d. Initiate approved toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) workplan if accelerated monitoring confirms consistent toxicity above either "trigger" in 6.b, above;

e. Return to routine monitoring after appropriate elements of TRE workplan are implemented and either the toxicity drops below "trigger" level in 6.b, above or, based on the results of the TRE, the Executive Officer authorizes a return to routine monitoring.

7. Toxic Substances

The effluent shall not exceed the following limits as listed in Table 4:

Table 4. Toxic Substance Effluent Limitations

Pollutant	Water Quality Based Effluent Limits (µg/)		Performance-based Interim Effluent Limits (µg/L)		Footnote
	Daily Max.	Monthly Avg.	Daily Max.	Monthly Avg.	
Cadmium	4.0	1.3			(1)
Chromium (VI)	34	20			(1)
Copper			12.3		(1), (2), (7)
Mercury				0.023	(1), (3), (7)
Nickel	7.1				(1)
Cyanide			32		(1), (4), (7)
Dichlorobromomethane			75		(1), (5), (7)
Bis (2-Ethylhexyl) Phthalate				13	(1), (5), (7)
4,4'-DDE			0.05		(1), (6), (7)
Dieldrin			0.01		(1), (6), (7)

[2] A TUc equals 100 divided by the no observable effect level (NOEL). The NOEL is determined from IC, EC, or NOEC values. Monitoring and TRE requirements may be modified by the Executive Officer in response to the degree of toxicity detected in the effluent or in ambient waters related to the discharge. Failure to conduct the required toxicity tests or a TRE within a designated period shall result in the establishment of effluent limitations for chronic toxicity. The detection limit (DL) of the chronic toxicity test is determined by the highest percent of effluent to be used. For example, with 100% effluent, the DL is 1 TUc (1/100%), with 70% effluent, the detection limit is 1.43 TUc.

Footnotes for Table 4:

(1) (a) Compliance with these limits is intended to be achieved through tertiary treatment and, as necessary, pretreatment and source control.
(b) All analyses shall be performed using current U.S. EPA methods, or equivalent methods approved in writing by the Executive Officer.
(c) Limits apply to the average concentration of all samples collected during the averaging period (Daily = 24-hour period; Monthly = calendar month).
(d) All metal limits are in total recoverable.

(2) Copper: the interim limit shall remain in effect until October 31, 2008, or until the Board amends the limits based on SSO. However, during the next permit reissuance, Board staff may re-evaluate the interim limits.

(3) Mercury: the interim limit shall remain in effect until October 31, 2008, or until the Board amends the limits based on SSO or the WLAs in the TMDLs for mercury. The mercury TMDL and WLAs will supersede this interim concentration limitation upon their completion. The Clean Water Act's anti-backsliding rule, Section 402(o), indicates that this Order may be modified to include a less stringent requirement following completion of the TMDL and WLA, if the requirements for an exception to the rule are met. Effluent mercury monitoring shall be performed by using ultra-clean sampling and analysis techniques, with a method detection limit of 0.002 µg/L or lower.

(4) Cyanide: compliance may be demonstrated by measurement of weak acid dissociable cyanide. Upon approval by the Executive Officer, the discharger has the option of using U.S. EPA method OI 1677 for cyanide compliance monitoring. The interim limit shall remain in effect until October 31, 2008, or until the Board amends the limit based on additional background data and/or site-specific objectives for cyanide.

(5) Dichlorobromomethane and bis (2-ethylhexyl) Phthalate: these interim limits shall remain in effect until October 31, 2008. However, during the next permit reissuance, Board staff may re-evaluate the interim limits.

(6) 4,4'-DDE and dieldrin: these interim limits shall remain in effect until October 31, 2008, or until the Board amends the limits based on the WLAs in the TMDLs, or improved MLs. However, during the next permit revision, Board staff may re-evaluate the interim limits.

(7) If the permit expiration date is extended by the Regional Board, the interim limits remain in effect until the permit is renewed or a permit amendment addressing these limits is adopted, whichever occurs sooner.

8. Interim Mercury Mass Emission Limit

Until TMDL and WLA efforts for mercury provide enough information to establish a different WQBEL, the Discharger shall demonstrate that the total mercury mass loading from discharges to Suisun Bay has not increased by complying with the following:

a. *Interim mass emission limit.* The interim mass emission limit for mercury is **0.060 kg/month.** The total mercury mass load shall not exceed this limit except as provided under Section e. below.

b. *Mass trigger.* If the 12-month moving average monthly mass loading for mercury exceeds **0.012 kg/month**, this is not considered a permit limit violation; however, the actions specified in

Provision E.14 shall be initiated. Failure to initiate and complete the actions will be considered a permit condition violation.

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

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

Monthly Total Mass Load (kg/month) = monthly plant discharge flows (in mgd) from the Outfall (E-001-S) × monthly effluent concentration measurements (in µg/L) corresponding to the above flows, for samples taken at E-001-A × 0.1151 (conversion factor to convert million gallons/day × µg/L to kg/month).

d. The Discharger shall submit a cumulative total of mass loadings for the previous 12 months with each monthly Self-Monitoring Report. Compliance of each month will be determined based on the 12-month moving averages over the previous 12 months of monitoring calculated as using the method described in section B.8.c above. The Discharger may use monitoring data collected under accelerated schedules (i.e., special studies) to determine compliance.

e. The mercury TMDL and WLAs will supersede this interim mass emission limitation upon their completion. The Clean Water Act's anti-backsliding rule, Section 402(o), indicates that this Order may be modified to include a less stringent requirement following completion of the TMDL and WLA, if the requirements for an exception to the rule are met.

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

   e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or which render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State at any one place within 1 foot of the water surface:

   a. Dissolved Oxygen: 5.0 mg/L, minimum, from June 1 through November 15;
   7.0 mg/L, minimum, at all other times of the year.

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.

b. Dissolved Sulfide: 0.1 mg/L, maximum

c. pH: Variation from normal ambient pH by more than 0.5 pH units.

d. Un-ionized Ammonia: 0.025 mg/L as N, annual median; and
0.16 mg/L as N, maximum.

e. Nutrients: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

3. The discharge shall not cause a violation of any particular water quality standard for receiving waters adopted by the Board or the State Board as required by the Clean Water Act and regulations adopted thereunder. If more or less stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such standards.

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 U.S. EPA 180 days before start-up of the alternative disposal practice. All the requirements in 40 CFR 503 are enforceable by U.S. EPA whether or not they are stated in an NPDES permit or other permit issued to the Discharger.

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 U.S. EPA and the Board containing monitoring results and pathogen and vector attraction reduction

requirements as specified by 40 CFR 503, postmarked February 19 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 and Rescission of Previous Waste Discharge Requirements

The Discharger shall comply with all sections of this Order beginning on November 1, 2003. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 98-077. Order No. 98-077 is hereby rescinded upon the effective date of this Order.

2. Cyanide Compliance Schedule and Cyanide SSO Study

The Discharger shall comply with the following tasks and deadlines:

Tasks	Compliance Date
a. Compliance Schedule. The Discharger should track and participate in relevant WERF studies, as described in findings (under Cyanide) above. Results from these studies should enable the Board to determine compliance with final WQBELS during the next permit reissuance.	Annual progress reports with the first report due January 31, 2004
b. SSO Study. The Discharger shall actively participate in the development of SSOs for cyanide for Suisun Bay.	Annual progress reports by cyanide work group with the first report due January 31, 2004
c. Conduct evaluation of compliance attainability with appropriate final limitations.	Within 2 years of permit adoption

3. Dichlorobromomethane Source Reduction Compliance Schedule and Attainability Analysis

Under this Permit, the Discharger will continue using chlorine for disinfection and to comply with the total coliform limits (except as noted in Provision 8). Dichlorobromomethane is expected to be a byproduct of chlorination; the compliance schedule below commences tasks to eventually lead to compliance with final WQBELs.

The Discharger shall comply with the following tasks and deadlines:

Tasks	Compliance Date
a. The Discharger shall submit a work plan that will include tasks intended to define the correlation between chlorine dosages and formation of dichlorobromomethane, such as conducting monitoring throughout the treatment process and analyzing chlorine dosage histories.	Within 90 days after permit adoption
b. Upon approval by the Executive Officer, the Discharger shall begin implementation of the work plan within 90 days. Annual reports shall be submitted documenting the progress of the studies by January 31of each year or by the date specified in the approved workplan. The Discharger will submit to the Board a final report detailing all monitoring activities, potential cost-effective control measures, and recommended actions.	Annual Reports with the first report due January 31, 2004
c. Conduct evaluation of compliance attainability with appropriate final limitations.	Within 2 years of permit adoption

4. Bis(2-ethylhexyl)phthalate Laboratory Analysis Study

The Discharger may conduct a study to ensure that future laboratory sampling, sample handling, and sample analysis for bis(2-ethylhexyl)phthalate (BEHP) accurately and precisely represent the Discharger's final effluent. A study workplan must be approved by the Executive Officer and the study will address whether past BEHP laboratory techniques were erroneous s. Consequently, if new BEHP measurements conducted under this special study are determined to be adequate and valid, Board staff may re-evaluate the reasonable potential for BEHP.

Tasks	Compliance Date
a. Develop a study workplan, acceptable to the Executive Officer, to investigate laboratory sampling and analysis techniques for BEHP.	Within 6 months after permit adoption
b. Following approval by the Executive Officer, commence work in accordance with the study workplan and time schedule submitted pursuant of Task a.	Within 6 months after approval of study workplan by Executive Officer
c. Submit a final report, acceptable to the Executive Officer, documenting the findings of the study described above.	18 months following commencement of data collection

5. Effluent Characterization for Selected Constituents

The Discharger shall continue its effort to monitor and evaluate the discharged effluent for the constituents listed in Enclosure A of the Board's August 6, 2001 Letter. Compliance with this requirement shall be achieved in accordance with the specifications stated in the Board's August 6, 2001 Letter under Effluent Monitoring for major Dischargers. Interim and final reports shall be submitted to the Board in accordance with the schedule specified below (same schedule is also specified in August 6, 2001 Letter):

Interim and Final Reports: An interim report submitted on May 18, 2003 summarized the data collected to that date, and described future monitoring to take place. A final report that presents all the data shall be submitted to the Board by March 31, 2008 (180 days prior to the permit expiration date). This final report shall be submitted with the application for permit reissuance.

6. Ambient Background Receiving Water Study

The Discharger is participating in the BACWA Coordinated Receiving Water Monitoring Effort, which is collecting and augmenting ambient receiving water data based on the approved receiving water sampling plan. This information is required to perform an RPA for the discharged pollutants. The coordinated monitoring effort will submit data sufficient to characterize the concentration of each toxic pollutant listed in the CTR in the ambient receiving water. The data on the conventional water quality parameters (pH, salinity, and hardness) shall also be sufficient to characterize these parameters in the ambient receiving water at a point after the discharge has achieved initial mixing with the receiving waters.

Interim and Final Reports: The coordinated monitoring effort submitted an interim report on May 16, 2003. The report summarized the data collected to that date, and described future monitoring to take place. A final report that presents all the data will also be submitted by the coordinated monitoring effort to the Board 180 days before permit expiration..

7. Site-Specific Translator Study

The Discharger shall conduct a site-specific translator study to collect more receiving water data to augment the data set used to develop the site-specific translators for this Order. This study shall at a minimum inlcude an analysis of chromium, copper, nickel, and zinc.

Tasks	Compliance Date
a. Develop a study workplan, acceptable to the Executive Officer, for sampling scheme and schedule, data collection, and data analysis, etc.	Within 1 year after permit adoption
b. Following approval by the Executive Officer, commence work in accordance with the study workplan and time schedule submitted pursuant of Task a.	Within 6 months after approval of study workplan by Executive Officer
c. Submit a final report, acceptable to the Executive Officer, including the data collected, data analysis and recommendations.	6 months after the data collection is completed

8. Optional Receiving Water Beneficial Use and Alternate Bacteriological Limits Study

The Discharger may conduct a receiving water beneficial use study to assess the appropriateness of testing for fecal coliform and/or enterococci instead of total coliform concentrations in compliance with Basin Plan bacteriological objectives. Depending on the results of the final study, the permit may be amended to specify total coliform, fecal coliform, or enterococci limits.

Tasks	Compliance Date
a. Develop a study plan, acceptable to the Executive Officer, to include, a receiving water bacteria study, selection and justification for alternate bacteriological limit (A) or (B), and tasks and schedules necessary to assess the beneficial uses attributed to the outfall location.	Within 2 years after permit adoption
b. Following approval by the Executive Officer commence work in accordance with the study plan and time schedule submitted pursuant to the approved plan.	Within 1 year after approval of study workplan by Executive Officer
c. Submit a final report, acceptable to the Executive Officer, documenting the results of the beneficial use investigation described above.	6 months after the data collection is completed

During the study, the Discharger is exempt from the total coliform limit during the data collection period. If there is a total coliform exceedance during the data collection period, the Discharger shall demonstrate the exceedance is due to the study in order for the exemption to apply.

9. Dry Weather Flow Capacity Analysis

By October 31, 2005, the Discharger shall submit an engineering report, for approval by the Executive Officer, documenting any proposed increase in dry weather flow capacity and performance of the collection system and the treatment plant. For Board staff to evaluate a flow increase, information to be submitted must include, but may not be limited to, the following:

a. Engineering reports documenting adequate reliability, capacity and performance of the completed or planned improvement with time schedules to the collection system, treatment facility, and disposal facilities;
b. Documentation that any proposed increase in discharges (evaluation must include assessment of wet weather flow) will not violate the State Board's antidegradation policy, SWRCB Resolution No. 68-16;
c. Ambient toxicity testing as appropriate and necessary;
d. An investigation of the possibilities of expanding the Discharger's reclamation program to further reduce discharge to the Bay; and,
e. Documentation of compliance schedule with the California Environmental Quality Control Act.

10. Pollutant Prevention and Minimization Program (PMP)

a. The Discharger shall continue to conduct and improve its existing Pollution Prevention Program in order to reduce pollutant loadings to the treatment plant and therefore to the receiving waters.

b. The Discharger shall submit an annual report, acceptable to the Executive Officer, no later than February 28th of each year. Annual reports shall cover January through December of the preceding year. Annual reports shall include at least the following information:
   (i) *A brief description of its treatment plant, treatment plant processes and service area.*
   (ii) *A discussion of the current pollutants of concern.* Periodically, the Discharger shall analyze its own situation to determine which pollutants are currently a problem and/or which pollutants may be potential future problems. This discussion shall include the reasons why the pollutants were chosen.
   (iii) *Identification of sources for the pollutants of concern.* This discussion shall include how the Discharger intends to estimate and identify sources of the pollutants.
   (iv) *Identification of tasks to reduce the sources of the pollutants of concern.* This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement tasks themselves or participate in group, regional, or national tasks that will address its pollutants of concern. The Discharger is strongly encouraged to participate in group, regional, or national tasks that will address its pollutants of concern whenever it is efficient and appropriate to do so. A time line shall be included for the implementation of each task.
   (v) *Outreach to employees.* The Discharger shall inform employees about the pollutants of concerns, potential sources, and how they might be able to help reduce the discharge of pollutants of concerns into the treatment plant. The Discharger may provide a forum for employees to provide input to the Program.

(vi) *Discussion of criteria used to measure the Program's and tasks' effectiveness.* The Discharger shall establish criteria to evaluate the effectiveness of its Pollution Prevention Program. This shall also include a discussion of the specific criteria used to measure the effectiveness of each of the tasks in item b. (iv), b. (v), and b. (vi).

(vii) *Documentation of efforts and progress.* This discussion shall detail all of the Discharger's activities in the Pollution Prevention Program during the reporting year.

(viii) *Evaluation of Program's and tasks' effectiveness.* The Discharger shall utilize the criteria established in b. (vii) to evaluate the Program's and tasks' effectiveness.

(ix) *Identification of specific tasks and time schedules for future efforts.* Based on the evaluation, the Discharger shall detail how it intends to continue or change its tasks in order to more effectively reduce the amount of pollutants to the treatment plant, and subsequently in its effluent.

c. According to Section 2.4.5 of the SIP, when there is evidence that a priority pollutant is present in the effluent above an effluent limitation and either:

(i) A sample result is reported as detected, but not quantified (less than the Minimum Level) and the effluent limitation is less than the reported Minimum Level; or

(ii) A sample result is reported as not detected (less than the Method Detection Limit) and the effluent limitation is less than the Method Detection Limit,

(iii) For dioxin TEQ, if the effluent concentration is above the WQO of 0.014 pg/L.

The Discharger shall expand its existing Pollution Prevention Program to include the reportable priority pollutant. A priority pollutant becomes a reportable priority pollutant when (1) there is evidence that it is present in the effluent above an effluent limitation and either (c)(i) or (c) (ii) is triggered or (2) if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level.

d. If triggered by the reasons in c. above and notified by the Executive Officer, the Discharger's Pollution Prevention Program shall, within 6 months, also include:

(i) An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures approved by the Executive Officer when it is demonstrated that source monitoring is unlikely to produce useful analytical data;

(ii) Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system, or alternative measures approved by the Executive Officer when it is demonstrated that influent monitoring is unlikely to produce useful analytical data;

(iii) Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;

(iv) Development of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and

(v) An annual status report that shall be sent to the RWQCB including:
1. All Pollution Prevention monitoring results for the previous year;
2. A list of potential sources of the reportable priority pollutant(s);
3. A summary of all actions undertaken pursuant to the control strategy; and
4. A description of actions to be taken in the following year.

e. To the extent where the requirements of the Pollution Prevention Program and the Pollutant Minimization Program overlap, the Discharger is allowed to continue/modify/expand its existing Pollution Prevention Program to satisfy the Pollutant Minimization Program requirements.

f. These Pollution Prevention/Pollutant Minimization Program requirements are not intended to fulfill the requirements in The Clean Water Enforcement and Pollution Prevention Act of 1999 (Senate Bill 709).

11. Whole Effluent Acute Toxicity

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

a. From permit adoption date and up to April 30, 2004:

(1) Compliance with the acute toxicity effluent limits of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour flow-through or static renewal bioassays.

(2) Two fish species will be tested concurrently. Test organisms shall be fathead minnows and/or three-spined sticklebacks unless specified otherwise in writing by the Executive Officer. Both tests must be completed within ten days of initiating the first test.

(3) Compliance monitoring with only one fish specie (the most sensitive, if known) may be allowed by the Board's Executive Officer, if both of the following conditions are met:

i) The Discharger can document that the acute toxicity limit specified in this Order has not been exceeded during the previous three years, or that acute toxicity has been observed in only one of the two fish species; and

ii) A single screening using both species confirms the documented pattern. All tests must be completed within ten days of initiating the first test.

(4) All bioassays may be performed according to the "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms," 3rd, 4th, or 5th Edition, with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

b. No later than May 1, 2004:

(1) Compliance with the acute toxicity effluent limits of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour flow through renewal bioassays, or static renewal bioassays. If the Discharger will use static renewal tests, they must submit a technical report by February 1, 2004, identifying the reasons why flow-through bioassay is not feasible using the approved U.S. EPA protocol in 40 CFR 136 (currently 5th edition).

(2) Test organisms shall be rainbow trout or fathead minnow unless specified otherwise in writing by the Executive Officer.

(3) All bioassays shall be performed according to the "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms," (currently 5th Edition). Upon Discharger's request, exceptions may be granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

12. Whole Effluent Chronic Toxicity

The Discharger shall monitor and evaluate the effluent from the treatment plant for chronic toxicity in order to demonstrate compliance with the Basin Plan narrative toxicity objective. Compliance with this requirement shall be achieved in accordance with the following.

a. The Discharger shall conduct routine chronic toxicity monitoring in accordance with the SMP of this Order. The 100% effluent should be replaced with the highest percent of effluent achievable if salt solution is used to increase the salinity of the effluent (e.g. 70%).

b. If data from routine monitoring exceed either of the following evaluation parameters, then the Discharger shall conduct accelerated chronic toxicity monitoring. Accelerated monitoring shall consist of monitoring at frequency intervals of one half the interval given for routine monitoring in the SMP of this Order.

c. Chronic toxicity evaluation parameters:
   (1) A three sample median value of 1 TU_c[3]; and
   (2) A single sample maximum value of 2 TU_c.
   (3) These parameters are defined as follows:
      (a) Three-sample median: A test sample showing chronic toxicity greater than 1 TU_c represents an exceedance of this parameter, if one of the past two or fewer tests also show chronic toxicity greater than 1 TU_c.
      (b) TU_c (chronic toxicity unit): A TU_c equals 100/NOEL (e.g., If NOEL = 100, then toxicity = 1 TUc). NOEL is the no observed effect level determined from IC, EC, or NOEC values.
      (c) The terms IC, EC, NOEL and NOEC and their use are defined in **Attachment A** of the Self-Monitoring Program (SMP).

d. If data from accelerated monitoring tests are found to be in compliance with the evaluation parameters, then routine monitoring shall be resumed.

e. If accelerated monitoring tests continue to exceed either evaluation parameter, then the Discharger shall initiate a chronic toxicity reduction evaluation (TRE).

f. The TRE shall be conducted in accordance with the following:
   (1) The Discharger shall prepare and submit to the Board for Executive Officer approval a TRE workplan. An initial generic workplan shall be submitted within 120 days of the date of adoption of this Order. The workplan shall be reviewed and updated as necessary in order to remain current and applicable to the discharge and discharge facilities.
   (2) The TRE shall be initiated within 30 days of the date of completion of the accelerated monitoring test observed to exceed either evaluation parameter.
   (3) The TRE shall be conducted in accordance with an approved workplan.
   (4) The TRE needs to be specific to the discharge and Discharger facility, and may be in accordance with current technical guidance and reference materials including U.S. EPA

[3] The detection limit (DL) of the chronic toxicity test is determined by the highest percent of effluent to be used. For example, with 100% effluent, the DL is 1 TUc (1/100%), with 70% effluent, the detection limit is 1.43 TUc.

guidance materials. TRE should be conducted as a tiered evaluation process, such as summarized below:

(a) Tier 1 consists of basic data collection (routine and accelerated monitoring).
(b) Tier 2 consists of evaluation of optimization of the treatment process including operation practices, and in-plant process chemicals.
(c) Tier 3 consists of a toxicity identification evaluation (TIE).
(d) Tier 4 consists of evaluation of options for additional effluent treatment processes.
(e) Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.
(f) Tier 6 consists of implementation of selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.

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

(6) The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies should be employed.

(7) As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the source(s) and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.

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

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

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

13. Screening Phase for Chronic Toxicity

The Discharger shall conduct screening phase compliance monitoring as described in the Self-Monitoring Program under either of these two conditions:

a. 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

b. Prior to permit reissuance, except when the Discharger is conducting a TRE, TIE or TRE/TIE. Screening phase monitoring data shall be included in the application for permit reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within five years before the permit expiration date.

The Discharger shall conduct screening phase compliance monitoring in accordance with a proposal submitted to, and acceptable to, the Executive Officer. The proposal shall contain, at a minimum, the

elements specified in Part B of the Self-Monitoring Program of this Order, or alternatives as approved by the Executive Officer. The purpose of the screening is to determine the most sensitive test species for subsequent routine compliance monitoring for chronic toxicity.

14. Mercury Mass Loading Reduction

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

a. *Notification.* Any exceedance of the trigger specified in Effluent Limitation B.8. shall be reported to the Regional Board in accordance with Section E.6.b. in the Standard Provisions and Reporting Requirements (August, 1993).

b. *Identification of the problem.* Immediately 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 is 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.

c. *Investigation of corrective action.* Investigate the feasibility of the following actions:
(1) Reducing inflow and infiltration (I/I)
(2) Increasing reclamation
Within 60 days after confirmed exceedance of trigger, develop a plan and include time schedule as short as practicable, 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.

d. *Investigation of aggressive prevention/reduction measures.* In the event the exceedance is related to growth and the plan required under (c) above is not expected to keep mercury loads below the mass load trigger, the Discharger shall submit a plan, acceptable to the Executive Officer. The plan should include an initiative to work with the local planning department to investigate the feasibility and potential benefits of requiring water conservation, reclamation, and dual plumbing for new development. This plan should be implemented as soon as practicable.

15. Pretreatment Program

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

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

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

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

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

16. Optional Mass Offset

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

17. Operations and Maintenance Manual, Review and Status Reports

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

b. The Discharger shall regularly review, and revise or update as necessary, the O & M Manual(s) in order for the document(s) to remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and revisions or updates shall be completed as necessary. For any significant changes in treatment facility equipment or operation practices, applicable revisions shall be completed within 180 days of completion of such changes.

c. Annually, the Discharger shall submit to the Board a report describing the current status of its O & M Manual review and updating. This report shall include an estimated time schedule for completion of any revisions determined necessary, a description of any completed revisions, or a statement that no revisions are needed. This report shall be submitted in accordance with the Annual Status Report Provision below.

18. Contingency Plan, Review and Status Reports

a. The Discharger shall maintain a Contingency Plan as required by Board Resolution 74-10, and as prudent in accordance with current municipal facility emergency planning. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or adequately implement a contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.

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

c. Annually, the Discharger shall submit to the Board a report describing the current status of its Contingency Plan review and update. This report shall include a description or copy of any

completed revisions, or a statement that no changes are needed. This report shall be submitted in accordance with the Annual Status Report Provision below.

19. Annual Status Reports

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

20. 303(d)-listed Pollutants Site-Specific Objective and TMDL Status Review

The Discharger shall participate in the region-wide group effort to develop TMDLs or SSOs for 4,4'-DDE, mercury, cyanide, and dieldrin. By January 31 of each year, an update will be submitted to the Board by the group to document efforts made on development of TMDLs or SSOs. Board staff shall review the status of TMDL development. This Order may be reopened in the future to reflect any changes required by TMDL development.

21. Self-Monitoring Program

The Discharger shall comply with the SMP for this Order as adopted by the Board. The SMPs may be amended by the Executive Officer pursuant to U.S. EPA regulation 40 CFR122.63.

22. Standard Provisions and Reporting Requirements

The Discharger shall comply with all applicable items of the *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993* (attached), or any amendments thereafter. Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in 'Standard Provisions', the specifications of this Order shall apply.

23. Change in Control or Ownership.

a. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Board.

b. To assume responsibility of and operations under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order (see S*tandard Provisions & Reporting Requirements*, August 1993, Section E.4.). Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.

24. Permit Reopener

The Board may modify or reopen this Order and Permit prior to its expiration date in any of the following circumstances:

a. If present or future investigations demonstrate that the discharge(s) governed by this Order and Permit will have, or cease to have, a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;

b. New or revised WQOs come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this permit will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order and Permit is not intended to restrict in any way future modifications based on legally adopted WQOs or as otherwise permitted under Federal regulations governing NPDES permit modifications;

c. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified. The Discharger may request permit modification on this basis. The Discharger shall include in any such request an antidegradation and anti-backsliding analysis, if necessary.

d. If a Basin Plan amendment provides a basis for determining that permit condition(s) should be modified. In particular, the Board may re-open this Order and Permit upon the Board's adoption of a Basin Plan amendment concerning chlorine residual compliance determinations. The Discharger may request a permit modification based on a Basin Plan amendment. The Discharger shall include in any such request an antidegradation and anti-backsliding analysis, if necessary.

e. An administrative or judicial decision on a separate NPDES permit or WDR that is applicable to this discharge. The Discharger may request a permit modification based on the decision and applicability.

25. NPDES Permit

This Order shall serve as a National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective November 1, 2003, provided the U.S. EPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

26. Order Expiration and Reapplication

a. This Order expires on September 30, 2008.

b. In accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code, the Discharger must file a report of waste discharge no later than 180 days before the expiration date of this Order as application for reissue of this permit and waste discharge requirements.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on August 20, 2003.

Loretta K. Barsamian

LORETTA K. BARSAMIAN
Executive Officer

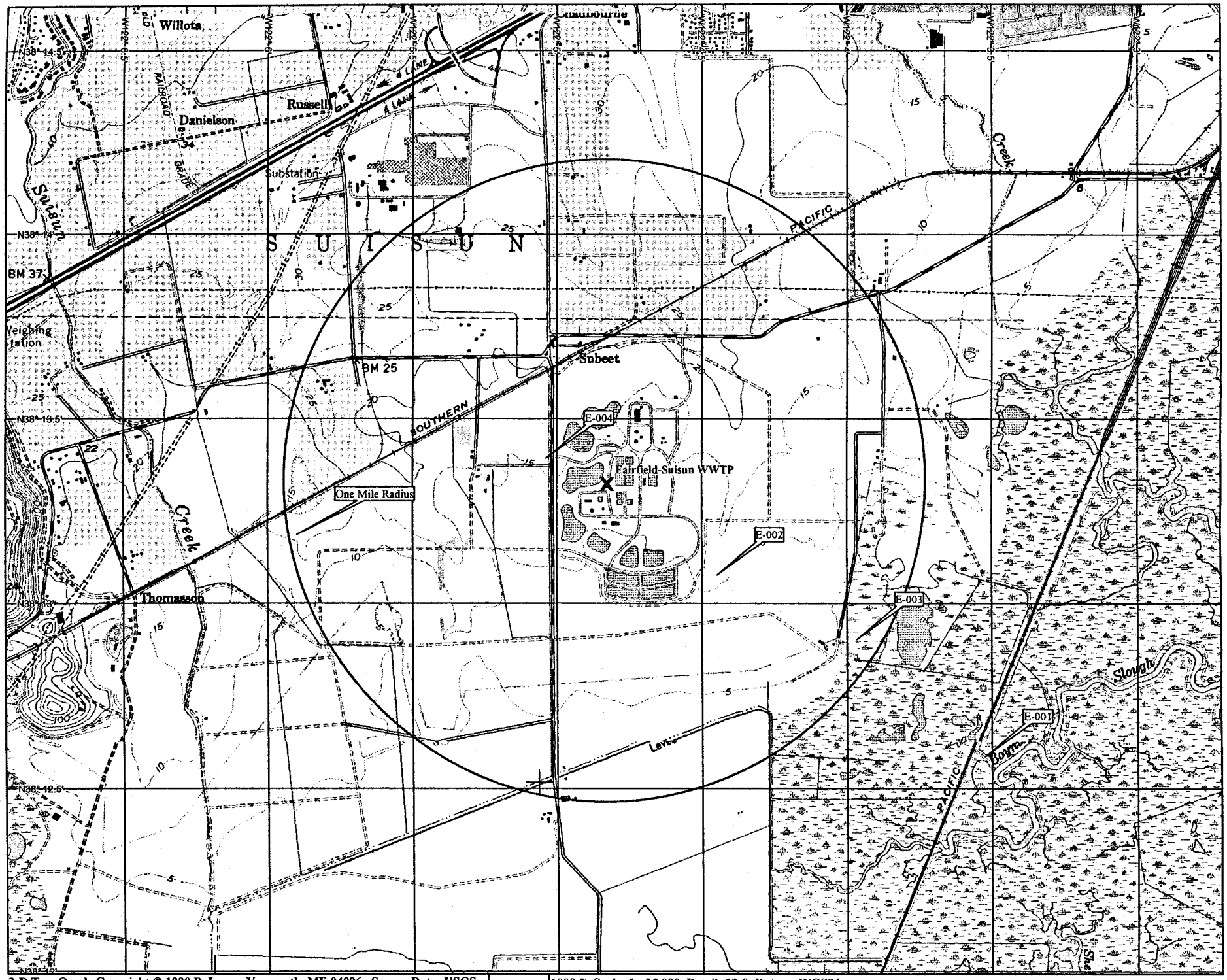
Attachments:

A. Discharge Facility Location Map
B. Treatment Process Diagram
C. Receiving Water Sampling Station Location Map
D. Pretreatment Requirements
E. Self-Monitoring Program, Part A (August 1993)*
F. Standard Provisions and Reporting Requirements (August 1993)*
G. Resolution No. 74-10*
H. Self-Monitoring Program, Part B
I. Fact Sheet
J. Fairfield-Suisun Sewer District's Infeasibility Study
K. Response to Comments

* Note: Self-Monitoring Program Part A (August 1993), Standard Provisions and Reporting Requirements (August 1993), and Resolution No. 74-10 are not attached but are available for review or download on the Board's website at *www.swrcb.ca.gov/rwqcb2*."

Attachment A

Discharge Facility Location Map

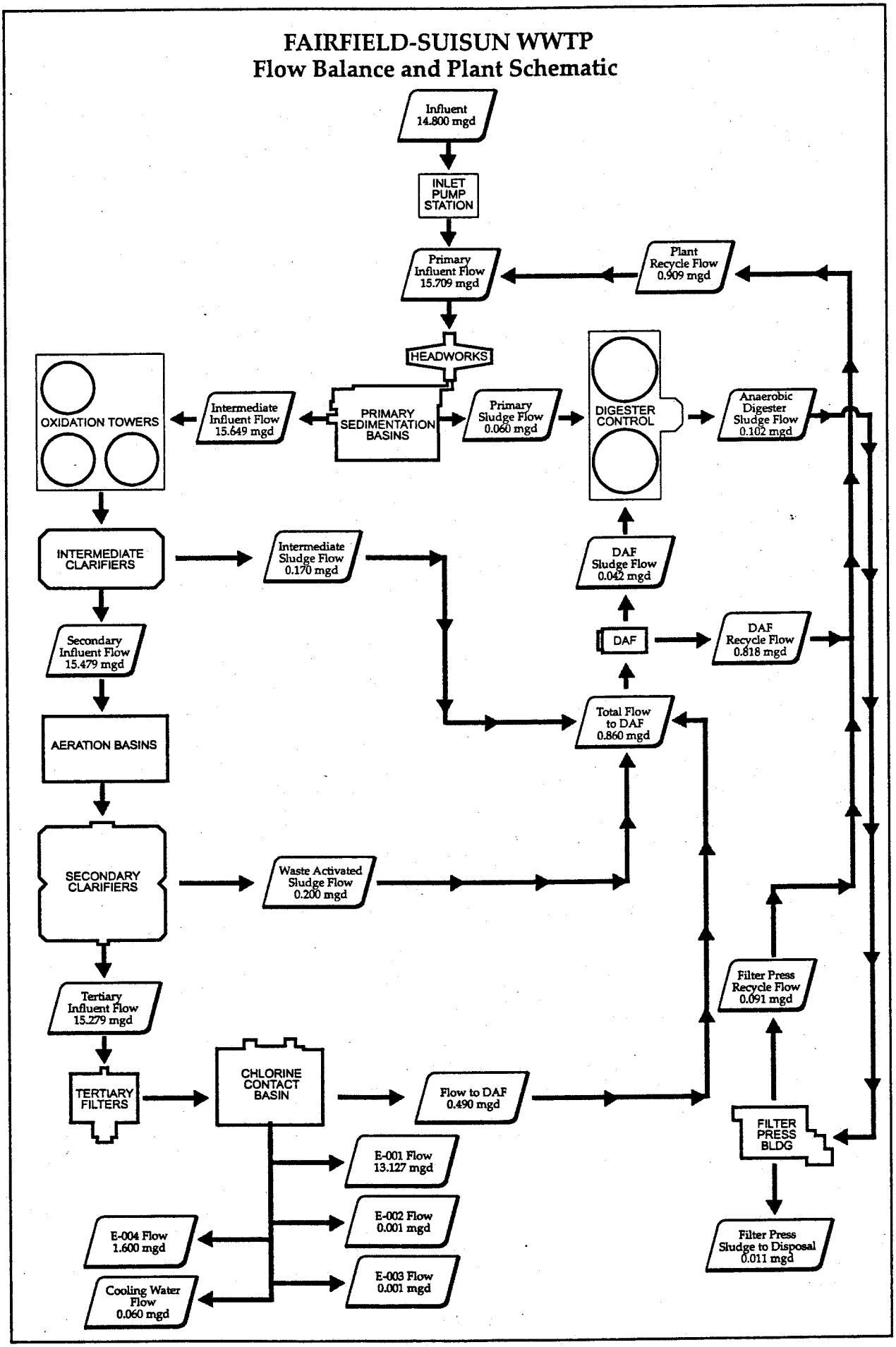


 1000 ft Scale: 1 : 25,000 Detail: 13-0 Datum: WGS84

Attachment B

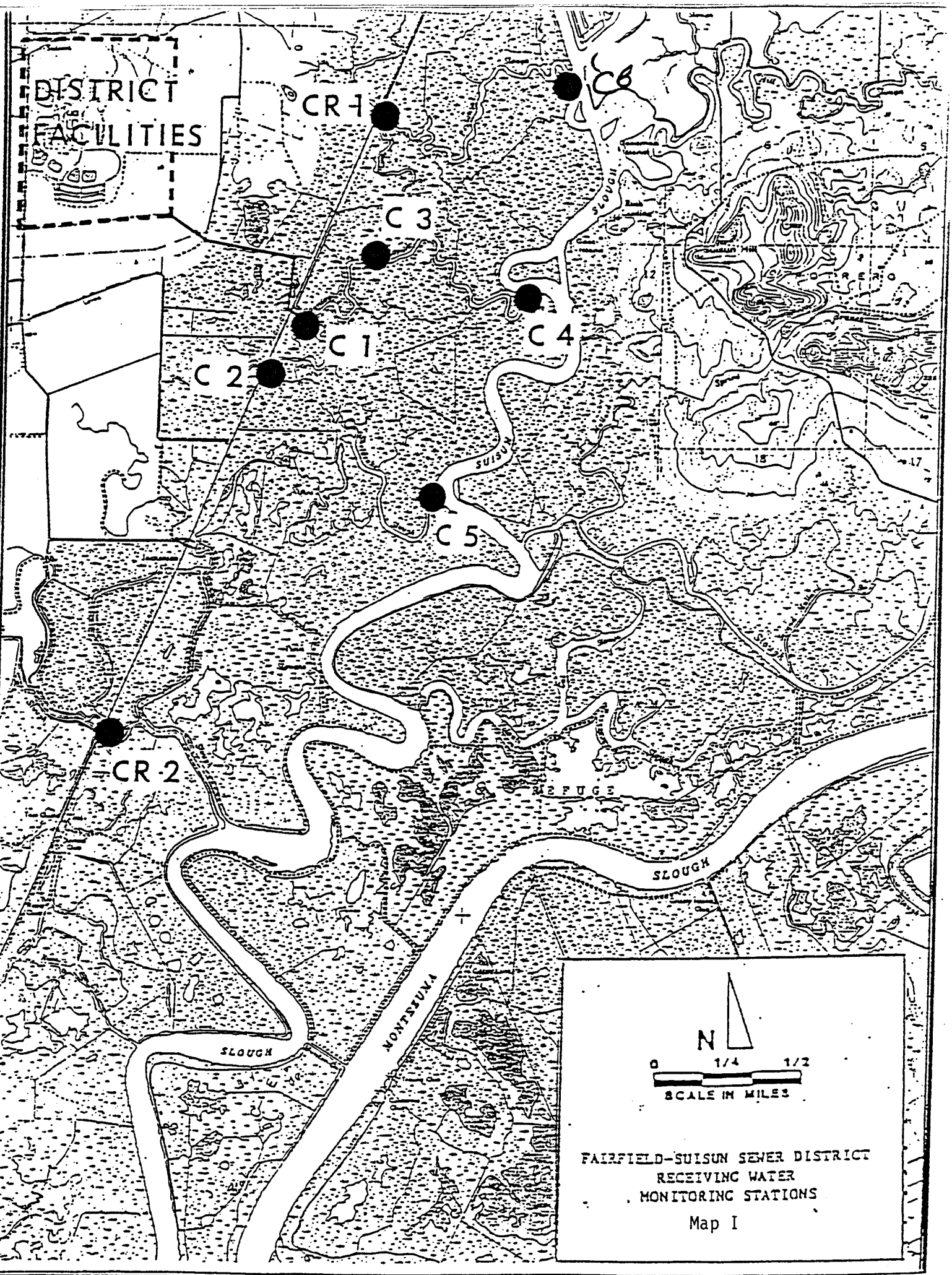
Treatment Process Diagram

FAIRFIELD-SUISUN WWTP
Flow Balance and Plant Schematic



Attachment C

Receiving Water Sampling Station Location Map



FAIRFIELD-SUISUN SEWER DISTRICT
RECEIVING WATER
MONITORING STATIONS

Map I

Attachment D

Pretreatment Requirements

Pretreatment Program Provisions

1. The Discharger shall implement all pretreatment requirements contained in 40 CFR 403, as amended. The Discharger shall be subject to enforcement actions, penalties, and fines as provided in the Clean Water Act (33 USC 1351 et seq.), as amended. The Discharger shall implement and enforce its Approved Pretreatment Program or modified Pretreatment Program as directed by the Board's Executive Officer or the EPA. The EPA and/or the State may initiate enforcement action against an industrial user for noncompliance with applicable standards and requirements as provided in the Clean Water Act.

2. The Discharger shall enforce the requirements promulgated under Sections 307(b), 307(c), 307(d) and 402(b) of the Clean Water Act. The Discharger shall cause industrial users subject to Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new industrial user, upon commencement of the discharge.

3. The Discharger shall perform the pretreatment functions as required in 40 CFR Part 403 and amendments or modifications thereto including, but not limited to:

   i) Implement the necessary legal authorities to fully implement the pretreatment regulations as provided in 40 CFR 403.8(f)(1);

   ii) Implement the programmatic functions as provided in 40 CFR 403.8(f)(2);

   iii) Publish an annual list of industrial users in significant noncompliance as provided per 40 CFR 403.8(f)(2)(vii);

   iv) Provide for the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3); and

   v) Enforce the national pretreatment standards for prohibited discharges and categorical standards as provided in 40 CFR 403.5 and 403.6, respectively.

4. The Discharger shall submit annually a report to the EPA Region 9, the State Board and the Regional Board describing its pretreatment program activities over the previous twelve months. In the event that the Discharger is not in compliance with any conditions or requirements of the Pretreatment Program, the Discharger shall also include the reasons for noncompliance and a plan and schedule for achieving compliance. The report shall contain, but is not limited to, the information specified in Appendix A entitled, "Requirements for Pretreatment Annual Reports," which is made a part of this Order. The annual report is due on the last day of February each year.

5. The Discharger shall submit semiannual pretreatment reports to the EPA Region 9, the State Board and the Board describing the status of its significant industrial users (SIUs). The report shall contain, but not is limited to, the information specified in Appendix B entitled, "Requirements for Semiannual Pretreatment Reports," which is made part of this Order. The semiannual reports are due July 31st (for the period January through June) and January 31st (for the period July through December) of each year. The Executive Officer may exempt a Discharger from the semiannual reporting requirements on a case by case basis subject to State Board and EPA's comment and approval.

6. The Discharger may combine the annual pretreatment report with the semiannual pretreatment report (for the July through December reporting period). The combined report shall contain all of the information requested in Appendices A and B and will be due on January 31st of each year.

7. The Discharger shall conduct the monitoring of its treatment plant's influent, effluent, and sludge as described in Appendix C entitled, "Requirements for Influent, Effluent and Sludge Monitoring," which is made part of this Order. The results of the sampling and analysis, along with a discussion of any trends, shall be submitted in the semiannual reports. A tabulation of the data shall be included in the annual pretreatment report. The Executive Officer may require more or less frequent monitoring on a case by case basis.

APPENDIX A

REQUIREMENTS FOR PRETREATMENT ANNUAL REPORTS

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

1) **Cover Sheet**

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

2) **Introduction**

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

3) **Definitions**

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

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

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

a) a description of what occurred;
b) a description of what was done to identify the source;
c) the name and address of the IU responsible
d) the reason(s) why the incident occurred;
e) a description of the corrective actions taken; and
f) an examination of the local and federal discharge limits and requirements for the purposes of determining whether any additional limits or changes to existing

requirements may be necessary to prevent other Upset, Interference or Pass Through incidents.

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

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

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

6) **Inspection and Sampling Program**

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

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

7) **Enforcement Procedures**

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

8) **Federal Categories**

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

9) **Local Standards**

This section shall include a table presenting the local limits.

10) **Updated List of Regulated SIUs**

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

11) **Compliance Activities**

a) **Inspection and Sampling Summary:** This section shall contain a summary of all the inspections and sampling activities conducted by the Discharger over the past year to gather information and data regarding the SIUs. The summary shall include:

(1) the number of inspections and sampling events conducted for each SIU;

(2) the quarters in which these activities were conducted; and

(3) the compliance status of each SIU, delineated by quarter, and characterized using all applicable descriptions as given below:

(a) in consistent compliance;

(b) in inconsistent compliance;

(c) in significant noncompliance;

(d) on a compliance schedule to achieve compliance, (include the date final compliance is required);

(e) not in compliance and not on a compliance schedule;

(f) compliance status unknown, and why not.

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

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

(2) Administrative Orders regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.

(3) Civil actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.

(4) Criminal actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.

(5) Assessment of monetary penalties. Identify the amount of penalty in each case and reason for assessing the penalty.

(6) Order to restrict/suspend discharge to the POTW.

(7) Order to disconnect the discharge from entering the POTW.

12) **Baseline Monitoring Report Update**

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

13) **Pretreatment Program Changes**

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

14) **Pretreatment Program Budget**

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

15) **Public Participation Summary**

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

16) **Sludge Storage and Disposal Practice**

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

17) **PCS Data Entry Form**

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

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

18) **Other Subjects**

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

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

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

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

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

APPENDIX B:

REQUIREMENTS FOR SEMIANNUAL PRETREATMENT REPORTS

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

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

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

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

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

2) **Industrial User Compliance Status**

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

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

a. Indicate if the SIU is subject to Federal categorical standards; if so, specify the category including the subpart that applies.

b. For SIUs subject to Federal Categorical Standards, indicate if the violation is of a categorical or local standard.

c. Indicate the compliance status of the SIU for the two quarters of the reporting period.

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

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

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

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

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

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

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

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

APPENDIX C

REQUIREMENTS FOR INFLUENT, EFFLUENT AND SLUDGE MONITORING

The Discharger shall conduct sampling of its treatment plant's influent, effluent and sludge at the frequency as shown in Table 3 on Page **xxxxx** of the Self-Monitoring Program (SMP).

The monitoring and reporting requirements of the POTW's Pretreatment Program are in addition to those specified in Table 1 of the SMP. Any subsequent modifications of the requirements specified in Table 1 shall be adhered to and shall not affect the requirements described in this Appendix unless written notice from the Regional Board is received. When sampling periods coincide, one set of test results, reported separately, may be used for those parameters that are required to be monitored by both Table 1 and the Pretreatment Program. The Pretreatment Program monitoring reports shall be sent to the Pretreatment Program Coordinator.

1. **Influent and Effluent Monitoring**

   The Discharger shall monitor for the parameters using the required test methods listed in Table 3 (page **xxxx** of the SMP). Any test method substitutions must have received prior written Regional Board approval. Influent and Effluent sampling locations shall be the same as those sites specified in the Self-Monitoring Program.

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

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

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

   B. Method of Sampling Dechlorination – A brief description of the sample dechlorination method prior to analysis shall be provided.

C. Sample Compositing – The manner in which samples are composited shall be described. If the compositing procedure is different from the test method specifications, a reason for the variation shall be provided.

D. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Board upon request.

E. A tabulation of the test results shall be provided.

F. Discussion of Results – The report shall include a complete discussion of the test results. If any pollutants are detected in sufficient concentration to upset, interfere or pass through plant operations, the type of pollutant(s) and potential source(s) shall be noted, along with a plan of action to control, eliminate, and/or monitor the pollutant(s). Any apparent generation and/or destruction of pollutants attributable to chlorination/dechlorination sampling and analysis practices shall be noted.

2. **Sludge Monitoring**

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

A. Sludge lagoons – 20 grab samples collected at representative equidistant intervals (grid pattern) and composited as a single grab, or

B. Dried stockpile – 20 grab samples collected at various representative locations and depths and composited as a single grab, or

C. Dewatered sludge- daily composite of 4 representative grab samples each day for 5 days taken at equal intervals during the daily operating shift taken from a) the dewatering units or b) from each truckload, and shall be combined into a single 5-day composite.

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

In determining if the sludge is a hazardous waste, the Dischargers shall adhere to Article 2, "Criteria for Identifying the Characteristics of Hazardous Waste," and Article 3,

"Characteristics of Hazardous Waste," of Title 22, California Code of Regulations, Sections 66261.10 to 66261.24 and all amendments thereto.

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

A. Sampling procedures – Include sample locations, collection procedures, types of containers used, storage/refrigeration methods, compositing techniques and holding times. Enclose a map of sample locations if sludge lagoons or stockpiled sludge is sampled.

B. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Board upon request.

C. Test Results – Tabulate the test results and include the percent solids.

D. Discussion of Results – The report shall include a complete discussion of test results. If the detected pollutant(s) is reasonably deemed to have an adverse effect on sludge disposal, a plan of action to control, eliminate, and/or monitor the pollutant(s) and the known or potential source(s) shall be included. Any apparent generation and/or destruction of pollutants attributable to chlorination/ dechlorination sampling and analysis practices shall be noted.

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

Attachment H

Self-Monitoring Program, Part B

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

FAIRFIELD-SUISUN SEWER DISTRICT
FAIRFIELD- SUISUN
WASTEWATER TREATMENT PLANT

FAIRFIELD, SOLANO COUNTY

NPDES PERMIT NO. CA0038024

ORDER NO. R2-2003-0072

CONSISTS OF

PART B

Note: Self-Monitoring Program Part A (August 1993), Standard Provisions and Reporting Requirements (August 1993), and Resolution No. 74-10, are not attached but are available for review or download on the Board's website at www.swrcb.ca.gov/rwqcb2.

SELF-MONITORING PROGRAM
PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

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

B. EFFLUENT

Station	Description
E-001-A	Treatment Plant Effluent At a point in the treatment facility, at which point all treated wastewater processed by the plant is present.
E-001-D	Disinfected Effluent At a point in the treatment facility, at which point adequate contact with the disinfectant is assured. (May be the same as E-001-A.)
E-001-S	Effluent to Boynton Slough Outfall At a point in the treatment facility, at which point all waste tributary to this discharge is present, prior to the point of discharge.
E-002	Duck Club Turnout No. 1.
E-003	Duck Club Turnout No. 2.
E-004	Effluent to Irrigation Reuse At a point in the treatment facility, at which point all treated wastewater to be discharged through reuse for irrigation is present (may be the sum of several individual discharges and flow meters).

NOTE: Total Plant Effluent (E-001-A) flow is split into separate flows to Boynton Slough (E-001-S) and to Irrigation Reuse (E-004).

C. RECEIVING WATERS

Station	Description
C-1 (RW1, S11F)	At a point in Boynton Slough about 100 feet downstream (i.e., towards Suisun Slough) from the discharge outfall.
C-2 (RW2, S11R)	At a point in Boynton Slough about 100 feet downstream from where the

	Southern Pacific Railroad tracks cross over the slough.
C-3 (RW3)	At a point in Boynton Slough located about 1800 feet downstream from the discharge outfall, as shown on the attached *Location Map-Receiving Water Monitoring Stations*.
C-4 (RW4, S11)	At a point in the mouth of Boynton Slough as it enters Suisun Slough.
C-5 (RW5, S45A)	At a point in the mouth of Sheldrake Slough as it enters Suisun Slough.
C-6 (RW6, S3)	At a point in the mouth of Peytonia Slough as it enters Suisun Slough.
C-R-1(CR1, S3R)	At a point in Peytonia Slough about 100 feet downstream from where the Southern Pacific Railroad tracks cross over the slough.
C-R-2(CR2)	At a point in Chadbourne Slough about 100 feet downstream from where the Southern Pacific Railroad tracks cross over the slough.

NOTE: "S" codes shown in parentheses are references to equivalent monitoring stations used in Bureau of Reclamation monitoring (1977-1981) published as: "Suisun Marsh Management Study, Water Quality Observations on the Effects of Wastewater Discharge to Duck Clubs and Sloughs in the Suisun Marsh," by the U.S. Dept. of Interior, Bureau of Reclamation, August 1985.

CR – receiving water control station, RW-receiving water station. Electronic Reporting System (ERS) names.

D. TREATMENT PLANT PERIMETER (Land Observations)

Station	Description
P-1, to P-8	Points located at the corners and at midpoints along the perimeter (fence line) of the wastewater treatment facilities.

NOTE: A drawing showing the locations of these stations shall be included in the Annual Report, and in the monthly report if stations change.

E. OVERFLOWS

Station	Description
O	At points in the collection system, such as pump stations and manholes, where overflows occur.

F. SLUDGE

The Discharger shall chemically analyze sludge as necessary to comply with requirements for landfill disposal or other forms of approved reuse.

II. SCHEDULE OF SAMPLING, ANALYSIS AND OBSERVATION

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

TABLE 1 SCHEDULE OF SAMPLING, MEASUREMENT, AND ANALYSIS

Sampling Station --->	**A-001**		**E-001-A (same as E-001-D)**			**E-001-S**			**E-004**	**E-002 & E-003**	**All C Stations**	**All P Stations**	**Biosolids**
Type of Sample --->	**C-24**	**Cont.**	**G**	**C-24**	**Cont.**	**G**	**C-24**	**Cont.**	**Cont.**	**Flow**	**G**	**G**	**G**
Flow Rate (mgd)		Cont. [1]			Cont. [1]			Cont. [1]	Cont. [1]	Each Occurrence [1]			
BOD, 5-day, 20 deg. C (mg/l)	3/W [2]			3/W[2]									
Total Susp. Solids (mg/l)	3/W [2]			3/W [2]									
Settleable Solids (ml/l-hr)				Q									
Oil and Grease (mg/l & kg/d)				M [3]									
Chlorine Residual (mg/l)					Cont./2-hr [4]			Cont./2-hr [4]					
Total Coliform (MPN/100 ml)			D [5]										
Turbidity (NTU)			D								4/Y [15]		
pH (Standard Units)			D					Cont. [14]			4/Y [15]		
Temperature (degrees C)			D					Cont.			4/Y [15]		
Dissolved Oxygen (mg/l & %-Saturation)			D			D					4/Y [15]		
Total Sulfides (mg/l)			D [6]			D [6]							
Acute Toxicity (% Survival)							M [12]						
Chronic Toxicity							4/Y[13]						
Cadmium (µg/l)				M									
Chromium (µg/l) (hexavalent or total)				M									
Copper (µg/l)				M									
Cyanide (µg/l)			M [7]										
Lead (µg/l)				M									

Sampling Station --->	A-001		E-001-A (same as E-001-D)			E-001-S			E-004	E-002 & E-003	All C Stations	All P Stations	Biosolids
Type of Sample --->	**C-24**	**Cont.**	**G**	**C-24**	**Cont.**	**G**	**C-24**	**Cont.**	**Cont.**	**Flow**	**G**	**G**	**G**
Mercury (µg/l & kg/month)			M [8]	M [8]									
Nickel (µg/l)				M									
Zinc (µg/l)				M									
Dichlorobromomethane (µg/l)			2/Y										
Bis(2-Ethylhexyl) Phthalate (µg/l)			2/Y										
4, 4'-DDE (µg/l)			2/Y										
Dieldrin (µg/l)			2/Y										
Dioxins and furans			2/Y [9]										
Table 1 Selected Constituents (except those listed above)			As specified in August 6, 2001 Letter [10]										
Nitrogens (as N) (mg/l) [11]				W							4/Y [15]		
Unionized Ammonia Nitrogen (mg/l)											4/Y [15]		
Total Phosphate as P (mg/l)				W							4/Y [15]		
Standard Observations			W								4/Y [15]	W	
Conductivity (µmhos)											4/Y [15]		
Hardness as CaCO3 (mg/l)											4/Y [15]		
Salinity (ppt)											4/Y [15]		
Chlorophyll-a (mg/l)											4/Y [15]		
Water Depth (feet)											4/Y [15]		
Pretreatment Monitoring													
Metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Zn) and Cyanide (µg/l)	M			M									2/Y [17]
VOC/EPA 624 (µg/l)			2/Y[16]										2/Y[17]
BNA/EPA 625 (µg/l)			2/Y[16]										2/Y [17]
O-Pest/EPA 614 (µg/l)			2/Y[16]										2/Y [17]
C-Pest/EPA 632 (pg/l)			2/Y[16]										2/Y [17]

FOOTNOTES FOR TABLE 1:

1. Flows shall be monitored continuously and the following shall be reported in monthly self-monitoring reports:

   a. Influent, average daily flow (A-001);
   b. Influent, maximum and minimum flow rates and times of occurrence (A-001);
   c. Effluent, daily flow (E-001-A);
   d. Effluent, daily flow to Boynton Slough outfall (E-001-S);
   e. Effluent, daily flow to Irrigation (E-004);
   f. Effluent, flow distributed to duck club ponds (seasonal, E-002 & E-003). May be reported as monthly totals (in MG).

2. The percent removal for BOD and TSS shall be reported for each calendar month, in accordance with Effluent Limitation B.3.

3. Oil and grease: Each Oil & Grease sample event shall consist of a composite sample comprised of three grab samples taken at equal intervals during the sampling date, with each grab sample being collected in a glass container. The grab samples shall be mixed in proportion to the instantaneous flow rates occurring at the time of each grab sample, within an accuracy of plus or minus 5 %. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsings as soon as possible after use, and the solvent rinsings shall be added to the composite sample for extraction and analysis.

4. Chlorine residual: Monitor dechlorinated effluent continuously or, at a minimum, every 2 hours. Report, on a daily basis, both maximum and minimum concentrations, for samples taken both prior to, and 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. Total chlorine dosage (kg/day) shall be recorded on a daily basis.

5. When replicate analyses are made of a coliform sample, the reported result shall be the arithmetic mean of the replicate analysis sample.

6. Sulfide analysis shall be run when dissolved oxygen concentrations fall below 2.0 mg/L.

7. Cyanide: the Discharger may, at their option, analyze for cyanide as Weak Acid Dissociable Cyanide using protocols specified in Standard Method Part 4500-CN-I, or equivalent alternatives in latest edition. Alternative methods of analysis must be approved by the Executive Officer.

8. The Discharger may, at its option, sample mercury either as grab or 24-hr composite. Use ultra-clean sampling (EPA 1669) to the maximum extent practicable, and ultra-clean analytical methods (EPA 1631) for mercury monitoring. The Discharger may use alternative methods of analysis (such as EPA 245), if that alternate method has a Minimum Level of 2 ng/L or less.

9. Chlorinated Dibenzodioxins and Chlorinated Dibenzofurans shall be analyzed using the latest version of U.S. EPA Method 1613; the analysis shall be capable of achieving one half the EPA MLs and the Discharger shall collect 4 liter samples to lower the detection limits to the greatest extend practicable. At a minimum, the Discharger is required to monitor the effluent once during

the dry season and once during the wet season for the life of this permit. Alternative methods of analysis must be approved by the Executive Officer.

10. Sampling for Table 1 Selected Constituents in the SIP is addressed in a letter dated August 6, 2001, from Board Staff: Requirements for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy. (Not attached, but available for review or download on the Board's website at www.swrcb.ca.gov/rwqcb).

11. "Nitrogens" are defined as the following analyses: Ammonia, Organic Nitrogen, and Nitrate-Nitrite (combined value reported). All concentrations shall be reported as nitrogen. Ammonia shall be measured as Total Ammonia. For receiving water samples (C-Stations), the unionized ammonia fraction shall be calculated based on the total ammonia, pH, total dissolved solids or salinity, and temperature.

12. 3rd Edition flow-through bioassays shall be conducted with three-spine stickleback and fathead minnow and 5th Edition bioassays shall be conducted using fathead minnow or rainbow trout, pursuant to Provision E.11 of this Order. The following constituents shall be measured on a daily basis, and reported for the bioassay sample stream: pH, ammonia nitrogen, temperature, and dissolved oxygen (sulfides if D.O. falls below 2.0 mg/L). If a violation of acute toxicity requirements occurs, bioassay testing shall continue back to back until compliance is demonstrated.

13. Critical Life Stage Toxicity Test shall be performed and reported in accordance with the Chronic Toxicity Requirements specified in Sections V and VI of the Self-Monitoring Program contained in this Order.

14. Monitoring for pH shall be done continuously; the minimum and maximum pH values for each day shall be reported in monthly self-monitoring reports.

15. Stations CR-1, CR-2, C-1, C-2, C-3, C-4, C-5 and C-6 shall be monitored quarterly, and on the same day.

16. For pretreatment program:
    VOC = volatile organic compounds
    BNA = base/neutrals and acids extractable organic compounds
    O-Pest = organophosphorus pesticides
    C-Pest = carbamate and urea pesticides

17. U.S. EPA approved methods.

Table 2 lists the Minimum Levels (SIP) of the priority constituents included in Table 1.

Table 2. Minimum Levels (µg/l or ppb)

CTR #	Constituent [a]	Types of Analytical Methods [b]											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
4.	Cadmium					10	0.5	10	0.25	0.5			1000
5.	Chromium VI				10	5							
6.	Copper [c]					25	5	10	0.5	2			1000
8.	Mercury [d]								0.5			0.2	
9.	Nickel					50	5	20	1	5			1000
13.	Zinc					20		20	1	10			
14.	Cyanide				5								
27.	Dichloro bromomethane	0.5	2										
68.	Bis(2-Ethylhexyl) Phthalate	10	5										
109	4,4-DDE	0.05											
111.	Dieldrin	0.01											

FOOTNOTES FOR TABLE 2:

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

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

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

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

III. MODIFICATIONS to PART A of SELF-MONITORING PROGRAM

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

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

C. Section C.2.a. of Part A, insert the following language at the end of the paragraph:

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

D. Insert the following as C.2.c (3):

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

E. Section C.2.d. of Part A is modified as follows:

d. If two consecutive samples of a constituent monitored on a weekly or monthly basis in a 30 day period exceed the monthly average effluent limit for any parameter, (or if the required sampling frequency is once per month and the monthly sample exceeds the monthly average limit), the sampling frequency shall be repeated once within 24 hours after results are received that indicate an exceedance of the monthly average effluent limit for that parameter. Repeat sampling shall occur in this way until the additional sampling shows two consecutive samples are in compliance with the monthly average limit.

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

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

G. Addition to section F.2 of Part A: Reporting of Plant Bypass, Treatment Unit Bypass and Permit Violation:

1. Any Type of Bypass.
When any type of bypass occurs that is not retreated prior to discharge from the treatment facility, samples shall be collected on a daily basis for all constituents at all affected discharge points, which have effluent limits for the duration of the bypass.

2. Treatment Process Bypass Monitoring.
However, when bypassing occurs from any treatment process (primary, secondary, chlorination, dechlorination, etc.) in the treatment facilities during high wet weather inflow and is not retreated prior to discharge from the treatment facility, 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), 24-hour composite samples (or if the bypass lasts less than 24 hours, the composite will for the total duration of the bypass) for the duration of the bypass event for BOD, TSS, hourly grab

samples for turbidity analyses, and continuous monitoring of flow. If BOD, or TSS, or turbidity, exceed the effluent limits, the bypass monitoring shall be expanded to include all constituents that have effluent limits for the duration of the bypass, until the BOD, TSS, and turbidity values stabilize to be in compliance with effluent limitations.

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

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

d. In the event that single or multiple clarifiers, aeration basins, or other elements of a unit process are intentionally taken out of service for maintenance, flow routed around those elements does not constitute a bypass and does not trigger additional sampling.

H. Modification to section F.4 of Part A: Self-Monitoring Report:

Monthly self-monitoring report: The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this Order, as demonstrated by the monitoring program data and the discharger's operation practices. For each calendar month, a self-monitoring report (SMR) shall be submitted to the Board in accordance with the following:

1. The report shall be submitted to the Board no later than 45 days from the last day of the reporting month.

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

   a. Identification of all violations of effluent limits or other discharge requirements found during the monitoring period;

   b. Details of the violations: parameters, magnitude, test results, frequency, and dates;

   c. The cause of the violations;

   d. Discussion of corrective actions taken or planned to resolve violations and prevent recurrence, and dates or time schedule of action implementation. If previous reports have been submitted that address corrective actions, reference to such reports is satisfactory;

   e. Signature: The letter of transmittal shall be signed by the discharger's principal executive officer or ranking elected official, or duly authorized representative, and shall include the following certification statement:

      "I certify under penalty of law that this document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

3. *Compliance Evaluation Summary:* Each report shall include a compliance evaluation

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

4. *Results of Analyses and Observations.*

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

   b. If any parameter specified in Table 1 of Part B is monitored more frequently than required by this permit and SMP, the results of this additional monitoring shall be included in the monitoring report, and the data shall be included in data calculations and compliance evaluations for the monitoring period;

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

5. *Effluent Data Summary – U.S. EPA NPDES Discharge Monitoring Reports:* Summary tabulations of monitoring data including maximum, minimum and average values for subject monitoring period shall be reported in accordance with the format given by the U.S. EPA NPDES Discharge Report(s) (DMRs; U.S. EPA Form 3320-1 or successor). Copies of these DMRs shall be provided to U.S. EPA as required by U.S. EPA.

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

7. *Report Submittal*: The discharger shall submit SMRs to:

   Executive Officer
   San Francisco Bay Regional Water Quality Control Board
   1515 Clay Street, Suite 1400
   Oakland, CA 94612
   Attn: NPDES Division

I. Modification to section F.5 of Part A: Annual Report:

An Annual Report shall be submitted for each calendar year. The report shall be submitted to the Board by February 28 of the following year. This report shall include the following:

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

2. A comprehensive discussion of treatment plant performance and compliance with waste

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

J. Additions to Part A of Self-Monitoring Program:

1. Reporting Data in Electronic Format:

The discharger has the option to submit all monitoring results in electronic reporting format approved by the Executive Officer. If the discharger chooses to submit the SMRs electronically, the following shall apply:

a. *Reporting Method:* The discharger shall submit SMRs electronically via the process approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS).

b. *Modification of reporting requirements:* Reporting requirements F.4 in the attached *Self-Monitoring program, Part A*, dated August 1993, shall be modified as follows. In the future, the Board intends to modify Part A to reflect these changes.

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

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

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

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

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

(3) The cause of the violations;

(4) Discussion of corrective actions taken or planned to resolve violations and prevent recurrence, and dates or time schedule of action implementation. If previous reports have been submitted that address corrective actions, reference to such reports is satisfactory;

(5) Signature: The letter of transmittal shall be signed by the discharger's principal executive officer or ranking elected official, or duly authorized representative, and shall include the following certification statement:

> "I certify under penalty of law that this document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

(6) Compliance Evaluation Summary: Each report shall include a compliance evaluation summary. This summary shall include the number of samples in

violation of applicable effluent limits.

(7) Results of Analyses and Observations.

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

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

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

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

2. Reporting of Collection System Overflows:

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

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

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

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

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

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

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

iv. The written report for collection system overflow shall include the following:

(1) Estimated date and time of overflow start and end.

(2) Location of overflow (street address or description of location).

(3) Estimated volume of overflow.

(4) Final disposition of overflowed wastewater (to land, storm drain, surface water body) including the name of any receiving water body affected.

(5) Cause of overflow.

(6) Observed impacts to receiving waters if any (e.g., discoloration, fish kill).

(7) Corrective actions that were taken to contain, minimize or cleanup the overflow.

(8) Future corrective actions planned to be taken to prevent recurrence and time

schedule of implementation.

(9) Persons or agencies contacted.

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

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

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

b. The records for these overflows shall include the information as listed in 2.a.iv above.

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

V. CHRONIC TOXICITY MONITORING REQUIREMENTS

A. Test Species and Frequency: The Discharger shall collect 24-hour composite samples at E-001-S on consecutive days for critical life stage toxicity testing as indicated below:

Test Species	Frequency
Abalone	quarterly

If the Discharger uses two more species, after at least twelve test rounds, the Discharger may request the Executive Officer to decrease the required frequency of testing, and/or to reduce the number of compliance species to one. Such a request may be made only if toxicity exceeding the TUc values specified in the effluent limitations was never observed using that test species.

B. Conditions for Accelerated Monitoring: The Discharger shall accelerate the frequency of monitoring to bimonthly (every two months), or as otherwise specified by the Executive Officer, after exceeding a three sample median value of 1 TUc[1] or a single sample maximum of 2 TUc.

C. Methodology: Sample collection, handling and preservation shall be in accordance with U.S. 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 100%, 50%, 25%, 12.5%, and 6.25%. The "%" represents percent effluent as discharged. The 100% may be omitted if the marine test species specified is sensitive to artificial sea salts. In this case, it should be replaced with the highest percent of effluent achievable if salt solution is used to increase the salinity of the effluent (e.g. 70%).

VI. CHRONIC TOXICITY REPORTING REQUIREMENTS

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

---

1 The detection limit (DL) of the chronic toxicity test is determined by the highest percent of effluent to be used. For example, with 100% effluent, the DL is 1 TUc (1/100%), with 70% effluent, the detection limit is 1.43 TUc.

1. Sample date(s)
2. Test initiation date
3. Test species
4. End point values for each dilution (e.g., number of young, growth rate, percent survival)
5. NOEC value(s) in percent effluent
6. IC_{15}, IC_{25}, IC_{40}, and IC_{50} values (or EC_{15}, EC_{25} ... etc.) in percent effluent
7. TUc values (100/NOEC, $100/IC_{25}$, and $100/EC_{25}$)
8. Mean percent mortality ($\pm$ s.d.) after 96 hours in 100% effluent
9. NOEC and LOEC values for reference toxicant test(s)
10. IC_{50} or EC_{50} value(s) for reference toxicant test(s)
11. Available water quality measurements for each test (i.e., 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 VI.A, item numbers 1, 3, 5, 6(IC_{25} or EC_{25}), 7, and 8.

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 U.S. EPA 624, 625 test methods shall be identified and semi-quantified. Hydrocarbons detected at <10 µg/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 µg/L based on the nearest internal standard shall be identified and semi-quantified.

VIII. SELF-MONITORING PROGRAM CERTIFICATION

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

1. Has been developed in accordance with the procedure set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements

established in Board Order No. R2-2003-0072.

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

3. Is effective as of November 1, 2003.

LORETTA K. BASAMIAN
Executive Officer

Attachment A

Chronic Toxicity – Definition of Terms and Screening Phase Requirements

ATTACHMENT A

CHRONIC TOXICITY

DEFINITION OF TERMS & SCREENING PHASE REQUIREMENTS

I. Definition of Terms

A. No observed effect level (NOEL) for compliance determination is equal to IC_{25} or EC_{25}. If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.

B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Karber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25% of the test organisms.

C. Inhibition Concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal, non-quantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25% reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as EPA's Bootstrap Procedure.

D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. Chronic Toxicity Screening Phase Requirements

A. The Discharger shall perform screening phase monitoring:

1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control 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:

4. 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;

5. 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.

6. Appropriate controls; and

7. Concurrent reference toxicant tests.

C. The Discharger shall submit a screening phase proposal to the Executive Officer for approval. The proposal shall address each of the elements listed above.

TABLE 1
CRITICAL LIFE STAGE TOXICITY TESTS FOR ESTUARINE WATERS

SPECIES	(Scientific name) ENCE	EFFECT	TEST DURATION	REFER-
alga	(Skeletonema costatum) (Thalassiosira pseudonana)	growth rate	4 days	1
red alga	(Champia parvula)	number of cystocarps	7-9 days	3
Giant kelp	(Macrocystis pyrifera)	percent germination; germ tube length	48 hours	2
abalone	(Haliotis rufescens)	abnormal shell development	48 hours	2
oyster mussel	(Crassostrea gigas) (Mytilus edulis)	{abnormal shell development; {percent survival	48 hours	2
Echinoderms (urchins - (sand dollar -	Strongylocentrotus purpuratus, S. franciscanus); Dendraster excentricus)	percent fertilization	1 hour	2
shrimp	(Mysidopsis bahia)	percent survival; growth	7 days	3
shrimp	(holmesimysis costata)	percent survival; growth	7 days	2
topsmelt	(Atherinops affinis)	percent survival; growth	7 days	2
silversides	(Menidia beryllina)	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 Effluent 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 Effluent and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-90/003. July 1994

TABLE 2
CRITICAL LIFE STAGE TOXICITY TESTS FOR FRESH WATERS

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

Toxicity Test Reference:

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 3
TOXICITY TEST REQUIREMENTS FOR STAGE ONE SCREENING PHASE

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

† The fresh water species may be substituted with marine species if:
(1) The salinity of the effluent is above 1 parts per thousand (ppt) greater than 95% of the time, or
(2) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

‡ Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95% of the time during a normal water year.
Fresh refers to receiving water with salinities less than 1 ppt at least 95% of the time during a normal water year.

Attachment I

Fact Sheet

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
1515 CLAY STREET, SUITE 1400
OAKLAND, CA 94612
(510) 622 – 2300 Fax: (510) 622 - 2460

FACT SHEET

for

NPDES PERMIT and WASTE DISCHARGE REQUIREMENTS for
FAIRFIELD-SUISUN SEWER DISTRICT
FAIRFIELD, SOLANO COUNTY

NPDES Permit No. CA0038024
Order No. R2-2003-0072

PUBLIC NOTICE:

Written Comments

- Interested persons are invited to submit written comments concerning this draft permit.
- Comments should be submitted to the Regional Board no later than 5:00 p.m. on July 23, 2003.

Public Hearing

- The draft permit will be considered for adoption by the Board at a public hearing during the Board's regular monthly meeting at: Elihu Harris State Office Building, 1515 Clay Street, Oakland, CA; 1st floor Auditorium.
- This meeting will be held on: August 20, 2003, starting at 9:00 am.

Additional Information

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

This Fact Sheet contains information regarding an application for waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permit for the Fairfield-Suisun Sewer District (Discharger or District) for discharges of treated wastewater from the treatment facilities. The Fact Sheet describes the factual, legal, and methodological basis for the permit and provides supporting documentation to explain the rationale and assumptions used in deriving the limits.

I. INTRODUCTION

1. Discharge Description

The Discharger owns the Fairfield-Suisun Wastewater Treatment Plant (the Plant), located at 1010 Chadbourne Road, Fairfield, Solano County, California. The Plant provides tertiary level treatment of wastewater from domestic, commercial and industrial sources within the City of Fairfield, City of Suisun City and, by contract, some unincorporated properties in Solano County. The Discharger's service area currently has a population of approximately 130,000 people (Year 2003).

The Plant has an average dry weather flow design capacity of 17.5 million gallons per day (mgd) and can treat up to approximately 34.8 mgd during wet weather. Flows higher than 34.8 mgd are diverted to the 75 million gallons (MG) of flow equalization basins located on the Plant. Flows diverted to flow equalization basins are returned to the Plant for treatment after storm flows recede. The Plant presently treats an annual average flow of 16.1 mgd (2000-2002), with an average dry weather flow of 14.1 mgd (total effluent, 2000-2002). Of the total flow treated, an annual average of 14.4 mgd was discharged, with 1.7 mgd reclaimed for agricultural irrigation.

Approximately 90% of the treated effluent is discharged to the Boynton Slough Outfall (E-001) within the Suisun Marsh system. Treated effluent is also discharged intermittently from turnouts located on the Boynton Slough Outfall pipeline to privately owned and managed duck ponds in the Suisun Marsh (E-002 and E-003). The Solano Irrigation District and the Department of Fish and Game determine the frequency and volume of these discharges (depending upon seasonal rainfall). Approximately 10% of the treated effluent is recycled for agricultural irrigation, landscape irrigation, and industrial cooling through the Recycling Outfall (E-004), which discharges into irrigation water conveyance and distribution facilities owned and operated by the Solano Irrigation District. The discharges of reclaimed water to land are regulated by a separate Order, Water Reclamation Requirements Order No. 91-147, adopted by the Board on October 16, 1991.

The Discharger has ongoing preventive maintenance and capital improvement programs for the collection system sewer lines to ensure adequate collection system reliability and capacity. The following significant collection system improvements are planned between now and 2010: Increase the size of two of the Cordelia Pump Station pumps from 100 hp to 150 hp (CO-1A), install collection system piping to allow diversion of flow from the Suisun Pump Station basin to the Central Pump Station basin (C-1A), upgrade existing pumps at the Central Pump Station to larger impellers (C-8), parallel an existing sewer line along North Texas Street to increase sewer capacity (C-9), install a new sewer line along the north end of Dover Avenue (C-10), install parallel sewers in Oliver Road, Beck Avenue, and Waterman Drive including various connections to smaller adjoining sewers (I-1A, I-1B, I-2), and install two additional pumps in the Chadbourne-Beck-Cordelia Pump Station (I-3). Numbers in parenthesis refer to the designated abbreviations used in the October 2001 Sewer System and Treatment Plant Master Plan update. Total anticipated costs for these projects (in Year 2000 dollars) are approximately $10,000,000.

2. Receiving Water Beneficial Uses

The beneficial uses identified in the Basin Plan for waters of Suisun Slough (SS), Suisun Bay (SB), and Suisun Marsh (SM) are:

Industrial Service Supply	(SB)
Navigation	(SB, SS)
Water Contact Recreation	(SB, SS, SM)
Non-contact Water Recreation	(SB, SS, SM)
Commercial and Sport Fishing	(SB)
Wildlife Habitat	(SB, SS, SM)
Preservation of Rare and Endangered Species	(SB, SM)
Fish Migration	(SB, SM)
Fish Spawning	(SB, SS, SM)
Estuarine Habitat	(SB, SM)
Warm Freshwater Habitat	(SS)

Boynton Slough Beneficial Use. When considering specific beneficial uses for a waterbody, the Basin Plan provides the Tributary Rule. The Tributary Rule interprets which beneficial uses are currently or potentially supported where beneficial uses have not been specifically designated. Various sloughs in the watershed, including Boynton Slough and Suisun Slough, support the Suisun Marsh. Suisun Marsh is designated in the Basin Plan (page 2-25, Table 2-7) as supporting Estuarine Habitat. By applying the Tributary Rule, Boynton Slough supports the Estuarine Habitat beneficial use. In addition, the Discharger performed a receiving water study as required by the previous Order, which in part investigated the appropriate beneficial uses for Boynton Slough. Surveys performed in 2000 and 2001 on the vegetation species along the Boynton Slough indicate that although the plant community can be classified as tidal freshwater marsh, brackish marsh plants are found throughout the study area. Therefore, the study proposes a beneficial use designation of Estuarine Habitat for Boynton Slough (Boynton Slough Beneficial Use Classification, January 24, 2002).

3. Receiving Water Hardness and Salinity

(1) Salinity. The Discharger samples its receiving water salinity at eight stations in Boynton and adjacent sloughs in the vicinity of the discharge. The past five years (1998-2002) of salinity monitoring data range from 0.0 to 12.2 ppt, with approximately 82% of the data below 5 ppt, 33% of the data below 1 ppt, and less than 1% of the data above 10 ppt. Although the salinity data indicates a freshwater classification based on one of the Basin Plan's salinity criteria, the Basin Plan further states that "for discharges to tidally-influenced fresh waters that support estuarine beneficial uses, effluent limitations shall be the lower of the marine, or freshwater effluent limitation based on ambient hardness "(BP, page 4-13). Based on the Tributary Rule, Boynton Slough supports estuarine beneficial use, as it is part of the Suisun Marsh. Furthermore, Boynton Slough is tidally influenced freshwater, and supports estuarine beneficial uses according to the Boynton Slough Beneficial Use Study dated January 24, 2002. Based on the Basin Plan, CTR, and BPJ, the receiving water is classified as estuarine. Therefore, the applicable water quality criteria are the lower of the marine and freshwater water quality criteria.

(2) Hardness. Some WQOs are hardness dependent. Receiving water hardness data are available at the same eight receiving water sampling stations. The minimum observed hardness value for the past five years (1998-2002) is 100 mg/L as $CaCO_3$. The annual median hardness values for the receiving water range from 300 (1998) to 710 mg/L (2000) during 1998 and 2002 (a total of 472 data points). To determine a representative hardness value for intended level of protection of the water quality, staff calculated the adjusted geometric mean (AGM, a value that 30% of the data points fall below the AGM), a concept which is used in the Water Effect Ration (WER) calculation, since it is considered that hardness plays a similar role as the WER in influencing the toxicity of metals. The hardness data set are censored (from 472 data points to 145 data points) to eliminate hardness values above 400 mg/L and to eliminate hardness values obtained when the receiving water salinity was above 1.0 ppt. From the censored data set, the AGM is calculated to be 268 mg/L. The following lists the steps to calculate an AGM.

How to calculate an Adjusted Geometric Mean:

1. Calculate the logarithms of each hardness value.
2. Calculate the arithmetic mean of the logarithms.
3. Calculate the standard deviation (s) of the logarithms.
4. Calculate the standard error (SE) of the arithmetic mean:
   $SE = s/\sqrt{n}$
5. Calculate A = arithmetic mean - $t_{0.7} \times SE$

where $t_{0.7}$ is the value of Student's *t* statistics for a one-sided probability of 0.7 with *n-1* degrees of freedom, *n*-sample size. When the sample size is large, the Student t statistics can be approximate by the normal distribution z-statistics, which is 0.524.

6. Take the antilogarithm of A, antilog A is the Adjusted Geometric Mean (AGM).

II. DESCRIPTION OF EFFLUENT

Board Order No. 98-077, adopted by the Board on July 18, 1998, previously regulated the discharge from the treatment plant.

1. Effluent Characteristics

The Discharger's treated wastewater has the characteristics summarized in Table A. The data in Table A represent at least monthly monitoring performed from January 2000 through December 2002 for conventional and inorganic priority pollutants. Results for detected organic constituents from April 1998 through December 2002 are included in Table A. All other organic constituents were not detected.

Table A. Summary of Effluent Data for Outfall E-001

CTR No.	Constituent	Average / or Detected Value	Maximum	# of Data points, # of detect (including DNQ), Lowest Method Detection Limit (MDL)
--	BOD_5 (mg/l)	2.18	8.7	--
--	TSS (mg/l)	1.11	5.6	--
--	pH	7.27	8.47(max) / 6.83(min)	--
--	Ammonia Nitrogen (mg/L)	0.39	8.8	--
--	Turbidity	1.02	5.48	--
1	Antimony	0.38	0.6	22, 21, 0.01
2	Arsenic (µg/l)	1.29	4.0	78, 46, 0.5
4	Cadmium (µg/l)	0.21	4.0	76, 39, 0.1
5b	Chromium (VI) (µg/l)	0.72	1.2	78, 34, 0.5
6	Copper (µg/l)	4.34	10	78, 77, 2
7	Lead (µg/l)	1.01	2.0	78, 47, 2
8	Mercury (µg/l)	0.0055	0.021	78, all detect
9	Nickel (µg/l)	3.76	6.6	78, 63, 3
10	Selenium (µg/l)	1.0	2.0	78, 34, 1
11	Silver (µg/l)	0.24	0.6	77, 33, 0.1
12	Thallium (µg/l)	0.043	0.1	22, 7, 0.3
13	Zinc (µg/l)	36.6	60	78, all detect
14	Cyanide (µg/l)	4.85	28	77, 35, 0.6
20	Bromoform (µg/l)	2.75	8.7	10, 9, 0.1
23	Chlorodibromomethane (µg/l)	19.8	31	10, 9, 0.18
24	Chloroethane (µg/l)	0.4 [1]	0.4	10, 1, 0.34
26	Chloroform (µg/l)	22.3	46	10, 9, 0.24
27	Dichlorobromomethane (µg/l)	29	55	11, 10, 0.46
35	Methyl Chloride (µg/l)	1.2 [1]	1.2	10, 1, 0.36

CTR No.	Constituent	Average / or Detected Value	Maximum	# of Data points, # of detect (including DNQ), Lowest Method Detection Limit (MDL)
36	Methylene Chloride (µg/l)	0.57	2	10, 3, 0.38
39	Toluene (µg/l)	0.9 [1]	0.9	10, 1, 0.25
68	Bis (2-ethylhexyl) Phthalate (µg/l)	2.6	13	10, 3, 0.286
105	gamma-BHC (µg/l)	0.02 [1]	0.02	10, 1, 0.001

Footnote for Table A:

1. Where constituents were detected only once, this is presented as the average value. Otherwise, the detected values and detection limits were used to calculate the average.

2. Solids Treatment

Solids removed from the wastewater stream are treated by dissolved air flotation thickening (2 units), anaerobic digestion (2 digesters), and then dewatering either by plate and frame filter press (2 units) or by open-air solar drying beds (10 acres total). Methane gas from the digesters is recovered, stored (1 spherical tank), and used to operate electrical generators (2 engines) for in-plant electrical needs. All dewatered sludge is taken to the Potrero Hills Landfill or land application.

3. Shallow Water Discharge Prohibition & Wastewater Reclamation

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 (Basin Plan, page 4-67, Table 4-1). Discharges of wastewater to the Boynton Slough are contrary to this prohibition, due to the tidal nature of the receiving waters and limited upstream, fresh water flows. The discharge is classified as a shallow water discharge, and effluent limitations are calculated assuming no dilution.

The Basin Plan provides that exceptions to the above prohibition will be considered for discharges where: 1) an inordinate burden would be placed on the discharger relative to beneficial uses protected, and an equivalent level of environmental protection can be achieved by alternate means such as an alternative discharge site, a higher level of treatment, and/or improved treatment reliability; or, 2) the discharge is approved as a part of a reclamation project; or, 3) it can be demonstrated that net environmental benefits will be derived as a result of the discharge (Basin Plan, page 4-5).

In addition to the criteria stated above for exceptions, the Basin Plan requires that the Board consider the reliability of the discharger's system in preventing inadequately treated wastewater from being discharged to the receiving water, and the environmental consequences of such discharges.

The Discharger currently reclaims treated wastewater for irrigation of agricultural lands. The discharges of reclaimed water to land are regulated by a separate Order, Water Reclamation Requirements Order No. 91-147, adopted by the Board on October 16, 1991.

The Board finds that the water reuse program implemented by the Discharger complies with the exception provision of the Basin Plan. The Board hereby grants an exception to the discharge prohibition to discharge tertiary treated effluent to Boynton Slough and to the managed duck ponds of Suisun Marsh.

III. GENERAL RATIONALE

The following documents are the bases for the requirements contained in the Order, and are referred to under the specific rationale section of this Fact Sheet.

- Federal Water Pollution Control Act, as amended (hereinafter the **CWA**).
- Federal Code of Regulations, Title 40 - Protection of Environment, Chapter 1, Environmental Protection Agency, Subchapter D, Water Programs, Parts 122-129 (hereinafter referred to as 40 CFR specific part number).
- Water Quality Control Plan, San Francisco Bay Basin, adopted by the Board on June 21, 1995 (hereinafter the **Basin Plan**). The California State Water Resources Control Board (hereinafter the **State Board**) approved the Basin Plan on July 20, 1995 and by California State Office of Administrative Law approved it on November 13, 1995. The Basin Plan defines beneficial uses and contains WQOs for waters of the State, including Suisun Bay.
- California Toxics Rules, Federal Register, Vol. 65, No. 97, May 18, 2000 (hereinafter the **CTR**).
- National Toxics Rules 57 FR 60848, December 22, 1992, as amended (hereinafter the **NTR**).
- State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, May 1, 2000 (hereinafter the **State Implementation Policy**, or **SIP**).
- Quality Criteria for Water, U.S. EPA 440/5-86-001, 1986.
- Ambient Water Quality Criteria for Bacteria – 1986, U.S. EPA440/5-84-002, January 1986.

IV. SPECIFIC RATIONALE

Several specific factors affecting the development of limitations and requirements in the Order are discussed as follows:

1. Recent Plant Performance

Section 402(o) of CWA and 40 CFR 122.44(l) require that water quality-based effluent limits (**WQBELs**) in re-issued permits be at least as stringent as in the previous permit. The SIP specifies that interim effluent limitations, if required, must be based on current treatment facility performance or on previous permit limitations whichever is more stringent. In determining what constitutes "recent plant performance", best professional judgment (**BPJ**) was used. Effluent monitoring data collected from January 2000 through December 2002 (or from April 1998 through December 2002 for priority organic pollutants) are considered representative of recent plant performance.

2. Impaired Water Bodies in 303(d) List

The U.S. EPA Region 9 office approved the State's 2002 303(d) list of impaired waterbodies on June 6, 2003. The list was prepared in accordance with section 303(d) of the CWA to identify specific waterbodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources. Suisun Bay is listed for mercury, selenium, dioxin and furan compounds, chlordane, 4,4'-DDT, diazinon, dieldrin, PCBs, and exotic species. The TMDLs will establish waste load allocations (WLAs) and load allocations for point sources and non-point sources, respectively, and will result in achieving the water quality standards for the water body. Depending upon whether the discharger is found to be impacting water quality in Suisun Bay, the TMDLs may include WLAs for the dischargers. If the TMDLs address the Discharger, the final effluent limitations for this discharge would be based on the applicable WLAs.

The SIP requires final effluent limits for all 303(d)-listed pollutants to be based on total maximum daily loads (**TMDL**) and wasteload allocation (**WLA**) results. The SIP and federal regulations also require that final concentration limits be included for all pollutants with reasonable potential (RP). The SIP requires that where the discharger has demonstrated infeasibility to meet the final limits, interim concentration limits, and performance-based mass limits for bioaccumulative pollutants, be established in the permit with a compliance schedule in effect until final effluent limits are adopted. The SIP also requires the inclusion of appropriate provisions for source control.

3. Basis for Prohibitions

a. Prohibition A.1 (no discharges other than as described in the permit):

This prohibition is based on the Basin Plan, previous Order and BPJ.

b. Prohibition A.2 (10:1 dilution):

This prohibition is based on the Basin Plan. The Basin Plan prohibits discharges not receiving 10:1 dilution (Chapter 4, Discharge Prohibition No. 1). The Basin Plan also identifies exceptions that may be granted under certain conditions. The Board has granted an exception to the discharge prohibition for discharges to Boynton Slough and the Suisun Marsh all year round.

c. Prohibition A.3 (no bypass):

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

d. Prohibition A.4 (flow limit):

This prohibition of average dry weather discharges greater than 17.5 mgd is based on the historic reliable treatment capacity of the plant. Exceedance of the treatment plant's average dry weather flow design capacity may result in lowering the reliability of achieving compliance with water quality requirements, unless the Discharger demonstrates otherwise through an antidegradation study. This prohibition is based on 40 CFR 122.41(l).

e. Prohibition A.5 (discharge exception):

This discharge exception is based on the Basin Plan, previous Order and BPJ.

4. Basis for Effluent Limitations

a. Effluent Limitations B.1:

Permit Limit	Parameter	Units	Monthly Average	Weekly Average	Daily Maximum	Instantaneous Maximum
B.1.a	Biochemical Oxygen Demand (BOD)	mg/L	10	15	20	
B.1.b.	Total Suspended Solids (TSS)	mg/L	10	15	20	
B.1.c.	Settleable Matter	ml/L-hr	0.1	--	0.2	
B.1.d.	Oil & Grease	mg/L	--	--	10	
B.1.e.	Ammonia Nitrogen	mg/L	2.0	3.0	4.0	
B.1.f.	Turbidity	NTU	--	--	10	
B.1.g.	Chlorine Residual [1]	mg/L	--	--	--	0.0

[1] Requirement defined as below the limit of detection in the latest officially approved edition of "Standard Methods for Examination of Water and Wastewater."

The effluent limitations B.1.a through B.1.g. are technology-based limits. These limits are based on the Basin Plan (Chapter 4, page 4-8, and Table 4-2, at page 4-69). These limits are also based on previous permit limits.

b. Effluent Limitation B.2 (pH, minimum 6.5, maximum 8.5):

This effluent limit is a technology-based limit and is unchanged from the previous permit. The limit is based on the Basin Plan (Chapter 4, Table 4-2), which is derived from federal requirements (40 CFR 133.102). This is an existing permit effluent limitation and compliance has been demonstrated by existing plant performance. The Discharger may elect to use continuous on-line monitoring system(s) for measuring pH. In this case, 40 CFR 401.17 (pH Effluent Limitations Under Continuous Monitoring), and BPJ are the basis for the compliance provisions for pH limitations. Excursions of the pH effluent limitations are permitted, provided that both of the following conditions are satisfied: (i) The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and (ii) No individual excursion from the range of pH values shall exceed 60 minutes.

c. Effluent Limitation B.3 (BOD and TSS monthly average 85 percent removal):

These are technology-based limits and existing permit effluent limitations based on Basin Plan requirements, derived from federal requirements (40 CFR 133.102; definition in 133.101). During the past 5 years, the Discharger has consistently met these removal efficiency limits.

d. Effluent Limitation B.4 (Total Coliform):

The total coliform limits are imposed the moving median value for the MPN of total coliform bacteria in any seven consecutive samples shall not exceed 2.2 MPN/100ml and any single sample shall not exceed 23 MPN/100mL. The purpose of this effluent limitation is to ensure adequate disinfection of the discharge in order to protect beneficial uses of the receiving waters. Effluent limits are based on WQOs for bacteriological parameters for receiving water beneficial uses. WQOs are given in terms of parameters which serve as surrogates for pathogenic organisms. The traditional parameter in this regard is coliform bacteria, either as total coliform or as fecal coliform. This Order specifies a total coliform limit. The effluent limits in the permit are technology-based, and are consistent with the previous permit. Consistent with the Basin Plan (Table 4-2, footnote "d"), the Board can allow the Discharger to use alternate limits of bacteriological quality if the Discharger can establish to the satisfaction of the Board that the use of the fecal coliform or enterococci limits will not result in unacceptable adverse impacts on the beneficial uses of the receiving water.

e. Effluent Limitation B.5 (Whole Effluent Toxicity):

The Basin Plan specifies a narrative objective for toxicity, requiring that all waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental response on aquatic organisms. Detrimental response includes but is not limited to decreased growth rate, decreased reproductive success of resident or indicator species, and/or significant alternations in population, community ecology, or receiving water biota. These effluent toxicity limits are necessary to ensure that this objective is protected. The acute toxicity limit is based on the Basin Plan.

f. Effluent Limitation B.6 (Chronic Toxicity):

The chronic toxicity limit is based on the Basin Plan. Chronic toxicity shall be monitored by using critical life stage test(s) and the most sensitive test species identified by screening phase testing or previous testing conducted under the ETCP. The Discharger shall conduct routine monitoring with the species approved by the Executive Officer. At the time of this permit adoption, the approved species is abalone, which is the most sensitive species identified during the chronic toxicity screening study conducted between February and April 2003, on giant kelp, abalone, mysid, fathead minnow, and *ceriodaphnia dubia* (water flea). Since abalone is a marine water species, the effluent needs to be salted up to meet the salinity requirement for the species. The 100% effluent may be omitted if the marine test species specified is sensitive to artificial sea salts. In this case, it should be replaced with the highest percent of effluent achievable if salt solution is used to increase the salinity of the effluent (e.g. 70%). As a result, the detection limit could be higher than 1 TUc, e.g. 1.43 TUc for 70% effluent.

g. Effluent Limitation B.7 (Toxic Substances):

(1). Reasonable Potential Analysis (RPA):

40 CFR 122.44(d)(1)(i) specifies that permits are required to include WQBELs for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard". Thus, the fundamental step in determining whether or not a WQBEL is required is to

assess a pollutant's reasonable potential of excursion of its applicable WQO or WQC. The following section describes the reasonable potential analysis and the results of such an analysis for the pollutants identified in the Basin Plan and the CTR.

i. *WQOs and WQC.* The RPA involves the comparison of effluent data with appropriate WQOs including narrative toxicity objectives in the Basin Plan, applicable WQC in the CTR/NTR, and U.S. EPA's 1986 Quality Criteria for Water. The applicable WQOs and WQC for some parameters are hardness dependant. An ambient hardness value of 182 mg/L was used to calculate the hardness-dependent WQOs. The Basin Plan objectives and CTR criteria are shown in the attachment of this Fact Sheet.

ii. *Methodology.* RPA is conducted using the method and procedures prescribed in Section 1.3 of the SIP. Board staff and the Discharger have analyzed the effluent data to determine if the discharge had reasonable potential to cause or contribute to exceedances of applicable WQOs or WQC. The attachment of this Fact Sheet shows the step-wise process described in Section 1.3 of the SIP.

iii. *Effluent and background data.* The RPA is based on effluent data collected by the Discharger from January 2000 through December 2002 for metals, mercury, cyanide, selenium, and from April 1998 through December 2002 for organic pollutants (see attachments of this Fact Sheet). Water-quality data collected from Sacramento River monitoring station through the Regional Monitoring Program in 1993-2000 were used to determine the maximum observed background values. Due to the limited availability of the ambient background data, the Discharger, in conjunction with BACWA, is implanting the Coordinated Receiving Water Monitoring Effort, which will collect and augment the ambient receiving water data based on the approved receiving water sampling plan. The requirements are addressed by the technical information request (13267) letter dated August 6, 2001 by Board staff, entitled, Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy.

iv. *RPA determination.* The RPA results are shown below in **Table B** and attachment of this Fact Sheet. Pollutants that have reasonable potential were cadmium, chromium (VI), copper, mercury, nickel, cyanide, TCDD-TEQ, dichlorobromomethane, bis (2-ethylhexyl) phthalate, 4,4'-DDE, and dieldrin.

Table B. Summary of Reasonable Potential Results

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum MDL[1] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum MDL[1] (µg/L)	RPA Results[2]
1	Antimony	**0.6**	4300	**0.337**	N
2	Arsenic	**4.0**	36	**3.65**	N
3	Beryllium	0.06	NA	**0.126**	Uo
4	Cadmium	**4**	2.5	**0.06**	**Y**
5b	Chromium	**1.2**	34.2	**80.37**	**Y**
6	Copper	**10**	6.7	**9.9**	**Y**
7	Lead	**3.0**	5.6	**2.35**	N
8	Mercury	**0.021**	0.025	**0.0377**	**Y**
9	Nickel	**6.6**	13.8	**21.8**	**Y**

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum MDL[1] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum MDL[1] (µg/L)	RPA Results[2]
10	Selenium	**2.0**	5	**0.3**	N
11	Silver	**0.6**	2.3	**0.0566**	N
12	Thallium	**0.1**	6.3	**0.14**	N
13	Zinc	**60**	81	**18.2**	N
14	Cyanide	**28**	1	**0.5**	**Y**
16	2,3,7,8-TCDD (Dioxin)	1.42×10^{-6}	1.4×10^{-8}	**6.5×10^{-9}**	N
	TCDD-DEQ	5.53×10^{-6}	1.4×10^{-8}	**4.8×10^{-8}**	**Y**
17	Acrolein	3.3	780	0.5	N
18	Acrylonitrile	1.6	0.66	0.03	N
19	Benzene	0.27	71	0.05	N
20	Bromoform	**8.7**	360	0.5	N
21	Carbon Tetrachloride	0.42	4.4	**0.06**	N
22	Chlorobenzene	0.19	21000	0.5	N
23	Chlordibromomethane	**31**	34	0.05	N
24	Chloroethane	**0.4**	NA	0.5	Uo
25	2-Chloroethylvinyl Ether	0.31	NA	0.5	Uo
26	Chloroform	**46**	NA	0.5	Uo
27	Dichlorobromomethane	**55**	46	0.05	**Y**
28	1,1-Dichloroethane	0.28	NA	0.05	Uo
29	1,2-Dichloroethane	0.18	99	**0.04**	N
30	1,1-Dichloroethylene	0.37	3.2	0.5	N
31	1,2-Dichloropropane	0.22	39	0.05	N
32	1,3-Dichloropropylene	0.25	1700	NA	N
33	Ethylbenzene	0.3	29000	0.5	N
34	Methyl Bromide	0.46	4000	0.5	N
35	Methyl Chloride	**1.2**	NA	0.5	Uo
36	Methylene Chloride	**2**	1600	0.5	N
37	1,1,2,2-Tetrachloroethane	0.34	11	0.05	N
38	Tetrachloroethylene	0.32	8.85	0.05	N
39	Toluene	**0.9**	200000	0.3	N
40	1,2-Trans-Dichloroethylene	0.3	140000	0.5	N
41	1,1,1-Trichloroethane	0.35	NA	0.5	Uo
42	1,1,2-Trichloroethane	0.27	42	0.05	N
43	Trichloroethylene	0.29	81	0.5	N
44	Vinyl Chloride	0.34	525	0.5	N
45	Chlorophenol	0.4	400	NA	N
46	2,4-Dichlorophenol	0.3	790	1.3	N
47	2,4-Dimethylphenol	0.3	2300	1.3	N
48	2-Methyl-4,6-Dinitrophenol	0.4	765	1.2	N
49	2,4-Dinitrophenol	0.3	14000	0.7	N
50	2-Nitrophenol	0.3	NA	1.3	Uo
51	4-Nitrophenol	0.2	NA	1.6	Uo
52	3-Methyl-4-Chlorophenol	0.3	NA	1.1	Uo
53	Pentachlorophenol	0.4	7.9	1	N

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum MDL[1] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum MDL[1] (µg/L)	RPA Results[2]
54	Phenol	0.2	4600000	1.3	N
55	2,4,6-Trichlorophenol	0.2	6.5	1.3	N
56	Acenaphthene	0.04	2700	**0.0019**	N
57	Acenaphthylene	0.05	NA	**0.00012**	Uo
58	Anthracene	0.04	110000	**0.00005**	N
59	Benzidine	0.3	0.00054	0.002	N
60	Benzo(a)Anthracene	0.02	0.049	**0.00022**	N
61	Benzo(a)Pyrene	0.03	0.049	**0.00006**	N
62	Benzo(b)Fluoranthene	0.02	0.049	**0.00046**	N
63	Benzo(ghi)Perylene	0.04	NA	**0.000034**	Uo
64	Benzo(k)Fluoranthene	0.02	0.049	**0.0002**	N
65	Bis(2-Chloroethoxy)Methane	0.3	NA	0.3	Uo
66	Bis(2-Chloroethyl)Ether	0.3	1.4	0.3	N
67	Bis(2-Chloroisopropyl)Ether	1.0	170000	NA	N
68	Bis(2-Ethylhexyl)Phthalate	**13**	5.9	**0.68**	**Y**
69	4-Bromophenyl Phenyl Ether	0.5	NA	0.23	Uo
70	Butylbenzyl Phthalate	0.4	5200	0.52	N
71	2-Chloronaphthalene	0.3	4300	0.3	N
72	4-Chlorophenyl Phenyl Ether	0.4	NA	0.5	Uo
73	Chrysene	0.02	0.049	**0.00061**	N
74	Dibenzo(a,h)Anthracene	0.04	0.049	**0.00039**	N
75	1,2 Dichlorobenzene	0.12	17000	0.3	N
76	1,3 Dichlorobenzene	0.16	2600	0.3	N
77	1,4 Dichlorobenzene	0.12	2600	0.3	N
78	3,3'-Dichlorobenzidine	0.4	0.077	0.001	N
79	Diethyl Phthalate	0.4	120000	0.24	N
80	Dimethyl Phthalate	0.4	2900000	0.24	N
81	Di-n-Butyl Phthalate	0.4	12000	**1.72**	N
82	2,4-Dinitrotoluene	0.3	9.1	0.27	N
83	2,6-Dinitrotoluene	0.3	NA	0.29	Uo
84	Di-n-Octyl Phthalate	0.4	NA	0.38	Uo
85	1,2-Diphenylhydrazine	0.3	0.54	**0.0087**	N
86	Fluoranthene	0.02	370	**0.0013**	N
87	Fluorene	0.05	14000	**0.0024**	N
88	Hexachlorobenzene	0.4	0.00077	**0.000053**	N
89	Hexachlorobutadiene	0.2	50	0.3	N
90	Hexachlorocyclopentadiene	0.1	17000	0.31	N
91	Hexachloroethane	0.2	8.9	0.2	N
92	Indeno(1,2,3-cd) Pyrene	0.04	0.049	**0.00042**	N
93	Isophorone	0.3	600	0.3	N
94	Naphthalene	0.05	NA	**0.0021**	Uo
95	Nitrobenzene	0.3	1900	0.25	N
96	N-Nitrosodimethylamine	0.4	8.1	0.3	N
97	N-Nitrosodi-n-Propylamine	0.3	1.4	0.001	N

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum MDL[1] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum MDL[1] (µg/L)	RPA Results[2]
98	N-Nitrosodiphenylamine	0.4	16	0.19	N
99	Phenanthrene	0.03	NA	**0.001**	Uo
100	Pyrene	0.02	11000	**0.0012**	N
101	1,2,4-Trichlorobenzene	0.3	NA	0.3	Uo
102	Aldrin	0.003	0.00014	NA	N
103	alpha-BHC	0.002	0.013	**0.000347**	N
104	beta-BHC	0.001	0.046	**0.000118**	N
105	gamma-BHC	**0.02**	0.063	**0.0010032**	N
106	delta-BHC	0.001	NA	**0.000038**	Uo
107	Chlordane	0.005	0.00059	**0.000302**	N
108	4,4'-DDT	0.001	0.00059	**0.000349**	N
109	4,4'-DDE	0.001	0.00059	**0.00092**	**Y**
110	4,4'-DDD	0.001	0.00084	**0.000347**	N
111	Dieldrin	0.002	0.00014	**0.00038**	**Y**
112	alpha-Endosulfan	0.003	0.0087	**0.000036**	N
113	beta-Endosulfan	0.001	0.0087	**0.000042**	N
114	Endosulfan Sulfate	0.001	240	**0.0002**	N
115	Endrin	0.002	0.0023	**0.000019**	N
116	Endrin Aldehyde	0.002	0.81	NA	N
117	Heptachlor	0.003	0.00021	**0.000011**	N
118	Heptachlor Epoxide	0.002	0.00011	**0.000097**	N
119-125	PCBs	0.05-0.2	0.00017	NA	N
126	Toxaphene	0.2	0.0002	NA	N
	Tributyltin	0.0015	0.01	0.001	N
	Diazinon	0.32	NA	**0.03769**	Uo
	Chlorpyrifos	0.12	NA	**0.00095**	Uo

Footnotes for Table B:

1. Maximum Effluent Concentration (MEC) in bold is the actual detected MEC, otherwise the MEC shown is the minimum detection level.
   NA = Not Available (there is no criteria or monitoring data for this constituent).
2. RP =Yes, if either MEC or Background > WQO/WQC.
   RP = No, if (1) both MEC and background < WQO/WQC or (2) no background and all effluent data non-detect, or no background and MEC<WQO/WQC (per WQ 2001-16 Napa Sanitation Remand)
   RP = Uo (undetermined if no objective promulgated).

v. *Conversion of existing Basin Plan objectives using CTR Conversion Factors and Site-Specific Translators.*

The CTR and the Basin Plan establish aquatic life- and human health-based water quality criteria. The water quality criteria are typical values based on default site conditions and assumptions. However, site-specific conditions such as water temperature, pH, hardness, concentrations of metal binding sites, particulates organic carbon, dissolved organic carbon, and concentrations of other chemicals can greatly impact the chemical toxicity. The purpose of a

translator is to adjust these default assumptions for varying site-specific conditions to prevent exceedingly stringent or under protective water quality objectives.

The Basin Plan WQOs are expressed in total. The CTR conversion factors are used to convert the total Basin Plan WQOs to dissolved values. The CTR conversion factors are derived under the same laboratory conditions under which the WQOs were developed. Therefore, it is appropriate to use the CTR conversion factors to convert the Basin Plan WQOs. Site-specific translators were used to convert the dissolved Basin Plan WQOs back to total values.

The Discharger sampled its receiving water for dissolved and total heavy metals (cadmium, chromium, copper, nickel, and zinc, etc.) at eight receiving water stations during 2000 and 2001 for five sampling events (a total of 40 data points for each constituent). These data are used to develop the site-specific translators. When the data are non-detect, the detection limits are used when calculating the dissolved/total fraction. When both the total and dissolved concentrations on the same sampling date are non-detect, the data are not included in the calculation. A provision is included in this Order requiring the Discharger to perform a site-specific translator study for selected metals, which includes a collection of more data with lowered detection limits. The following table summarizes the applicable CTR/Basin criteria, CTR conversion factors, site-specific translators, and translated WQOs.

Table C. Translated WQOs Using CTR Conversion Factors and Site-Specific Translators

pollutant	Applicable most stringent WQOs		CTR Conversion Factors		Applicable WQOs basis	Converted dissolved WQOs		Site-Specific translators		Converted Site-Specific WQOs (total)	
	chronic	acute	chronic	acute		chronic	acute	chronic	acute	chronic	acute
Cadmium[1]	2.5	11.9	0.868	0.903	BP, fw	2.134	10.765	NA	NA	2.5	11.9
Chromium	11	16	0.962	0.982	BP, fw	10.582	15.712	0.23	0.46	46.0	34.2
Copper [2]	3.1	4.8	NA	NA	CTR, sw	NA	NA	0.40	0.63	6.7	7.5
Nickel	7.1	140	0.99	0.99	BP, sw	7.029	138.6	0.51	0.91	13.8	152.3
Zinc	58	170	0.946	0.946	BP, sw	54.868	160.82	0.68	1.00	80.7	160.8

Footnotes for Table C:

1. For cadmium, since all receiving water sampling data are non-detect, no site-specific translator can be derived (NA).
2. The applicable most stringent WQOs for copper are from CTR, which are expressed in dissolved form, only site-specific translators are used to convert the CTR WQOs into total WQOs. NA-not applicable.

vi. Organic constituents with limited data. Reasonable potential could not be determined for a majority of the organic priority or toxic pollutants due to

- applicable WQOs or WQC are lower than current analytical techniques can measure; or
- applicable WQOs or WQC are absent, or
- background or effluent data are inadequate.

Pollutant Monitoring. As required by the Board's August 6, 2001 Letter, the Discharger is required to initiate or continue to monitor for those pollutants with limited data using analytical methods that provide the best detection limits reasonably feasible. If detection limits improve such that it

becomes feasible to evaluate compliance with applicable water quality criteria, these pollutants' RPAs will be reevaluated in the future to determine whether numeric effluent limits need to be added to the permit or if monitoring should be continued.

vii. *Pollutants with no reasonable potential.* WQBELs are not included in the Order for constituents that do not have reasonable potential to cause or contribute to exceedance of applicable WQOs or WQC. However, monitoring for those pollutants is still required, as specified in the August 6, 2001 Letter. If concentrations or mass loads of these constituents were found to have increased significantly, the Discharger will be required to investigate the source(s) of the increase(s). Remedial measures are required if the increases pose a threat to water quality in the receiving water.

viii. *Permit Reopener.* The permit includes a reopener provision to allow numeric effluent limits to be added for any constituent that in the future exhibits reasonable potential to cause or contribute to exceedance of a WQO or WQC. This determination, based on monitoring results, will be made by the Board.

(2). Final Water Quality-Based Effluent Limits (WQBELs):

The final effluent limitations are water quality-based. They were developed and set for the toxic and priority pollutants that were determined to have reasonable potential to cause or contribute to exceedances of the WQOs or WQC. Final effluent limitations were calculated based on appropriate WQOs/WQC, no dilution allowance, and the appropriate procedures specified in Section 1.4 of the SIP (See attachment of this Fact Sheet). For the purpose of the Order, final WQBELs refer to all non-interim effluent limitations. The WQO or WQC used for each pollutant with RP is indicated below as well as in the attachment of this Fact Sheet.

Table D. Water Quality Objectives/Criteria for Pollutants with RP

Pollutant	Chronic WQO/WQC (µg/L)	Acute WQO/WQC (µg/L)	Basis of Lowest WQO/WQC Used in RP
Cadmium	2.5	11.9	Basin Plan, fw, H=268 mg/L [1]
Chromium (VI)	46	34.2	Basin Plan, fw, T=0.23/0.46 [2]
Copper	6.7	7.5	CTR, sw, T=0.46/0.64 [2]
Mercury	0.025	2.1	Basin Plan, sw
Nickel	13.8	152.3	Basin Plan, sw, T=0.51/0.91 [2]
Cyanide	1	1	CTR (NTR), sw
2,3,7,8-TCDD	1.4×10^{-8}	-	CTR, hh
Dichlorobromo-methane	46	-	CTR, hh
Bis(2-ethylhexyl) Phthalate	5.9	-	CTR, hh
4,4'-DDE	0.00059	-	CTR, hh
Dieldrin	0.00014	-	CTR, hh

Footnotes for Table D:

1. Ambient hardness is calculated from the past five years (1998-2000) of receiving water hardness monitoring data.
2. T- site-specific translators.

(3). Interim Limits:

Interim limits are calculated when it is determined that the Discharger cannot immediately comply with the final WQBELs. If the Discharger demonstrates that the final limits will be infeasible to meet and provides justification for a compliance schedule, then interim limits are established, with a compliance schedule to achieve the final limits. The ability for the Discharger to immediately comply with final WQBELs is evaluated, in part, under the procedure below:

i. *Statistical Feasibility Analysis Procedure.* The statistical feasibility analysis consisted of the following steps:

- Using standard statistical software (MiniTab™), evaluate the probable shape of the data distribution for effluent sample data from the period January 2000 to December 2002 (or from April 1998 through December 2000 for organic pollutants) (normal, log-normal or ln-normal distributions).
- Calculate the 95th and 99th percentiles of effluent data distribution for each constituent considered.
  - Compare the 95th and 99th percentile values with the WQBELs - Average Monthly Effluent Limit (AMEL) and Maximum Daily Effluent Limit (MDEL) calculated using the SIP procedure, respectively. According to Table 2 (Page 9 of the SIP), the AMEL and MDEL should correspond with the 95th and 99th percentile values, respectively, of plant performance.
  - Where the 95th and 99th percentile values are greater than the AMEL and MDEL, respectively, it is assumed that the overall data distribution of the actual effluent data is higher than the assumed data distribution used to generate the AMEL and MDEL, and that immediate compliance with the AMEL and MDEL is infeasible.
  - Where the 95th and 99th percentile values are not greater than the AMEL and MDEL, respectively, it is assumed that infeasibility of immediate compliance with the AMEL and MDEL is not demonstrated and the AMEL and MDEL can be immediately attained.
  - Where the 95th and 99th percentile values cannot be estimated due to too few data or all data are non-detect, the determination was based on Staff's BPJ after examining the raw data.
  - Table E summarizes the feasibility analysis for all constituents with effluent limits. For example, copper, based on comparison of the 95th percentile of the data to the AMEL (6.5 µg/L vs. 4.7 µg/L), and 99th percentile of the data to the MDEL (9.5 µg/L vs. 7.5 µg/L), Board staff concurred that the Discharger cannot immediately comply with the WQBELs.

Table E. Feasibility Analysis Results

Constituent	Predicted Data Distribution	95th percentile value, µg/L	**AMEL µg/L**	99th percentile value, µg/L	**MDEL µg/L**	MEC µg/L	Immediate attainment feasible?
Cadmium [1]	Log-normal	0.3	**1.3**	0.5	**4.0**	4.0	Yes
Chromium (VI) [1]	Log-normal	0.9	**20**	1.2	**34**	1.2	Yes
Copper	Log-normal	6.5	**4.7**	9.5	**7.5**	10	**No**
Mercury	Log-normal	0.010	**0.021**	0.012	**0.040**	0.021	Yes [5]
Nickel [1]	Log-normal	5.6	NA	6.9	**7.1** [4]	6.6	Yes
Cyanide [1]	Log-normal	13.0	**0.4**	26.0	**1.0**	28	**No**

Constituent	Predicted Data Distribution	95th percentile value, µg/L	**AMEL µg/L**	99th percentile value, µg/L	**MDEL µg/L**	MEC µg/L	Immediate attainment feasible?
Dichlorobromo-methane	Log-norm	53	**46**	63	**88**	55	**No**
Bis (2-ethylhexyl) Phthalate [2]	Undetermined	NA	**5.9**	NA	**11.8**	13	**No**
4,4'-DDE [3]	Undetermined	NA	**0.00059**	NA	**0.00118**	ND	**No**
Dieldrin [3]	Undetermined	NA	**0.00014**	NA	**0.00028**	ND	**No**

Footnotes for Table E:

1. Due to the high percentage of non-detects, a statistical procedure (using Mini-Tab) to analyze data with non-detects was used to calculate the statistics of the data, e.g. mean, standard deviation, and 95th and 99th percentiles, etc.
2. Data distribution for bis (2-ethylhexyl) phthalate was not predicted because there were too few quantified data (3 out of 10), the feasibility is determined based on MEC>MDEL (AMEL).
3. Effluent data for 4,4'-DDE and dieldrin are all non-detect, and the minimum detection limits are lower than the WQBELs. Therefore, interim limits are set at the Minimum Levels (ML) for both constituents.
4. For nickel, WQBEL is from the previous Order, which is more stringent than the calculated WQBELs using SIP procedure.
5. For mercury, an interim limit (0.023 µg/L as monthly average) is given instead of the final WQBELs, to be consistent with the permit requirement for other Bay Area dischargers using tertiary level treatment technology.

(4) Interim Limits and Compliance Schedules.

The Discharger submitted an infeasibility study dated June 17, 2003 which demonstrated according to the Basin Plan (page 4-14, Compliance Schedule) or SIP (Section 2.1, Compliance Schedule), it is infeasible to immediately comply with the WQBELs calculated according to Section 1.4 of the SIP. Therefore, this permit establishes a five-year compliance schedule of September 30, 2008 for final limits based on CTR or NTR criteria (i.e., copper, cyanide, dichlorobromomethane, bis (2-ethhtylhexyl) phthalate, 4,4'-DDE, and dieldrin), and a compliance schedule until March 31, 2010 for constituents based on Basin Plan criteria (i.e., mercury). The compliance schedules exceed the length of the permit, therefore, the calculated final limits are intended for point of reference for the feasibility demonstration and are only included in the findings by reference to the Fact Sheet. Additionally, the final WQBELs for copper, mercury, nickel, dioxins/furans, 4,4-DDE, and dieldrin may be based on either site-specific objectives (SSOs) or TMDLs/WLAs.

Pursuant to the SIP (Section 2.2.2, Interim Requirements for Providing Data), where available data are insufficient to perform reasonable potential analysis, this Order contains three provisions requiring the Discharger to conduct studies for characterizing effluent constituents, collecting data in the ambient background and to determine site-specific objectives (i.e. cyanide). For effluent characterization and ambient background monitoring, the interim report was submitted on May 18, 2003 and final report is due January 31, 2008. For development of site-specific objective for cyanide, the final report is due June 30, 2003.

h. Effluent Limitation B.8 – Interim Mercury Mass Emission Limit:

This Order includes an interim mercury mass-based effluent limitation of **0.060** kilograms per month (kg/month) and a mass trigger of **0.012** kg/month. This mass-based effluent limitation is continued from the previous Order, and is intended to maintain the Discharger at current loadings while encouraging reclamation and providing a buffer for growth. The mass trigger is recalculated using the ultra-clean data collected from January 2000 through April 2003 as it better reflects the Plant's performance. The recalculated mass trigger is a reflection of (1) better mercury effluent data (sampling and analytical techniques have improved); and (2) better flow data (40 months of actual effluent discharged to receiving water). The mass limit will maintain current loadings until a TMDL is established for Suisun Bay. If the Discharger is found to be contributing to mercury impairment in Suisun Bay, the final mercury effluent limitations will be based on the Discharger's WLA in the TMDL. If the mass trigger is exceeded, then the actions specified in Provision E.15 are initiated.

The inclusion of interim performance-based mass limits for bioaccumulative pollutants is consistent with the guidance described in section 2.1.1 of the SIP. Because of their bioaccumulative nature, an uncontrolled increase in the total mass loads of these pollutants in the receiving water will have significant adverse impacts on the aquatic ecosystem.

WaterKeeper Appeal on Previous Order Mercury Mass Limit/Trigger. The San Francisco BayKeeper (now known as the San Francisco Water Keeper) petitioned to the State Water Resources Control Board the Discharger's NPDES permit, Order No. 98-077, in August 1998. In November 1999, the SWRCB dismissed the BayKeeper's appeal. In December 1999, BayKeeper filed a lawsuit against the Regional and State Boards in Sacramento County Superior Court. After a change of venue request by the plaintiff and the real parties in interest, the case was transferred to the Sonoma County Superior Court. In early 2002, the Sonoma Court ruled that the Regional Board appropriately set the mass limit/trigger for mercury while complying with antidegradation requirements. In May 2002, BayKeeper filed an appeal of the Sonoma Court ruling. This case was heard before the State Appellate Court in April 2003. In May 2003, the State Appellate Court upheld the Sonoma Court's ruling.

Antidegradation. In an unpublished decision, the Court of Appeal, in its ruling, concluded that the interim limits for mercury in Order No. 98-077 do not violate the antidegradation policy and that substantial evidence supports the superior court's decision, as illustrated below. The appeal decision is cited as the San Francisco BayKeeper, the California State Water Resources Control Board et al., Court of Appeal, filed on May 28, 2003, case No. A 098908.

The Sonoma County Superior Court concluded that the antidegradation policy for Tier 1 waters (which the Discharger's receiving water is categorized) does not necessarily prohibit an increase in the discharge of mercury. The court further concluded that the Board's decision to include trigger level that approximates the actual mass discharged to water as well as mass limitation that rewards reclamation was a policy choice the Board was authorized to make. The Appellate court upheld the superior's court decision.

The Board included mass limit and trigger level for mercury in the permit to maintain ambient water quality. The combination of limit and trigger would protect the receiving water and would not cause further degradation of the water's beneficial uses. The Board based the mercury mass limit on plant performance, but because the plant has substantial reclamation programs, the mass limit is higher than the actual mass of mercury discharged to water. "[T]he way in which the mass load was calculated gives the discharger who reclaims more allowance or relative

allocation... than the discharger who does not reclaim. The incentive is meant to increase reclamation [in the South Bay]". The Board reasoned that rigidly holding dischargers to their current levels of performance would result in higher limits for POTWs that make little effort to reclaim or otherwise reduce their polluted discharge, while POTWs that aggressively work to reduce their environmental impact would find themselves bound by increasingly more stringent limits. Mass trigger levels in the permit requires the discharger whose loading exceeds the trigger to take certain specified actions to determine the cause of the higher load and to bring mercury mass back below the trigger.

5. Basis for Receiving Water Limitations

a. Receiving water limitations C.1. and C.2. (conditions to be avoided):

These limits are based on the previous Order and the narrative/numerical objectives contained in Chapters 2 and 3 of the Basin Plan.

b. Receiving water limitation C.3. (compliance with State Law):

This requirement is in the previous permit, requires compliance with Federal and State law, and is self-explanatory.

6. Basis for Sludge Management Practices

Provision E.1. through E.9. (Sludge Management Practices): These requirements are based on Table 4.1 of the Basin Plan, and 40 CFR 503.

7. Basis for Provisions

a. Provisions E.1. (Permit Compliance and Rescission of Previous Permit):

Time of compliance is based on 40 CFR 122. The basis of this Order superceding and rescinding the previous permit order is 40 CFR 122.46.

b. Provision E.2. (Cyanide Study and Schedule):

This provision, based on SIP, the Study requires the Discharger to participate the WERF studies in developing a site-specific objective for cyanide.

c. Provision E.3 (Dichlorobromomethane Source Reduction Compliance Schedule):

This provision is based on the SIP.

d. Provision E.4 (Bis(2-ethylhexyl)phthalate Laboratory Analysis Study):

This provision is based on BPJ.

e. Provision E.5. (Effluent Characterization for Selected Constituents):

This provision is based on the SIP.

f. Provision E.6. (Ambient Background Receiving Water Study):

This provision is based on the SIP.

g. Provision E.7. (Site-Specific Translator Study):

This provision is based on the SIP and BPJ.

h. Provision E.8. (Optional Receiving Water Beneficial Use and Fecal Coliform Study):

This provision provides the option to the Discharger to perform a beneficial use study in order to demonstrate that a substitution from total to fecal coliform testing will not result in unacceptable adverse impacts on the beneficial uses of the receiving water. It is based on the Basin Plan. The use of alternate bacteria limits is allowed by the Basin Plan.

i. Provision E.9. (Dry Weather Flow Capacity Analysis):

This provision based on California Code of Regulations, Title 23. Waters, § 2232 Ensuring Adequate Capacity, BPJ, is intended to update the dry weather flow capacity since completion of plant upgrades. Such action is necessary since the dry weather flows have been approaching the dry weather capacity of the facility.

j. Provision E.10. (Pollutant Minimization Program):

This provision is based on the Basin Plan and the SIP.

k. Provision E.11. (Whole Effluent Acute Toxicity):

This provision establishes conditions by which compliance with permit effluent limits for acute toxicity will be demonstrated. Conditions include the use of 96-hour flow-through bioassays, the use of fathead minnows or three-spine stickleback as the test species, and the use of approved test methods. These conditions are based on the effluent limits for acute toxicity given in the Basin Plan, Chapter 4, and BPJ.

l. Provision E.12. (Whole Effluent Chronic Toxicity):

This provision establishes conditions and protocol by which compliance with the Basin Plan narrative WQO for toxicity will be demonstrated. Conditions include required monitoring and evaluation of the effluent for chronic toxicity and numerical values for chronic toxicity evaluation to be used as 'triggers' for initiating accelerated monitoring and toxicity reduction evaluation(s). This provision also requires the Discharger to conduct a screening phase monitoring requirement and implement toxicity identification and reduction evaluations when there is consistent chronic toxicity in the discharge. New testing species and/or test methodology may be available before the next permit renewal. Characteristics, and thus toxicity, of the process wastewater may also have been changed during the life of the permit. This screening phase monitoring is important to help determine which test species is most sensitive to the toxicity of the effluent for future compliance monitoring. The conditions in the permit for chronic toxicity are based on the Basin Plan narrative WQO for toxicity, Basin Plan effluent

limits for chronic toxicity (Basin Plan, Chapter 4), U.S. EPA and SWRCB Task Force guidance, applicable federal regulations [40 CFR 122.44(d)(1)(v)], and BPJ.

m. Provision E.13. (Screening Phase for Chronic Toxicity):

This provision identifies conditions under which screening phase monitoring shall be performed; it is based on the Basin Plan.

n. Provision E. 14. (Mercury Mass Loading Reduction):

This provision, based on BPJ, identifies actions to be taken by the Discharger, including implementation of a mercury source control and reduction program. The source control and reduction program requirements include time-scheduled tasks for a study to investigate sources and potential reduction measures, status reports to the Board, a final report of study conclusions and feasible mercury control options, and a plan for implementation of all reasonable control measures based on study conclusions.

o. Provision E.15. (Pretreatment Program)

This provision requires the Discharger to implement and enforce its approved pretreatment program in accordance with Federal pretreatment regulations (40 CFR Part 403).

p. Provision E.16. (Optional Mass Offset):

This option is provided to encourage the Discharger to implement aggressive reduction of mass loads to the receiving water and Suisun Bay.

q. Provision E.17. (Operations and Maintenance Manual, Review and Status Reports):

This provision is based on the Basin Plan, requirements of 40 CFR 122.41(e) and the previous permit.

r. Provision E.18 and E.19. (Contingency Plan and Annual Status Reports):

The Contingency Plan provision is based on the requirements stipulated in Board Resolution No. 74-10 and the previous permit. The Annual Status Reports are based on the previous permit and the Basin Plan.

s. Provision E.20. (303(d)-listed Pollutants Site-Specific Objective and TMDL Status Review):

This provision is based on BPJ, it requires participation in the development of a TMDL or site-specific objective for mercury, 4,4'-DDE, cyanide and dieldrin. By January 31 of each year, the Discharger shall submit an update to the Board to document progress made on source control and pollutant minimization measures and development of TMDL or site-specific objective. Regional Board staff shall review the status of TMDL development. This Order may be reopened in the future to reflect any changes required by TMDL development.

t. Provision E.21. (Self-Monitoring Program Requirement):

The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are given in the Self Monitoring Program (SMP) of the Permit. This provision requires compliance with the SMP, and is based on 40 CFR 122.44(i), 122.62, 122.63 and 124.5. The SMP is a standard requirement in almost all NPDES permits (including this Order) issued by the Board. In addition to containing definitions of terms, it specifies general sampling/analytical protocols and the requirements of reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Board's policies. The SMP also contains sampling program specific for the Discharger's wastewater treatment plant. It defines the sampling stations and frequency, pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified.

The SMP includes monitoring at the discharge from the treatment plant for conventional, non-conventional, and toxic pollutants, and acute and chronic toxicity. Treatment plant influent monitoring is also required for selected parameters to assess treatment system performance. For the most part, the monitoring is the same as required by the previous Order. This Order requires year round effluent monitoring as well as compliance with effluent limitations at the discharge from the wastewater treatment plant. Monthly metals, mercury, and cyanide monitoring is consistent with the previous Order. Monitoring for dichlorobromomethane, bis (2-ethylhexyl) phthalate, 4,4'-DDE, and dieldrin is required to demonstrate compliance with effluent limits. Dioxin and furan monitoring are provided because these pollutants are listed as causing impairment in Suisun Bay. Finally, previous monitoring for other toxic organic pollutants is replaced by more comprehensive monitoring as required by the August 6, 2001 Letter.

u. Provision E.22. (Standard Provisions and Reporting Requirements):

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

v. Provision E.23. (Change in Control or Ownership):

This provision is based on 40 CFR 122.61.

w. Provision E.24 and E.25. (Permit Reopener and NPDES Permit / U.S. EPA concurrence):

This provision is based on 40 CFR 123.

x. Provision E.26. (Permit Expiration and Reapplication):

This provision is based on 40 CFR 122.46 (a).

V. SELF-MONITORING PROGRAM REQUIREMENTS

A. General Basis

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

VI. WRITTEN COMMENTS

- Interested persons are invited to submit written comments concerning this draft permit.
- Comments should be submitted to the Board no later than **5:00 P.M.** on July 23, 2003.
- Comments received after this date may not receive full consideration in the formulation of final determinations of permit conditions.
- Comments should be submitted to the Board at the address given on the first page of this fact sheet, and addressed to the attention of: Ms. Gina Kathuria

VII. PUBLIC HEARING

- The draft permit will be considered for adoption by the Board at a public hearing during the Board's regular monthly meeting to be held on: August 20, 2003, starting at 9:00 a.m.

- This meeting will be held at:

Main Floor Auditorium
Elihu Harris State Office Building,
1515 Clay Street, Oakland, California

VIII. WASTE DISCHARGE REQUIREMENT APPEALS

Any person may petition the State Water Resources Control Board to review the decision of the Board regarding the Waste Discharge Requirements. A petition must be made within 30 days of the Board public hearing.

IX. ADDITIONAL INFORMATION

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

X. ATTACHMENT

List of Tables

Table 1
FSSD Reasonable Potential Analysis

# in CTR	PRIORITY POLLUTANTS	Hardness	Criteria from the CTR and Basin Plan (total metals, µg/L) [a]												C (µg/L)			
			CTR fw		CTR sw			BP fw				BP sw				Applicable Lowest (most stringent) Criteria	MEC	Background Sac. River	RP
			CTR: fw CMC	CTR: fw CCC	CTR (sw): CMC	CTR(fw):CCC	Human Health	95BP: 1hr Avg	95BP: 4day Avg	'95BP: Inst.Max	'95BP: 24hr Avg	95BP: 1hr Avg	95BP: 4day Avg	'95BP: Inst.Max	'95BP: 24hr Avg				
1	Antimony						**4300**									**4300**	0.6	0.337	N
2	Arsenic		340	150	69	36		*360*	190			**69**	**36**			**36**	4	3.65	N
3	Beryllium															**No criteria**	<0.06	0.126	Uo
4	**Cadmium**	268	12.4	4.63	42.25	9.36		**11.92**	**2.46**			43.00	9.30			**2.46**	4	0.06	Y
5b	**Chromium (VI) ***		16.29	11.43	1107.75	50.35		**34.16**	**46.01**			1100.0	50.0			**34.16**	1.2	80.37	Y
6	**Copper ***	268	34.02	20.79	**7.5**	**6.74**		44.9	27.5							**6.74**	10	9.9	Y
7	Lead	268	185.4	7.22	220.82	8.52		286.38	11.16			**140.00**	**5.60**			**5.60**	2	2.35	N
8	**Mercury**						0.510	2.400	0.025			**2.1**	**0.025**			**0.025**	0.021	0.0377	Y
9	**Nickel ***	268	1078.1	119.75	74.7	8.28		3266	363					**152.3**	**13.8**	**13.80**	6.6	21.8	Y
10	Selenium		20.0	5.0	290.0	71.0										**5.00**	2	0.3	N
11	Silver	268	4.00		2.24					22.12				2.3		**2.30**	0.6	0.0566	N
12	Thallium						**6.3**									**6.30**	0.1	0.14	N
13	Zinc *	268	270.2	272.4	95.1	85.6				**160.8**	**80.7**			**160.8**	**80.7**	**80.70**	60	18.2	N
14	**Cyanide**		22	5.2	**1**	**1**	220000	22	5.2				5.0			**1.00**	28	0.5	Y
16	2,3,7,8-TCDD (Dioxin) *						1.40E-08									**1.40E-08**	<1.42E-6	6.50E-09	N
	TCDD-TEQ						1.40E-08									**1.40E-08**	<5.53E-6	4.50E-08	Y
17	Acrolein						780									**780**	<3.3	<0.5	N
18	Acrylonitrile						0.66									**0.66**	<1.6	<0.03	N
19	Benzene						71									**71**	<0.27	<0.05	N
20	Bromoform						360									**360**	8.7	<0.5	N
21	Carbon Tetrachloride						4.4									**4.4**	<0.42	0.06	N
22	Chlorobenzene						21000									**21000**	<0.19	<0.5	N
23	Chlordibromomethane						34									**34**	31	<0.05	N
24	Chloroethane															**No criteria**	0.4	<0.5	Uo
25	2-Chloroethylvinyl Ether															**No criteria**	<0.31	<0.5	Uo
26	Chloroform															**No criteria**	46	<0.5	Uo
27	**Dichlorobromomethane**						46									**46**	55	<0.05	Y
28	1,1-Dichloroethane															**No criteria**	<0.28	<0.05	Uo
29	1,2-Dichloroethane						99									**99**	<0.18	0.04	N
30	1,1-Dichloroethylene						3.2									**3.2**	<0.37	<0.5	N
31	1,2-Dichloropropane						39									**39**	<0.22	<0.05	N
32	1,3-Dichloropropylene						1700									**1700**	<0.25	NA	N
33	Ethylbenzene						29000									**29000**	<0.3	<0.5	N

Table 1
FSSD Reasonable Potential Analysis

# in CTR	PRIORITY POLLUTANTS	Hardness	Criteria from the CTR and Basin Plan (total metals, µg/L) [a]													C (µg/L)			
			CTR fw		CTR sw			BP fw				BP sw				Applicable Lowest (most stringent) Criteria	MEC	Background Sac. River	RP
			CTR: fw CMC	CTR: fw CCC	CTR (sw): CMC	CTR(fw):CCC	Human Health	95BP: 1hr Avg	95BP: 4day Avg	'95BP: Inst.Max	'95BP: 24hr Avg	95BP: 1hr Avg	95BP: 4day Avg	'95BP: Inst.Max	'95BP: 24hr Avg				
34	Methyl Bromide						4000									**4000**	<0.46	<0.5	N
35	Methyl Chloride															**No criteria**	1.2	<0.5	Uo
36	Methylene Chloride						16000									**16000**	2	<0.5	N
37	1,1,2,2-Tetrachloroethane						11									**11**	<0.34	<0.05	N
38	Tetrachloroethylene						8.85									**8.85**	<0.32	<0.05	N
39	Toluene						200000									**200000**	0.9	<0.3	N
40	1,2-Trans-Dichloroethylene						140000									**140000**	<0.3	<0.5	N
41	1,1,1-Trichloroethane															**No criteria**	<0.35	<0.5	Uo
42	1,1,2-Trichloroethane						42									**42**	<0.27	<0.05	N
43	Trichloroethylene						81									**81**	<0.29	<0.5	N
44	Vinyl Chloride						525									**525**	<0.34	<0.5	N
45	Chlorophenol						400									**400**	<0.4	NA	N
46	2,4-Dichlorophenol						790									**790**	<0.3	<1.3	N
47	2,4-Dimethylphenol						2300									**2300**	<0.3	<1.3	N
48	2-Methyl-4,6-Dinitrophenol						765									**765**	<0.4	<1.2	N
49	2,4-Dinitrophenol						14000									**14000**	<0.3	<0.7	N
50	2-Nitrophenol															**No criteria**	<0.3	<1.3	Uo
51	4-Nitrophenol															**No criteria**	<0.2	<1.6	Uo
52	3-Methyl-4-Chlorophenol															**No criteria**	<0.3	<1.1	Uo
53	Pentachlorophenol		13	7.9			8.2									**7.9**	<0.4	<1	N
54	Phenol						4600000									**4600000**	<0.2	<1.3	N
55	2,4,6-Trichlorophenol						6.5									**6.5**	<0.2	<1.3	N
56	Acenaphthene						2700									**2700**	<0.04	0.0019	N
57	Acenephthylene															**No criteria**	<0.05	0.00012	Uo
58	Anthracene						110000									**110000**	<0.04	0.00005	N
59	Benzidine						0.00054									**0.00054**	<0.3	<0.002	N
60	Benzo(a)Anthracene						0.049									**0.049**	<0.02	0.00022	N
61	Benzo(a)Pyrene						0.049									**0.049**	<0.03	0.00006	N
62	Benzo(b)Fluoranthene						0.049									**0.049**	<0.02	0.00046	N
63	Benzo(ghi)Perylene															**No criteria**	<0.04	0.000034	Uo
64	*Benzo(k)Fluoranthene*						0.049									**0.049**	<0.02	0.0002	N
65	Bis(2-Chloroethoxy)Methane															**No criteria**	<0.3	<0.3	Uo
66	Bis(2-Chloroethyl)Ether						1.4									**1.4**	<0.3	<0.3	N

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			CTR: fw CMC	CTR: fw CCC	CTR (sw): CMC	CTR(fw):CCC	Human Health	95BP: 1hr Avg	95BP: 4day Avg	'95BP: Inst.Max	'95BP: 24hr Avg	95BP: 1hr Avg	95BP: 4day Avg	'95BP: Inst.Max	'95BP: 24hr Avg	Applicable Lowest (most stringent) Criteria	MEC	Background Sac. River	RP
67	Bis(2-Chloroisopropyl)Ether						170000									**170000**	<1	NA	N
68	**Bis(2-Ethylhexyl)Phthalate**						5.9									**5.9**	13	0.68	Y
69	4-Bromophenyl Phenyl Ether															**No criteria**	<0.5	<0.23	Uo
70	Butylbenzyl Phthalate						5200									**5200**	<0.4	<0.52	N
71	2-Chloronaphthalene						4300									**4300**	<0.3	<0.3	N
72	4-Chlorophenyl Phenyl Ether															**No criteria**	<0.4	<0.5	Uo
73	Chrysene						0.049									**0.049**	<0.02	0.00061	N
74	Dibenzo(a,h)Anthracene						0.049									**0.049**	<0.04	0.00039	N
75	1,2 Dichlorobenzene						17000									**17000**	<0.12	<0.3	N
76	1,3 Dichlorobenzene						2600									**2600**	<0.16	<0.3	N
77	1,4 Dichlorobenzene						2600									**2600**	<0.12	<0.3	N
78	3,31-Dichlorobenzidine						0.077									**0.077**	<0.4	<0.001	N
79	Diethyl Phthalate						120000									**120000**	<0.4	<0.24	N
80	Dimethyl Phthalate						2900000									**2900000**	<0.4	<0.24	N
81	Di-n-Butyl Phthalate						12000									**12000**	<0.4	1.72	N
82	2,4-Dinitrotoluene						9.1									**9.1**	<0.3	<0.27	N
83	2,6-Dinitrotoluene															**No criteria**	<0.3	<0.29	Uo
84	Di-n-Octyl Phthalate															**No criteria**	<0.4	<0.38	Uo
85	1,2-Diphenylhydrazine						0.54									**0.54**	<0.3	0.0087	N
86	Fluoranthene						370									**370**	<0.02	0.0013	N
87	Fluorene						14000									**14000**	<0.05	0.0024	N
88	Hexachlorobenzene						0.00077									**0.00077**	<0.4	0.000053	N
89	Hexachlorobutadiene						50									**50**	<0.2	<0.3	N
90	Hexachlorocyclopentadiene						17000									**17000**	<0.1	<0.31	N
91	Hexachloroethane						8.9									**8.9**	<0.2	<0.2	N
92	*Indeno(1,2,3-cd) Pyrene*						0.049									**0.049**	<0.04	0.00042	N
93	Isophorone						600									**600**	<0.3	<0.3	N
94	Naphthalene															**No criteria**	<0.05	0.0021	Uo
95	Nitrobenzene						1900									**1900**	<0.3	<0.25	N
96	N-Nitrosodimethylamine						8.1									**8.1**	<0.4	<0.3	N
97	N-Nitrosodi-n-Propylamine						1.4									**1.4**	<0.3	<0.001	N

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			CTR: fw CMC	CTR: fw CCC	CTR (sw): CMC	CTR(fw):CCC	Human Health	95BP: 1hr Avg	95BP: 4day Avg	'95BP: Inst.Max	'95BP: 24hr Avg	95BP: 1hr Avg	95BP: 4day Avg	'95BP: Inst.Max	'95BP: 24hr Avg				
98	N-Nitrosodiphenylamine						16									**16**	<0.4	<0.19	N
99	Phenanthrene															**No criteria**	<0.03	0.001	Uo
100	Pyrene						11000									**11000**	<0.02	0.0012	N
101	1,2,4-Trichlorobenzene															**No criteria**	<0.3	<0.3	Uo
102	Aldrin		1.3				0.00014									**0.00014**	<0.003	NA	N
103	alpha-BHC						0.013									**0.013**	<0.002	0.0003470	N
104	beta-BHC						0.046									**0.046**	<0.001	0.0001180	N
105	gamma-BHC		2.16				0.0630									**0.063**	0.02	0.0010032	N
106	delta-BHC															**No criteria**	<0.001	0.0000380	Uo
107	Chlordane		0.09	0.004			0.00059									**0.00059**	<0.005	0.0003020	N
108	4,4-DDT		0.13	0.001			0.00059									**0.00059**	<0.001	0.0003490	N
109	**4,4-DDE (BG)**						0.00059									**0.00059**	<0.001	0.0009200	Y
110	4,4-DDD						0.00084									**0.00084**	<0.001	0.0003470	N
111	**Dieldrin (BG)**		0.71	0.0019			0.00014									**0.00014**	<0.002	0.0003800	Y
112	alpha-Endosulfan		0.034	0.0087			240									**0.0087**	<0.003	0.0000360	N
113	beta-Endosulfan		0.034	0.0087			240									**0.0087**	<0.001	0.0000420	N
114	Endosulfan Sulfate						240									**240**	<0.001	0.0002000	N
115	Endrin		0.037	0.0023			0.81									**0.0023**	<0.002	0.000019	N
116	Endrin Aldehyde						0.81									**0.81**	<0.002	NA	N
117	Heptachlor		0.053	0.0036			0.00021									**0.00021**	<0.003	0.000011	N
118	Heptchlor Epoxide		0.053	0.0036			0.00011									**0.00011**	<0.002	0.000097	N
119	Aroclor 1016 (303d listed)			0.03			0.00017									**0.00017**	<0.08	NA	N
120	Aroclor 1242 (303d listed)			0.03			0.00017									**0.00017**	<0.03	NA	N
121	Aroclor 1254 (303d listed)			0.03			0.00017									**0.00017**	<0.04	NA	N
122	Aroclor 1221 (303d listed)			0.03			0.00017									**0.00017**	<0.08	NA	N
123	Aroclor 1232 (303d listed)			0.03			0.00017									**0.00017**	<0.05	NA	N
124	Aroclor 1248 (303d listed)			0.03			0.00017									**0.00017**	<0.07	NA	N
125	Aroclor 1260 (303d listed)			0.03			0.00017									**0.00017**	<0.05	NA	N
126	Toxaphene		0.21	0.0002			0.00075									**0.0002**	<0.2	NA	N
	Tributyltin															**0.01** [e]	<0.0015	<0.001	N
	Diazinon																<0.32	0.037690	Uo
	Chlorpyrifos (Dursban)																<0.12	0.000950	Uo

Table 2
FSSD Final Water Quality Based Effluent Limit Calculation

1	PRIORITY POLLUTANTS	Cadmium	Chromium VI	Copper	Mercury	Nickle	Cyanide	Dichlorobromomethane	Bis(2-ethylhexyl) Phthalate	4,4'-DDE	Dieldrin
2	Basis and Criteria type	BP fw	BP fw	CTR sw	BP sw	BP sw	CTR sw	CTR hh	CTR hh	CTR hh	CTR hh
3	Lowest WQO	2.5	46	3.1	0.025	13.8	1.0	46	5.9	0.00059	0.00014
4	Translator (if applicable)			0.46							
5				0.64							
6	Applicable Acute WQO	11.9	34.2	7.50	2.1	152	1.0				
7	Applicable Chronic WQO	2.5	46	6.74	0.025	13.8	1.0				
8	Applicable Human health criteria							46	5.9	0.00059	0.00014
9	Background	0.1268	80.37	9.9	0.0377	21.8	NA	NA	NA	0.00092	0.00038
10	Avg bckgrnd (for HH criteria only)				NA						
11	ECA acute	11.9	34.2	7.50	2.1	152	1.0				
12	ECA chronic	2.5	46	6.74	0.025	13.8	1.0				
13	ECA human health							46.0	5.9	0.00059	0.00014
14	avg	0.1728	0.4833	4.3167	0.0054	3.4218	4.1117	29.0230			
15	SD	0.4604	0.2024	1.5603	0.0029	1.2580	4.3498	15.5446			
16	CV	2.6647	0.4187	0.3614	0.5313	0.3676	1.0579	0.5356	0.6000	0.6000	0.6000
17	ECA acute mult	0.0984	0.4257	0.4706	0.3550	0.4654	0.1939	0.3527	0.3211	0.3211	0.3211
18	ECA chronic mult	0.1589	0.6311	0.6697	0.5637	0.6654	0.3563	0.5613	0.5274	0.5274	0.5274
19	LTA acute	1.1715	14.5584	3.5298	0.7456	70.7460	0.1939				
20	LTA chronic	0.3972	29.0310	4.5132	0.0141	9.1822	0.3563				
21	minimum of LTAs	0.3972	14.5584	3.5298	0.0141	9.1822	0.1939				
22	AMEL mult95	3.1632	1.3761	1.3216	1.4851	1.3274	2.0011	1.4893	1.5524	1.5524	1.5524
23	MDEL mult99	10.1579	2.3492	2.1248	2.8166	2.1485	5.1564	2.8349	3.1145	3.1145	3.1145
24	AMEL (aq life)	1.2564	20.0335	4.6649	0.0209	12.1889	0.3881				
25	MDEL(aq life)	4.0347	34.2000	7.5000	0.0397	19.7283	1.0000				
26	MDEL/AMEL Multiplier (from Table 2, SIP)							1.90	2.01	2.01	2.01
27	AMEL (human hlth)							46.0	5.9	0.00059	0.00014
28	MDEL (human hlth)							87.6	11.8	0.00118	0.00028
29	minimum of AMEL for Aq. life vs HH	1.2564	20.0335	4.6649	0.0209	12.1889	0.3881	46.0	5.9	0.00059	0.00014
30	minimum of MDEL for Aq. Life vs HH	4.035	34.200	7.500	0.040	19.728	1.000	87.564	11.837	0.00118	0.00028
31	Final limit - AMEL	1.256	20.034	4.665	0.021	12.189	0.388	46.0	5.9	0.00059	0.00014
32	Final limit - MDEL	4.035	34.200	7.500	0.040	19.728	1.000	87.564	11.837	0.00118	0.00028

	Cadmium	Chromium VI	Copper	Mercury	Nickel	Cyanide	Dichlorobromomethane	Bis(2-ethylhexyl) Phthalate	4,4'-DDE	Dieldrin
Final limit - AMEL	1.3	20.0	4.7	0.021	12.2	0.4	46.0	5.9	0.00059	0.00014
Final limit - MDEL	4.0	34.2	7.5	0.040	19.7	1.0	87.6	11.8	0.00118	0.00028

Table 3
Copper Interim Effluent Limit Calculation

Date	Cu (ug/L)	Ln(Cu)
1/5/2000	6	1.7918
1/12/2000	3	1.0986
2/9/2000	6	1.7918
2/16/2000	3	1.0986
3/8/2000	2	0.6931
3/15/2000	3	1.0986
3/28/2000	5	1.6094
4/4/2000	3	1.0986
4/11/2000	4	1.3863
5/11/2000	4	1.3863
5/16/2000	5	1.6094
6/14/2000	3	1.0986
6/20/2000	10	2.3026
7/5/2000	2	0.6931
7/13/2000	1	0.0000
8/2/2000	4	1.3863
8/9/2000	3	1.0986
9/6/2000	4	1.3863
9/14/2000	4	1.3863
10/4/2000	5	1.6094
10/11/2000	4	1.3863
10/25/2000	4	1.3863
11/9/2000	4	1.3863
11/15/2000	4	1.3863
12/8/2000	4	1.3863
12/13/2000	6	1.7918
1/3/2001	8	2.0794
1/10/2001	9	2.1972
2/7/2001	5	1.6094
2/14/2001	3	1.0986
3/7/2001	3	1.0986
3/14/2001	4	1.3863
4/4/2001	5	1.6094
4/11/2001	4.8	1.5686
4/27/2001	5.1	1.6292
5/2/2001	6	1.7918
5/9/2001	5.9	1.7750
6/6/2001	5.4	1.6864
6/13/2001	6.7	1.9021
7/5/2001	5.3	1.6677
7/11/2001	6.1	1.8083
8/2/2001	6	1.7918
8/8/2001	6.9	1.9315
9/5/2001	3.4	1.2238
9/12/2001	2.7	0.9933
10/3/2001	4	1.3863
10/10/2001	5.4	1.6864
10/17/2001	4.8	1.5686
11/7/2001	2.6	0.9555
11/14/2001	3.4	1.2238
12/5/2001	4.7	1.5476

Table 3
Copper Interim Effluent Limit Calculation

12/12/2001	4	1.3863
1/2/2002	3.6	1.2809
1/8/2002	3.4	1.2238
2/6/2002	3.3	1.1939
2/13/2002	3.3	1.1939
3/6/2002	4.5	1.5041
3/13/2002	4	1.3863
4/1/2002	5.4	1.6864
4/10/2002	4.9	1.5892
4/25/2002	4	1.3863
5/8/2002	5.2	1.6487
5/15/2002	4.9	1.5892
6/4/2002	5.2	1.6487
6/11/2002	2.5	0.9163
7/4/2002	3.6	1.2809
7/10/2002	3.5	1.2528
8/3/2002	2.8	1.0296
8/13/2002	2.7	0.9933
9/1/2002	3.8	1.3350
9/16/2002	2.4	0.8755
9/24/2002	2.6	0.9555
10/2/2002	2.5	0.9163
10/9/2002	2.2	0.7885
11/5/2002	6.5	1.8718
11/12/2002	4.2	1.4351
12/2/2002	4.5	1.5041
12/9/2002	5	1.6094
	Mean	1.3980
	Std. Dev.	0.3706
	99.87th percentile	**12.3 (ug/L)**
		interim limit

Note: copper effluent data is lognormally distributed.
The interim limit is calculated on log-transformed data.

Table 4
FSSD Mercury Mass Trigger Calculation

				Mercury Mass trigger		
Date	Hg Monthly effluent average conc. (ug/L)	Total effluent flow (mgd)- for mass limit calculation	Flow to Slough (mgd) - for mass tigger calculation	montly Hg mass load (kg/month)	12-month MA Hg mass load	LN (12-month MA mass load)
Jan-00	0.00656	15.87	17.427	0.01316		
Feb-00	0.00663	24.78	24.619	0.01879		
Mar-00	0.003895	20.36	20.357	0.00913		
Apr-00	0.006	16.21	15.507	0.01071		
May-00	0.0035	15.4	13.397	0.00540		
Jun-00	0.00645	14.46	11.394	0.00846		
Jul-00	0.0038	14.65	9.766	0.00427		
Aug-00	0.0058	14.34	12.334	0.00823		
Sep-00	0.00495	14.63	12.413	0.00707		
Oct-00	0.00495	14.95	8.809	0.00502		
Nov-00	0.00345	14.71	11.822	0.00469		
Dec-00	0.0038	15.06	14.807	0.00648	0.00845	-4.7735
Jan-01	0.00585	15.784	15.75	0.01061	0.00824	-4.7991
Feb-01	0.0053	19.834	19.834	0.01210	0.00768	-4.8691
Mar-01	0.00405	18.439	17.674	0.00824	0.00761	-4.8788
Apr-01	0.0065	15.14	13.599	0.01017	0.00756	-4.8847
May-01	0.00445	14.313	12.34	0.00632	0.00764	-4.8745
Jun-01	0.00755	13.315	10.904	0.00948	0.00772	-4.8635
Jul-01	0.00635	13.345	10.578	0.00773	0.00801	-4.8269
Aug-01	0.007	12.983	9.641	0.00777	0.00797	-4.8317
Sep-01	0.0059	13.462	9.935	0.00675	0.00795	-4.8351
Oct-01	0.004733333	13.192	10.247	0.00558	0.00799	-4.8292
Nov-01	0.00455	15.966	15.966	0.00836	0.00830	-4.7917
Dec-01	0.0057	22.434	22.434	0.01472	0.00899	-4.7122
Jan-02	0.00425	22.286	22.286	0.01090	0.00901	-4.7094
Feb-02	0.0033	16.927	16.927	0.00643	0.00854	-4.7633
Mar-02	0.0044	18.629	17.169	0.00870	0.00858	-4.7589
Apr-02	0.00565	15.375	13.28	0.00864	0.00845	-4.7739
May-02	0.00445	13.424	11.5	0.00589	0.00841	-4.7782
Jun-02	0.0037	14.78	11.098	0.00473	0.00802	-4.8264
Jul-02	0.0038	13.662	10.454	0.00457	0.00775	-4.8598
Aug-02	0.008	14.014	11.183	0.01030	0.00796	-4.8329
Sep-02	0.00375	14.205	11.738	0.00507	0.00782	-4.8507
Oct-02	0.0147	14.483	12.313	0.02083	0.00909	-4.7001
Nov-02	0.01195	16.009	15.744	0.02166	0.01020	-4.5852
Dec-02	0.00315	23.313	23.313	0.00845	0.00968	-4.6377
Jan-03	0.0036		20.823	0.009	0.00949	-4.6575
Feb-03	0.0063		18.452	0.013	0.01007	-4.5983
Mar-03	0.0095		17.686	0.019	0.01096	-4.5138
Apr-03	0.0025		16.661	0.005	0.01064	-4.5435
					Mean	-4.7641
					Std. Dev	0.1059
					Exp (Mean+3.Std. Dev)	0.012 kg/month Mass Trigger

Table 5
FSSD Effluent Data - Heavy Metals, Cyanide and Selenium (2000-2002)

	Arsenic	Cadmium	*Total Cr*	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Cyanide
Date	< ug/l	< ug/l	< ug/l	< ug/l	< ug/l	< ug/l	< ug/l	< ug/l	< ug/l	< ug/l	< ug/L
1/5/2000	< 2	< 0.2	< 1	6	< 3	0.0077	3	< 1	< 0.5	50	< 3
1/12/2000	< 2	< 0.2	< 1	3	< 2	0.0055	< 3	< 1	< 0.5	50	5
2/9/2000	< 2	< 0.2	< 1	6	< 2	0.0069	3	< 1	< 0.5	50	< 3
2/16/2000	2	< 0.2	< 1	3	< 2	0.0064	< 3	1	< 0.5	30	6
3/8/2000	< 2	< 0.2	< 1	2	< 2	0.0033	< 3	< 1	< 0.5	30	< 3
3/15/2000	< 2	< 0.2	< 1	3	2	0.0045	< 3	< 1	< 0.5	30	< 3
3/28/2000	< 2	< 0.2	< 1	5	< 2	0.0034	< 3	< 1	< 0.5	40	< 3
4/4/2000	< 2	< 2	< 1	3	< 2	0.0066	3	< 1	< 0.5	40	
4/5/2000											< 3
4/11/2000	< 2	< 0.2	< 1	4	< 2	0.0054	< 3	< 1	< 0.5	40	
4/12/2000											4
5/3/2000											< 3
5/10/2000											< 3
5/11/2000	< 2	< 0.2	< 1	4	< 2	0.0036	< 3	< 1	< 0.5	40	
5/16/2000	< 2	< 0.2	< 1	5	< 2	0.0034	< 3	< 1	< 0.5	30	
6/14/2000	< 2	< 0.2	< 1	3	< 2	0.0036	< 3	< 1	< 0.5	30	5
6/20/2000	< 2	< 0.2	< 1	10	< 2	0.0093	< 3	< 1	< 0.5	40	
7/5/2000	4	< 0.2	< 1	2	< 2	0.0035	3	< 1	< 0.5	20	< 3
7/12/2000											< 3
7/13/2000	< 2	< 0.2	< 1	< 2	< 2	0.0041	6	< 1	< 0.5	30	
8/2/2000	< 2	< 0.2	< 1	4	< 2	0.0053	4	< 1	< 0.5	50	5
8/9/2000	< 2	< 0.2	< 1	3	< 2	0.0063	3	< 1	< 0.5	40	4
9/6/2000	< 2	< 0.2	< 0.1	4	< 2	0.0032	< 3	< 1	0.5	30	< 3
9/14/2000	< 2	< 0.2	< 0.1	4	< 2	0.0067	4	< 1	0.5	40	< 3
10/4/2000	< 2	< 0.2	< 1	5	< 2	0.005	4	< 1	< 0.5	50	
10/5/2000											3
10/11/2000	< 2	< 0.2	< 1	4	< 2	0.0049	3	< 1	< 0.5	40	4
10/25/2000	< 2	< 0.2	< 1	4	< 2	0.0038	< 3	< 1	< 0.5	40	< 3
11/9/2000	< 2	< 0.2	< 1	4	< 2	0.0034	4	< 1	< 0.5	50	4
11/15/2000	< 2	< 0.2	< 1	4	< 2	0.0035	4	< 1	< 0.5	40	< 3
12/6/2000											< 3
12/8/2000	< 2	< 0.2	< 1	4	< 2	0.0044	3	< 1	0.5	40	
12/13/2000	< 2	< 0.2	< 1	6	< 2	0.0032	4	< 1	< 0.5	40	5
1/3/2001	< 2	< 0.2	< 1	8	< 2	0.0048	4	< 1	< 0.5	40	
1/10/2001	< 2	< 0.2	< 1	9	< 2	0.0069	5	1.4	< 0.5	40	10
1/18/2001											4
2/7/2001	< 2	< 0.2	1	5	< 2	0.0058	3	< 1	< 0.5	40	3
2/14/2001	< 2	< 0.2	< 1	3	< 2	0.0048	< 3	< 1	< 0.5	50	
2/15/2001											< 3
3/7/2001	< 2	< 0.2	< 1	3	< 2	0.0042	< 3	< 1	< 0.5	40	< 3
3/14/2001	< 2	< 0.2	< 1	4	< 2	0.0039	< 3	< 1	< 0.5	50	9
4/4/2001	0.6	< 0.1	0.7	5	0.51	0.0088	3.4	0.8	< 0.1	35	< 3
4/11/2001	0.8	0.1	1.1	4.8	0.54	0.0042	3.2	0.8	< 0.1	46	23
4/27/2001	0.7	< 0.1	< 0.5	5.1	0.52	0.005	2.6	1.2	< 0.1	36	< 3
5/2/2001	1.1	< 0.1	< 0.5	6	0.43	0.0042	2.8	1	< 0.1	30	< 3
5/9/2001	1.1	< 0.1	0.6	5.9	0.5	0.0047	2.8	1	< 0.1	40	12
6/6/2001	1		0.8	5.4	0.3	0.0091	3	1.3	0.1	60	28
6/13/2001	0.9		0.6	6.7	0.42	0.006	3	1.3		40	6
7/3/2001											5
7/5/2001	0.9	0.2	< 0.5	5.3	0.34	0.0056	2.6	0.8	< 0.1	40	
7/11/2001	0.7	0.2	0.5	6.1	0.32	0.0071	2.8	1.2	< 0.1	40	6
8/2/2001	0.9	0.1	< 0.5	6	0.26	0.0067	2.4	1	0.06	30	
8/3/2001											5

Table 5
FSSD Effluent Data - Heavy Metals, Cyanide and Selenium (2000-2002)

	Arsenic	Cadmium	*Total Cr*	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Cyanide
Date	< ug/l	< ug/l	< ug/l	< ug/l	< ug/l	< ug/l	< ug/l	< ug/l	< ug/l	< ug/l	< ug/L
8/8/2001	0.8	0.2	< 0.5	6.9	0.36	0.0073	2.9	1.2	0.05	40	5
9/5/2001	0.8	0.1	< 0.5	3.4	0.36	0.0054	3.5	< 1	< 0.1	30	7
9/12/2001	< 0.5	0.1	< 0.5	2.7	0.4	0.0064	4.1	< 1	< 0.1	40	9
10/3/2001	0.6	0.1	* 0.4	4	0.46	0.0049	5.1	< 1	0.03	33	7
10/10/2001	0.7	0.1	0.6	5.4	0.44	0.0049	5.6	< 2	< 0.1	40	9
10/17/2001	< 0.5	0.1	< 0.5	4.8	0.39	0.0044	4.6	< 2	< 0.1	40	* 2.5
11/7/2001	0.9	0.1	* 0.5	2.6	0.42	0.0049	3.9	* 0.6	* 0.03	33	7
11/14/2001	0.7	0.3	0.6	3.4	0.27	0.0042	5.8	< 1	* 0.03	37	4
12/5/2001	* 0.2	0.1	* 0.3	4.7	* 0.23	0.0058	4.7	* 0.8	* 0.03	32	< 3
12/12/2001	0.6	0.1	1	4	0.27	0.0056	3.9	1	* 0.03	31	< 3
1/2/2002	0.5	0.07	< 0.5	3.6	0.19	0.0043	4.6	< 1	* 0.02	31	3
1/8/2002	0.6	* 0.08	0.5	3.4	0.26	0.0042	4	2	* 0.02	24	4
2/6/2002	0.6	4	0.7	3.3	0.4	0.0035	3.3	* 0.6	* 0.03	28	5
2/13/2002	0.5	0.5	* 0.4	3.3	0.35	0.0031	3.3	* 1	* 0.03	28	4
3/6/2002	0.8	0.2	0.5	4.5	0.37	0.0041	3.4	* 0.6	* 0.04	37	4
3/13/2002	0.8	0.1	* 0.5	4	0.31	0.0047	3.6	* 0.7	< 0.1	28	< 3
4/1/2002	1	0.2	0.6	5.4	0.29	0.0061	3.8	0.96	0.06	30	
4/3/2002											4
4/10/2002	1.4	0.2	* 0.5	4.9	0.39	0.0052	3.7	< 1	* 0.06	38	6
4/25/2002	0.7	0.1	* 0.4	4	0.47	0.0057	3	< 1	* 0.03	34	* 1.2
5/8/2002	1.3	0.1	* 0.3	5.2	0.42	0.0062	3.5	* 0.6	* 0.06	40	< 3
5/15/2002	0.7	* 0.1	* 0.3	4.9	0.42	0.0027	3.6	1	* 0.04	33	* 1
6/4/2002	1.3	0.1	1.2	5.2	* 0.21	0.0048	3.6	< 1	* 0.04	45	* 0.7
6/11/2002	1	* 0.07	< 0.5	2.5	0.31	0.0026	3.9	< 1	* 0.03	26	8
7/3/2002											< 3
7/4/2002	1.1	* 0.09	* 0.4	3.6	* 0.22	0.0046	6.6	1	* 0.08	35	< 3
7/10/2002	0.6	0.1	< 1	3.5	0.29	0.003	5.9	* 0.6	* 0.03	35	
7/11/2002											< 3
8/3/2002	0.9	* 0.08	* 0.3	2.8	0.25	0.004	4.4	< 1	< 0.1	32	
8/7/2002											< 3
8/13/2002	* 0.4	* 0.08	0.6	2.7	0.34	0.0107	4.1	< 1	* 0.03	31	< 3
9/1/2002	0.8	* 0.09	0.5	3.8	* 0.22	0.0033	4.6	* 0.97	* 0.03	30	
9/16/2002	0.9	* 0.09	* 0.4	2.4	0.33	0.0042	3.9	< 1	< 0.1	32	
9/20/2002											3
9/24/2002	* 0.4	0.1	< 0.5	2.6	0.37	0.0055	4.3	1	* 0.02	32	
9/26/2002											< 3
10/2/2002	0.6	* 0.08	< 1	2.5	0.3	0.0084	4.1	< 1	* 0.02	27	
10/3/2002											< 3
10/9/2002	0.6	* 0.08	* 0.7	2.2	0.27	0.021	4.4	* 0.9	* 0.03	29	* 1.5
11/5/2002	0.8	0.1	0.6	6.5	* 0.18	0.019	4.8	* 0.8	* 0.04	33	
11/6/2002											* 2.7
11/12/2002	0.5	* 0.07	* 0.2	4.2	* 0.17	0.0049	5.5	1	* 0.04	31	
11/20/2002											7
12/2/2002	0.7	0.1	0.8	4.5	* 0.24	0.0037	4.2	* 0.7	* 0.02	31	
12/4/2002											7
12/9/2002	1	< 0.1	< 0.5	5	0.31	0.0026	4.6	* 0.6	< 0.1	31	
12/10/2002											< 3
Maximum	4	4	1.2	10	3	0.021	6.6	2	0.5	60	28
Minimum	0.2	0.07	0.1	2	0.17	0.0026	2.4	0.6	0.02	20	0.7
Average	1.3013	0.23	0.7218	4.3295	1.0336	0.00544	3.7103	1.0055	0.2423	36.5897	4.7351
count	78	76	78	78	78	78	78	78	77	78	77

Table 6

FSSD Priority Pollutants- Organics, Antimony, Berylium and Thallium Effluent Data (1998-2002)

	Sample Date ===>			3/6/2002	3/27/2002	8/13/2002	9/25/2002			10/17/2001	4/24/2001		10/25/2000		3/28/2000	9/14/1999	4/20/1999		10/7/1998	4/29/1998
	Sample Time ===>			1130 hrs.	24 Hr. Comp.	1230 hrs.	1405			1604	Comp.	EPA 8270SIM	Comp.	EPA 610	Comp.	Comp.	Comp.	EPA 3510	Comp.	Comp.
CTR #	EPA 610 (HPLC) Compounds	MDL (ug/L):	RL (ug/L):	(ug/l)	(ug/l)	(ug/l)	(ug/l)	MDL (ug/L):	RL (ug/L):	(ug/l)	(ug/l)	RL (ug/l)	(ug/l)	RL (ug/l)	(ug/l)	(ug/l)	(ug/l)	RL (ug/l)	(ug/l)	(ug/l)
56	Acenaphthene	0.04	0.3	ND	ND	ND	ND	0.04	0.3	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
57	Acenaphthylene	0.05	0.2	ND	ND	ND	ND	0.05	0.2	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
58	Anthracene	0.04	0.3	ND	ND	ND	ND	0.04	0.3	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
60	Benzo(a)anthracene	0.02	0.3	ND	ND	ND	ND	0.02	0.3	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
61	Benzo(a)pyrene	0.03	0.3	ND	ND	ND	ND	0.03	0.3	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
62	Benzo(b)fluoranthene	0.02	0.3	ND	ND	ND	ND	0.02	0.3	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
63	Benzo(ghi)perylene	0.04	0.1	ND	ND	ND	ND	0.04	0.1	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
64	Benzo(k)fluoranthene	0.02	0.3	ND	ND	ND	ND	0.02	0.3	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
73	Chrysene	0.02	0.3	ND	ND	ND	ND	0.02	0.3	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
74	Dibenzo(a,h)anthracene	0.04	0.1	ND	ND	ND	ND	0.04	0.1	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
86	Fluoranthene	0.02	0.05	ND	ND	ND	ND	0.02	0.05	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
87	Fluorene	0.05	0.1	ND	ND	ND	ND	0.05	0.1	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
92	Indeno(1,2,3-cd)pyrene	0.04	0.05	ND	ND	ND	ND	0.04	0.05	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
94	Naphthalene	0.05	0.2	ND	ND	ND	ND	0.05	0.2	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
99	Phenanthrene	0.03	0.05	ND	ND	ND	ND	0.03	0.05	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
100	Pyrene	0.02	0.05	ND	ND	ND	ND	0.02	0.05	ND	ND	0.2	ND	0.3	ND		ND	0.05	ND	
	2-Methylnapthalene									-	-	0.2	ND		-		-	0.05	ND	
	Dibenzofuran									-	-	0.2	ND		-		-	0.05	ND	
	Sample Date ===>			3/6/2002	3/27/2002	8/13/2002	9/25/2002			10/17/2001	4/24/2002		10/25/2000		3/28/2000	9/14/1999	4/20/1999		10/7/1998	4/29/1998
	Sample Time ===>			1130 hrs.	24 Hr. Comp.	1230 hrs.	1405			Comp.	Comp.		Comp.		Comp.	Comp.	Comp.		Comp.	Comp.
	EPA 608 Compounds	MDL (ug/L):	RL (ug/L):	(ug/l)	(ug/l)	(ug/l)	(ug/l)	MDL (ug/L):	RL (ug/L):	(ug/l)	(ug/l)	RL (ug/l)	(ug/l)		(ug/l)	(ug/l)	(ug/l)		(ug/l)	(ug/l)
102	Aldrin	0.003	0.005	ND		ND	ND	0.003	0.005	ND	ND	0.01	ND		ND	ND	ND		ND	ND
103	alpha-BHC	0.002	0.01	ND		ND	ND	0.002	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
104	beta-BHC	0.001	0.005	ND		ND	ND	0.001	0.005	ND	ND	0.01	ND		ND	ND	ND		ND	ND
105	gamma-BHC (Lindane)	0.001	0.01	ND		ND	ND	0.001	0.01	ND	ND	0.01	ND		ND	0.02	ND		ND	ND
106	delta-BHC	0.001	0.005	ND		ND	ND	0.001	0.005	ND	ND	0.01	ND		ND	ND	ND		ND	ND
107	Chlordane	0.005	0.02	ND		ND	ND	0.005	0.02	ND	ND	0.01	ND		ND	ND	ND		ND	ND
110	p,p'-DDD	0.001	0.01	ND		ND	ND	0.001	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
109	p,p'-DDE	0.001	0.01	ND		ND	ND	0.001	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
108	p,p'-DDT	0.001	0.01	ND		ND	ND	0.001	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
111	Dieldrin	0.002	0.01	ND		ND	ND	0.002	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
112	Endosulfan I	0.003	0.01	ND		ND	ND	0.003	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
113	Endosulfan II	0.001	0.01	ND		ND	ND	0.001	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
114	Endosulfan Sulfate	0.001	0.01	ND		ND	ND	0.001	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
115	Endrin	0.002	0.01	ND		ND	ND	0.002	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
116	Endrin Aldehyde	0.002	0.01	ND		ND	ND	0.002	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
	Endrin Ketone	0.002	0.01	ND		ND	ND	0.002	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
117	Heptachlor	0.003	0.01	ND		ND	ND	0.003	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
118	Heptachlor Epoxide	0.002	0.01	ND		ND	ND	0.002	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
	Methoxychlor	0.002	0.01	ND		ND	ND	0.002	0.01	ND	ND	0.01	ND		ND	ND	ND		ND	ND
126	Toxaphene	0.2	0.5	ND		ND	ND	0.2	0.5	ND	ND	1	ND		ND	ND	ND		ND	ND
119	PCB 1016	0.08	0.1	ND		ND	ND	0.08	0.1	ND	ND	0.1	ND		ND	ND	ND		ND	ND
120	PCB 1221	0.03	0.1	ND		ND	ND	0.03	0.1	ND	ND	0.1	ND		ND	ND	ND		ND	ND
121	PCB 1232	0.04	0.1	ND		ND	ND	0.04	0.1	ND	ND	0.1	ND		ND	ND	ND		ND	ND
122	PCB 1242	0.08	0.1	ND		ND	ND	0.08	0.1	ND	ND	0.1	ND		ND	ND	ND		ND	ND
123	PCB 1248	0.05	0.1	ND		ND	ND	0.05	0.1	ND	ND	0.1	ND		ND	ND	ND		ND	ND
124	PCB 1254	0.07	0.1	ND		ND	ND	0.07	0.1	ND	ND	0.1	ND		ND	ND	ND		ND	ND
125	PCB 1260	0.05	0.1	ND		ND	ND	0.05	0.1	ND	ND	0.1	ND		ND	ND	ND		ND	ND
	Sample Date ===>			3/6/2002	3/27/2002	8/13/2002	9/25/2002			10/17/2001	4/25/2001		10/25/2000		3/29/2000	9/15/1999	4/21/1999		10/7/1998	4/29/1998
	Sample Time ===>			1130 hrs.	24 Hr. Comp.	1230 hrs.	1405			1604	1602		355		244	300	300		1914	2121
	EPA 624 (GC/MS) Compounds	MDL (ug/L):	RL (ug/L):	(ug/l)	(ug/l)	(ug/l)	(ug/l)	MDL (ug/L):	RL (ug/L):	(ug/l)	(ug/l)		(ug/l)		(ug/l)	(ug/l)	(ug/l)		(ug/l)	(ug/l)
17	Acrolein	3.3	5	ND		ND	ND	3.3	5	ND	-		-		-	-	-		-	-
18	Acrylonitrile	1.6	2	ND		ND	ND	1.6	2	ND	-		-		-	-	-		-	-
19	Benzene	0.27	0.5	ND		ND	ND	0.27	0.5	ND	ND		ND		ND	ND	ND		ND	ND
27	Bromodichloromethane	0.46	0.5	34		52	55	0.46	0.5	23	27		26		ND	23	25		25	39

Table 6
FSSD Priority Pollutants- Organics, Antimony, Berylium and Thallium Effluent Data (1998-2002)

20	Bromoform	0.1	0.5	4.5		3.0	3.2	0.1	0.5	1.4	3.3		4.4		ND	1.2	4.9		1.5	8.7
34	Bromomethane (Methyl Bromide)	0.46	0.5	ND		ND	ND	0.46	0.5	ND	ND		ND		ND	ND	ND		ND	ND
21	Carbon Tetrachloride	0.42	0.5	ND		ND	ND	0.42	0.5	ND	ND		ND		ND	ND	ND		ND	ND
22	Chlorobenzene	0.19	0.5	ND		ND	ND	0.19	0.5	ND	ND		ND		ND	ND	ND		ND	ND
24	Chloroethane (Ethyl Chloride)	0.34	0.5	ND		J-0.4	ND	0.34	0.5	ND	ND		ND		ND	ND	ND		ND	ND
25	2-Chloroethylvinyl ether	0.31	1	ND		ND	ND	0.31	1	ND	ND		ND		ND	ND	ND		ND	ND
26	Chloroform	0.24	0.5	25		46	46	0.24	0.5	22	17		15		ND	20	13		19	19
35	Chloromethane (Methyl Chloride)	0.36	0.5	1.2		ND	ND	0.36	0.5	ND	ND		ND		ND	ND	ND		ND	ND
23	Dibromochloromethane	0.18	0.5	26		31	31	0.18	0.5	12	22		24		ND	14	23		15	39
75	1,2-Dichlorobenzene	0.12	0.5	ND		ND	ND	0.12	0.5	ND	ND		ND		ND	ND	ND		ND	ND
76	1,3-Dichlorobenzene	0.16	0.5	ND		ND	ND	0.16	0.5	ND	ND		ND		ND	ND	ND		ND	ND
77	1,4-Dichlorobenzene	0.12	0.5	ND		ND	ND	0.12	0.5	ND	ND		ND		ND	ND	ND		ND	ND
	Dichlorodifluoromethane (F-12)	0.31	0.5	ND		ND	ND	0.31	0.5	ND	ND		ND		ND	ND	ND		ND	ND
28	1,1-Dichloroethane	0.28	0.5	ND		ND	ND	0.28	0.5	ND	ND		ND		ND	ND	ND		ND	ND
29	1,2-Dichloroethane (EDC)	0.18	0.5	ND		ND	ND	0.18	0.5	ND	ND		ND		ND	ND	ND		ND	ND
30	1,1-Dichloroethene	0.37	0.5	ND		ND	ND	0.37	0.5	ND	ND		ND		ND	ND	ND		ND	ND
	cis-1,2-Dichloroethene	0.24	0.5	ND		ND	ND	0.24	0.5	ND	ND		ND		ND	ND	ND		ND	ND
	trans-1,2-Dichloroethene	0.3	0.5	ND		ND	ND	0.3	0.5	ND	ND		ND		ND	ND	ND		ND	ND
31	1,2-Dichloropropane	0.22	0.5	ND		ND	ND	0.22	0.5	ND	ND		ND		ND	ND	ND		ND	ND
32	cis-1,3-Dichloropropene	0.25	0.5	ND		ND	ND	0.25	0.5	ND	ND		ND		ND	ND	ND		ND	ND
	trans-1,3-Dichloropropene	0.22	0.5	ND		ND	ND	0.22	0.5	ND	ND		ND		ND	ND	ND		ND	ND
	Dichlorotrifluoroethane (F-123)	0.47	0.5	ND		ND	ND	0.47	0.5	ND	ND		ND		ND	ND	ND		ND	ND
33	Ethylbenzene	0.3	0.5	ND		ND	ND	0.3	0.5	ND	ND		ND		ND	ND	ND		ND	ND
36	Methylene Chloride	0.38	2	B,J-0.6		J-0.4	ND	0.38	2	B,J-2	ND		ND		ND	ND	ND		ND	ND
	Methyl tert-Butyl Ether (MTBE)	0.19	0.5	0.7		ND	ND	0.19	0.5	ND	1.2		ND		ND	ND	ND		ND	1.7
37	1,1,2,2-Tetrachloroethane	0.34	0.5	ND		ND	ND	0.34	0.5	ND	ND		ND		ND	ND	ND		ND	ND
38	Tetrachloroethene (PCE)	0.32	0.5	ND		ND	ND	0.32	0.5	ND	ND		ND		ND	ND	ND		ND	ND
39	Toluene	0.25	0.5	ND		ND	ND	0.25	0.5	ND	ND		ND		ND	ND	0.9		ND	ND
41	1,1,1-Trichloroethane (TCA)	0.35	0.5	ND		ND	ND	0.35	0.5	ND	ND		ND		ND	ND	ND		ND	ND
42	1,1,2-Trichloroethane	0.27	0.5	ND		ND	ND	0.27	0.5	ND	ND		ND		ND	ND	ND		ND	ND
43	Trichloroethene (TCE)	0.29	0.5	ND		ND	ND	0.29	0.5	ND	ND		ND		ND	ND	ND		ND	ND
	Trichlorofluoromethane (F-11)	0.41	0.5	ND		ND	ND	0.41	0.5	ND	ND		ND		ND	ND	ND		ND	ND
	Trichlorotrifluoroethane (F-113)	0.48	1	ND		ND	ND	0.48	1	ND	ND		ND		ND	ND	ND		ND	ND
44	Vinyl Chloride	0.34	0.5	ND		ND	ND	0.34	0.5	ND	ND		ND		ND	ND	ND		ND	ND
	Xylenes (Total)	0.4	0.5	ND		ND	ND	0.4	0.5	ND	ND		ND		ND	ND	ND		ND	ND
	Sample Date ===>			**3/6/2002**	**3/27/2002**	**8/13/2002**	**9/25/2002**			**10/17/2001**	**4/24/2001**		**10/25/2000**		**3/28/2000**	**9/14/1999**	**4/20/1999**		**10/7/1998**	**4/29/1998**
	Sample Time ===>			**1130 hrs.**	**24 Hr. Comp.**	**1230 hrs.**	**1405**			**Comp.**	**Comp.**		**Comp.**		**Comp.**	**Comp.**	**Comp.**		**Comp.**	**Comp.**
	EPA 625 (GC/MS) Compounds	**MDL (ug/L):**	**RL (ug/L):**	**(ug/l)**	**(ug/l)**	**(ug/l)**	**(ug/l)**	**MDL (ug/L):**	**RL (ug/L):**	**(ug/l)**	**(ug/l)**	**RL (ug/l)**	**(ug/l)**		**(ug/l)**	**(ug/l)**	**(ug/l)**		**(ug/l)**	**(ug/l)**
56	Acenaphthene								5	-	ND	5	ND		ND	ND	ND		ND	ND
57	Acenaphthylene								5	-	ND	5	ND		ND	ND	ND		ND	ND
58	Anthracene								5	-	ND	5	ND		ND	ND	ND		ND	ND
59	Benzidine	0.3	5	ND		ND	ND	0.3	10	ND	ND	20	ND		ND	ND	ND		ND	ND
60	Benzo(a)anthracene								5	ND	ND	5	ND		ND	ND	ND		ND	ND
62	Benzo(b)fluoranthene								5	ND	ND	5	ND		ND	ND	ND		ND	ND
64	Benzo(k)fluoranthene								5	ND	ND	5	ND		ND	ND	ND		ND	ND
63	Benzo(ghi)perylene								5	ND	ND	5	ND		ND	ND	ND		ND	ND
61	Benzo(a)pyrene								5	-	ND	5	ND		ND	ND	ND		ND	ND
70	Benzylbutylphthalate	0.4	5	ND		ND	ND	0.4	5	ND	ND	5	ND		ND	ND	ND		ND	ND
	4-Bromophenyl phenyl ether	0.5	5	ND		ND	ND	0.5	5	ND	ND	5	ND		ND	ND	ND		ND	ND
65	bis(2-chloroethoxy)methane	0.3	5	ND		ND	ND	0.3	5	ND	ND	5	ND		ND	ND	ND		ND	ND
66	bis(2-chloroethyl)ether	0.3	1	ND		ND	ND	0.3	5	ND	ND	5	ND		ND	ND	ND		ND	ND
67	bis(2-chloroisopropyl)ether	1	2	ND		ND	ND	1	2	ND	ND	10	ND		ND	ND	ND		ND	ND
71	2-Chloronaphthalene	0.3	5	ND		ND	ND	0.3	5	ND	ND	5	ND		ND	ND	ND		ND	ND
72	4-Chlorophenyl phenyl ether							0.4	5	ND	ND	5	ND		ND	ND	ND		ND	ND
73	Chrysene								5	-	ND	5	ND		ND	ND	ND		ND	ND
74	Dibenzo(a, h)anthracene								5	-	ND	5	ND		ND	ND	ND		ND	ND
81	Di-n-butylphthalate	0.4	5	ND		ND	ND	0.4	5	ND	ND	25	ND		ND	ND	ND		ND	ND
78	3,3-Dichlorobenzidine	0.4	5	ND		ND	ND	0.4	5	ND	ND	25	ND		ND	ND	ND		ND	ND
79	Diethyl phthalate	0.4	2	ND		ND	ND	0.4	5	ND	ND	5	ND		ND	ND	ND		ND	ND
80	Dimethyl phthalate	0.4	2	ND		ND	ND	0.4	5	ND	ND	5	ND		ND	ND	ND		ND	ND

Table 6
FSSD Priority Pollutants- Organics, Antimony, Berylium and Thallium Effluent Data (1998-2002)

75	1,2-Dichlorobenzene	0.4	2	ND		ND	ND	0.4	5	ND	ND	5	ND		ND	ND	ND		ND	ND
76	1,3-Dichlorobenzene	0.2	1	ND		ND	ND	0.2	5	ND	ND	5	ND		ND	ND	ND		ND	ND
77	1,4-Dichlorobenzene	0.3	1	ND		ND	ND	0.3	5	ND	ND	5	ND		ND	ND	ND		ND	ND
82	2,4-Dinitrotoluene	0.3	5	ND		ND	ND	0.3	5	ND	ND	5	ND		ND	ND	ND		ND	ND
83	2,6-Dinitrotoluene	0.3	5	ND		ND	ND	0.3	5	ND	ND	5	ND		ND	ND	ND		ND	ND
84	Di-n-octylphthalate	0.4	5	ND		ND	ND	0.4	5	ND	ND	5	ND		ND	ND	ND		ND	ND
85	1,2-Diphenylhydrazine	0.3	1	ND		ND	ND	0.3	5	ND	ND	5	ND		ND	ND	ND		ND	ND
68	bis(2-Ethylhexyl)phthalate	0.284	5	J-0.4		ND	ND	0.284	5	13	11	25	ND		ND	ND	ND		ND	ND
86	Fluoranthene								5	-	ND	5	ND		ND	ND	ND		ND	ND
87	Fluorene								5	-	ND	5	ND		ND	ND	ND		ND	ND
88	Hexachlorobenzene	0.4	1	ND		ND	ND	0.4	5	ND	ND	5	ND		ND	ND	ND		ND	ND
89	Hexachlorobutadiene	0.2	1	ND		ND	ND	0.2	5	ND	ND	5	ND		ND	ND	ND		ND	ND
90	Hexachlorocyclopentadiene	0.1	5	ND		ND	ND	0.1	5	ND	ND	25	ND		ND	ND	ND		ND	ND
91	Hexachloroethane	0.2	1	ND		ND	ND	0.2	5	ND	ND	25	ND		ND	ND	ND		ND	ND
92	Indeno(1,2,3-cd)pyrene								5	-	ND	5	ND		ND	ND	ND		ND	ND
93	Isophorone	0.3	1	ND		ND	ND	0.3	5	ND	ND	25	ND		ND	ND	ND		ND	ND
94	Naphthalene								5	-	ND	5	ND		ND	ND	ND		ND	ND
95	Nitrobenzene	0.3	1	ND		ND	ND	0.3	5	ND	ND	5	ND		ND	ND	ND		ND	ND
96	N-Nitrosodimethylamine	0.4	5	ND		ND	ND	0.4	5	ND	ND	25	ND		ND	ND	ND		ND	ND
98	N-Nitrosodiphenylamine	0.4	1	ND		ND	ND	0.4	5	ND	ND	5	ND		ND	ND	ND		ND	ND
97	N-Nitrosodi-n-propylamine	0.3	5	ND		ND	ND	0.3	5	ND	ND	5	ND		ND	ND	ND		ND	ND
99	Phenanthrene								5	-	ND	5	ND		ND	ND	ND		ND	ND
100	Pyrene								5	-	ND	5	ND		ND	ND	ND		ND	ND
101	1,2,4-Trichlorobenzene	0.3	5	ND		ND	ND	0.3	5	ND	ND	10	ND		ND	ND	ND		ND	ND
102	Aldrin								5	-	ND	5	ND		ND	ND	ND		ND	ND
103	alpha-BHC								5	-	ND	5	ND		ND	ND	ND		ND	ND
104	beta-BHC								5	-	ND	5	ND		ND	ND	ND		ND	ND
106	delta-BHC								5	-	ND	5	ND		ND	ND	ND		ND	ND
105	gamma-BHC (Lindane)								5	-	ND	5	ND		ND	ND	ND		ND	ND
107	Chlordane								10	-	ND	10	ND		ND	ND	ND		ND	ND
110	4,4'-DDD								5	-	ND	5	ND		ND	ND	ND		ND	ND
109	4,4'-DDE								5	-	ND	5	ND		ND	ND	ND		ND	ND
108	4,4'-DDT								5	-	ND	5	ND		ND	ND	ND		ND	ND
111	Dieldrin								5	-	ND	5	ND		ND	ND	ND		ND	ND
112	Endosulfan I								5	-	ND	5	ND		ND	ND	ND		ND	ND
113	Endosulfan II								5	-	ND	5	ND		ND	ND	ND		ND	ND
114	Endosulfan Sulfate								5	-	ND	5	ND		ND	ND	ND		ND	ND
115	Endrin								5	-	ND	5	ND		ND	ND	ND		ND	ND
116	Endrin Aldehyde								5	-	ND	5	ND		ND	ND	ND		ND	ND
117	Hetachlor								5	-	ND	5	ND		ND	ND	ND		ND	ND
118	Heptachlor Epoxide								5	-	ND	5	ND		ND	ND	ND		ND	ND
	Methoxychlor								5	-	ND	5	ND		ND	ND	ND		ND	ND
126	Toxaphene								100	-	ND	100	ND		ND	ND	ND		ND	ND
119	PCB 1016								100	-	ND	100	ND		ND	ND	ND		ND	ND
120	PCB 1221								100	-	ND	100	ND		ND	ND	ND		ND	ND
121	PCB 1232								100	-	ND	100	ND		ND	ND	ND		ND	ND
122	PCB 1242								100	-	ND	100	ND		ND	ND	ND		ND	ND
123	PCB 1248								100	-	ND	100	ND		ND	ND	ND		ND	ND
124	PCB 1254								100	-	ND	100	ND		ND	ND	ND		ND	ND
125	PCB 1260								100	-	ND	100	ND		ND	ND	ND		ND	ND
52	4-Chloro-3-methylphenol	0.3	1	ND		ND	ND	0.3	5	ND	ND	5	ND		ND	ND	ND		ND	ND
45	2-Chlorophenol	0.4	5	ND		ND	ND	0.4	5	ND	ND	5	ND		ND	ND	ND		ND	ND
46	2,4-Dichlorophenol	0.3	5	ND		ND	ND	0.3	5	ND	ND	5	ND		ND	ND	ND		ND	ND
47	2,4-Dimethylphenol	0.3	2	ND		ND	ND	0.3	5	ND	ND	5	ND		ND	ND	ND		ND	ND
49	2,4-Dinitrophenol	0.3	5	ND		ND	ND	0.3	5	ND	ND	10	ND		ND	ND	ND		ND	ND
48	2-Methyl-4,6-dinitrophenol	0.4	5	ND		ND	ND	0.4	5	ND	ND	10	ND		ND	ND	ND		ND	ND
50	2-Nitrophenol	0.3	5	ND		ND	ND	0.3	5	ND	ND	5	ND		ND	ND	ND		ND	ND
51	4-Nitrophenol	0.2	5	ND		ND	ND	0.2	5	ND	ND	10	ND		ND	ND	ND		ND	ND
53	Pentachlorophenol	0.4	1	ND		ND	ND	0.4	5	ND	ND	5	ND		ND	ND	ND		ND	ND
54	Phenol	0.2	1	ND		ND	ND	0.2	5	ND	ND	5	ND		ND	ND	ND		ND	ND
55	2,4,6-Trichlorophenol	0.2	5	ND		ND	ND	0.2	5	ND	ND	5	ND		ND	ND	ND		ND	ND

Table 6

FSSD Priority Pollutants- Organics, Antimony, Berylium and Thallium Effluent Data (1998-2002)

	Sample Date ===>			3/6/2002	8/13/2002	
	Sample Time ===>			24 hr. comp.	1230	
	EPA 614 Compounds	MDL (ug/L):	RL (ug/L):	(ug/l)	(ug/l)	
	Diazinon	0.32	0.6	ND	ND	
	Chlorpyrifos (Dursban)	0.12	0.5	ND	ND	
	Sample Date ===>			3/6/2002	8/13/2002	
	Sample Time ===>			1130	1230	
		MDL (ug/L):	RL (ug/L):			
	Tributyltin	0.0015	0.005	ND	ND	
	Sample Date ====>			3/6/2002	8/13/2002	9/25/2002
	Sample Time ====>			1130 hrs.	1230 hrs.	1405 hrs.
	EPA 1613	MDL (pg/L):	RL (pg/L):	(pg/l)	(pg/l)	(pg/l)
	2,3,7,8-TCDD	1.42	2.86	ND	ND	ND
	1,2,3,7,8-PeCDD	1.90	6.79	ND	ND	ND
	1,2,3,4,7,8-HxCDD	3.03	6.68	ND	ND	ND
	1,2,3,6,7,8-HxCDD	3.26	7.27	ND	ND	ND
	1,2,3,7,8,9-HxCDD	3.19	6.74	ND	ND	ND
	1,2,3,4,6,7,8-HpCDD	2.14	7.43	ND	ND	ND
	OCDD	5.53	12.5	ND	ND	ND
	2,3,7,8-TCDF	1.02	2.55	ND	ND	ND
	2,3,4,7,8-PeCDF	1.46	6.27	ND	ND	ND
	1,2,3,7,8-PeCDF	1.52	6.41	ND	ND	ND
	1,2,3,4,7,8-HxCDF	1.46	3.09	ND	ND	ND
	1,2,3,6,7,8-HxCDF	1.48	3.13	ND	ND	ND
	2,3,4,6,7,8-HxCDF	1.74	3.58	ND	ND	ND
	1,2,3,7,8,9-HxCDF	1.80	4.17	ND	ND	ND
	1,2,3,4,6,7,8-HpCDF	1.89	3.80	ND	ND	ND
	1,2,3,4,7,8,9-HpCDF	1.87	4.74	ND	ND	ND
	OCDF	4.12	11.8	ND	ND	ND

	Sample Date ====>			2/13/2002	3/6/2002	3/13/2002	4/1/2002	4/10/2002	5/8/2002	5/14/2002	6/4/2002	6/11/2002	7/4/2002	7/10/2002	8/6/2002	8/13/2002	8/13/2002
	Sample Time ====>			24 hr. comp	24 hr. comp.	24 hr. comp	24 hr. comp	24 hr. comp.	24 hr. comp	24 hr. comp	24 hr. comp	24 hr. comp.	24 hr. comp.	24 hr. comp.	24 hr. comp	24 hr. comp	1230 hrs.
CTR#	EPA 200.8 (ICP/MS) Metals	MDL (ug/L):	RL (ug/L):	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
1	Antimony	0.01	0.5	J-0.4	J-0.2	J-0.2	J-0.4	J-0.4	J-0.4	0.6	J-0.4	J-0.4	0.6	0.6	J-0.4	J-0.4	J-0.4
3	Beryllium	0.06	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12	Thallium	0.03	0.1	ND	J-0.05	ND	0.1	ND	ND	J-0.06	ND	ND	ND	J-0.08	J-0.09	ND	J-0.03
	Sample Date ====>			9/1/2002	9/15/2002	9/24/2002	10/1/2002	10/8/2002	11/5/2002	11/12/2002	12/2/2002	12/9/2002	1/6/2003	1/13/2003			
	Sample Time ====>			24 hr. comp	24 hr. comp.	24 hr. comp	24 hr. comp	24 hr. comp.	24 hr. comp	24 hr. comp	24 hr. comp	24 hr. comp.	24 hr. comp.	24 hr. comp.			
CTR#	EPA 200.8 (ICP/MS) Metals	MDL (ug/L):	RL (ug/L):	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)			
1	Antimony	0.01	0.5	J-0.4	J-0.2	J-0.496	J-0.3	0.5	J-0.4	J-0.4	J-0.3	ND	J-0.3	J-0.4			
3	Beryllium	0.06	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.8	1.1			
12	Thallium	0.03	0.1	ND	ND	J-0.06	ND	ND	J-0.06	ND	ND	ND	ND	ND			

Note:
ML (State Term) = Minimum Level = lowest calibration standard
RL (Caltest) = lowest calibration standard
MDL = Method Detection Limit
pg/L = pico grams per Liter
Caltest Reporting Limit (RL) is equal to or in some cases lower than ML.
B = Those analytes with "B" flagged results were detected in method blank.
J = Those analytes with "J" flagged results indicates an estimated concentration above the Method Detection Limit (MDL) and below the Reporting Limit/Minimum Level (RL/ML). The "J" flag is equivalent to the DNQ Estimated Concentration Flag.
ND = Analytes reported as "ND" were not detected at or above the listed Method Detection Limit (MDL).

Table 7
FSSD Receiving Water Hardness Data (1998-2002)

	Hardness (mg/L as CaCO3)							
Date	**CR-1**	**CR-2**	**C-1**	**C-2**	**C-3**	**C-4**	**C-5**	**C-6**
Jan-98	400	700	380	300	380	420	480	380
Feb-98	150	110	140	180	120	220	110	110
Mar-98	360	180	330	370	300	240	260	300
Apr-98	410	150	320	380	350	340	290	340
May-98	330	180	310	300	320	300	270	310
Jun-98	350	280	300	140	360	290	200	300
Jul-98	260	120	300	270	260	250	200	260
Aug-98	350	230	210	230	270	270	280	280
Sep-98	350	230	210	230	270	270	280	280
Oct-98	430	280	370	360	330	320	240	380
Nov-98	360	640	370	330	370	340	360	360
Dec-98	340	420	360	360	380	500	460	370
Jan-99	330	580	320	320	320	320	290	320
Feb-99	380	210	280	270	260	230	160	170
Mar-99	410	220	410	360	340	310	260	360
Apr-99	320	190	300	310	160	300	270	310
May-99	360	210	330	350	350	330	310	340
Jun-99	510	300	360	350	420	400	380	420
Jul-99	440	700	310	350	450	390	470	410
Aug-99	470	800	310	260	480	640	700	660
Sep-99	640	1100	490	400	540	810	940	840
Oct-99	690	1200	710	530	860	900	960	980
Nov-99	750	2000	1100	930	1200	1600	1600	1200
Dec-99	710	1200	690	530	970	1000	1100	950
Jan-00	650	1400	770	780	920	1000	1100	920
Feb-00	1110	950	940	1030	1045	1010	1000	1100
Mar-00	360	140	320	370	280	280	250	270
Apr-00	410	400	360	360	370	350	330	370
May-00	430	290	360	320	400	400	380	400
Jun-00	550	700	500	410	430	480	500	430
Jul-00	680	1200	480	360	700	820	910	750
Aug-00	700	910	280	300	410	810	850	770
Sep-00								
Oct-00	955	800	900	910	850	840	830	935
Nov-00	720	1760	1060	980	1140	1360	1520	1200
Dec-00	410	1200	640	540	880	890	860	880
Jan-01	560	1300	500	440	860	980	1100	880
Feb-01	500	460	480	340	720	740	740	720
Mar-01	300	310	320	310	330	320	280	320
Apr-01	440	260	280	270	350	330	280	350
May-01	380	270	270	250	320	310	280	320
Jun-01	570	1100	270	290	400	580	370	550
Jul-01	740	1500	560	410	860	1000	1200	960
Aug-01	980	1700	600	390	940	1300	3300	1200
Sep-01	1100	2000	740	380	1200	1500	1900	1400
Oct-01	1300	2200	1600	1600	1700	1800	2000	2200
Nov-01	900	1400	920	580	1700	1700	1700	1700
Dec-01	420	370	400	350	460	510	540	450
Jan-02	350	200	450	460	100	330	320	310
Feb-02	380	550	440	430	430	420	440	440
Mar-02	340	510	470	460	570	560	600	550
Apr-02	490	520	420	370	490	530	540	610
May-02	540	540	300	280	420	520	520	520
Jun-02	540	260	290	300	380	570	570	550
Jul-02	650	1200	550	480	710	770	930	800
Aug-02	870	1500	290	390	410	1000	1200	1000
Sep-02	1100	1900	660	640	680	600	1500	1400
Oct-02	1100	1800	1400	1100	1400	1500	1400	1400
Nov-02	890	1210	960	590	930	940	890	770
Dec-02	840	1250	900	770	790	960	1200	1000
Average	**565**	**785**	**507**	**452**	**587**	**661**	**732**	**662**
Median	**470**	**580**	**380**	**360**	**420**	**520**	**520**	**520**
Maximum	**1300**	**2200**	**1600**	**1600**	**1700**	**1800**	**3300**	**2200**
Minimum	**150**	**110**	**140**	**140**	**100**	**220**	**110**	**110**

Table 8
FSSD Receiving Water Salinity Data (1998-2002)

Month-Year	CR-1	CR-2	C-1	C-2	C-3	C-4	C-5	C-6
Jan-98	1.3	3.7	1.4	1.0	1.6	1.9	2.2	1.6
Feb-98	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.0
Mar-98	0.6	0.3	0.8	1.0	0.8	0.8	0.7	0.8
Apr-98	0.8	0.2	0.8	0.8	0.8	0.8	0.8	0.8
May-98	0.6	0.4	0.8	8.0	0.8	0.8	0.8	0.8
Jun-98	0.8	0.1	0.7	0.7	0.8	0.7	0.5	0.8
Jul-98	0.8	0.0	0.7	0.7	0.7	0.6	0.4	0.7
Aug-98	0.8	0.8	0.5	0.5	0.7	0.9	1.0	0.9
Sep-98	1.1	1.0	0.8	0.7	1.1	1.1	1.1	1.1
Oct-98	1.2	0.8	1.1	1.1	1.1	1.1	0.8	1.1
Nov-98	1.2	3.2	1.3	1.2	1.3	1.4	1.4	1.3
Dec-98	0.9	1.2	1.1	0.8	1.2	1.4	1.6	1.2
Jan-99	0.8	3.1	1.0	0.8	1.1	1.1	1.1	1.1
Feb-99	0.7	0.1	0.3	0.3	0.4	0.1	0.1	0.1
Mar-99	0.6	0.6	0.4	0.6	0.7	0.7	0.7	0.7
Apr-99	0.6	0.6	0.4	0.6	0.7	0.7	0.7	0.7
May-99	0.7	0.3	0.7	0.8	0.8	0.8	0.7	0.8
Jun-99	0.7	1.0	0.8	0.7	0.9	1.0	0.9	1.0
Jul-99	0.9	3.4	0.6	0.6	1.2	1.5	1.8	1.4
Aug-99	1.3	4.0	0.6	0.5	1.7	2.6	3.2	2.4
Sep-99	2.5	6.6	0.7	0.7	2.2	4.3	4.9	3.9
Oct-99	3.4	7.6	4.4	3.5	4.5	4.9	5.6	4.6
Nov-99	2.8	11.6	5.3	4.6	5.9	7.1	8.4	5.9
Dec-99	2.6	7.5	3.7	2.1	5.2	5.1	6.3	5.2
Jan-00	2.7	2.3	3.6	3.5	5.0	5.5	6.2	4.9
Feb-00	0.1	0.4	0.3	0.3	0.1	0.1	0.1	0.1
Mar-00	0.6	0.3	0.7	0.8	0.7	0.8	0.8	0.7
Apr-00	1.1	1.9	0.9	0.8	1.1	1.1	1.1	1.1
May-00	1.1	1.1	0.9	0.7	1.2	1.3	1.2	1.2
Jun-00	2.4	3.1	1.2	0.8	1.3	1.4	1.7	1.2
Jul-00	2.1	4.0	8.0	7.0	8.0	7.0	7.0	9.0
Aug-00	2.9	5.2	0.8	0.9	1.7	4.0	4.4	3.7
Sep-00	2.6	6.7	0.7	0.7	1.5	4.0	4.9	3.8
Oct-00	3.7	9.9	3.8	3.7	6.1	7.0	8.0	6.4
Nov-00	2.9	9.3	5.1	4.6	5.8	7.0	7.9	5.9
Dec-00	1.7	7.7	3.3	2.6	4.7	5.2	6.1	4.9
Jan-01	2.0	7.2	1.8	1.5	4.0	4.9	5.4	4.3
Feb-01	1.6	2.2	1.7	1.0	3.2	3.6	3.8	3.3
Mar-01	0.8	1.4	1.0	0.8	1.1	1.1	0.9	1.1
Apr-01	1.1	0.9	0.6	0.6	1.1	1.1	1.0	1.1
May-01	1.0	1.1	0.7	0.5	1.1	1.1	1.1	1.1
Jun-01	0.1	5.7	0.3	0.0	0.0	2.6	3.8	0.3
Jul-01	5.2	4.8	3.0	8.0	2.6	1.4	4.4	6.3
Aug-01	4.2	9.4	2.4	1.4	4.3	6.3	7.2	5.7
Sep-01	5.0	11.2	3.0	1.4	5.9	7.8	9.1	7.0
Oct-01	6.1	12.2	8.6	8.4	9.1	9.8	10.9	9.2
Nov-01	4.0	7.9	4.3	2.3	7.0	9.1	9.1	8.8
Dec-01	1.5	1.7	1.6	1.2	2.0	2.5	2.7	2.0
Jan-02	0.5	0.6	1.6	1.2	1.0	1.1	1.2	1.0
Feb-02	0.8	2.7	1.6	1.4	1.6	1.6	1.9	1.7
Mar-02	0.8	2.5	1.6	1.4	1.9	2.4	2.6	2.0
Apr-02	1.4	2.6	1.4	1.1	1.9	2.2	2.4	2.0
May-02	1.3	2.7	0.8	0.7	1.2	2.1	2.2	2.0
Jun-02	1.3	2.9	0.7	0.7	1.3	2.3	2.6	2.2
Jul-02	2.4	6.4	2.6	1.6	3.3	4.0	4.8	3.6
Aug-02	3.7	8.2	0.9	1.4	1.8	5.2	6.3	5.2
Sep-02	0.7	1.8	0.3	0.1	0.3	1.2	1.4	1.1
Oct-02	5.3	10.0	7.1	5.5	7.2	7.4	7.7	7.5
Nov-02	4.1	6.6	4.6	3.0	4.8	5.4	5.5	5.0
Dec-02	1.4	7.0	1.1	1.4	1.2	4.4	5.3	4.3
Average	**1.8**	**3.8**	**1.9**	**1.8**	**2.4**	**2.9**	**3.3**	**2.8**
Median	**1.3**	**2.7**	**1.0**	**1.0**	**1.3**	**1.8**	**2.2**	**1.7**
Maximum	**6.1**	**12.2**	**8.6**	**8.4**	**9.1**	**9.8**	**10.9**	**9.2**
Minimum	**0.1**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
% Less Than 5 PPT	**93%**	**67%**	**92%**	**92%**	**83%**	**77%**	**72%**	**78%**

Table 9
FSSD Representative Ambient Hardness Value Calculation

Date	Station	Hardness (mg/L)	Salinity (ppt)	Ln(Hardness)
Feb-98	CR-1	150	0.1	5.0106
Mar-98	CR-1	360	0.6	5.8861
May-98	CR-1	330	0.6	5.7991
Jun-98	CR-1	350	0.8	5.8579
Jul-98	CR-1	260	0.8	5.5607
Aug-98	CR-1	350	0.8	5.8579
Dec-98	CR-1	340	0.9	5.8289
Jan-99	CR-1	330	0.8	5.7991
Feb-99	CR-1	380	0.7	5.9402
Apr-99	CR-1	320	0.6	5.7683
May-99	CR-1	360	0.7	5.8861
Mar-00	CR-1	360	0.6	5.8861
Mar-01	CR-1	300	0.8	5.7038
May-01	CR-1	380	1.0	5.9402
Jan-02	CR-1	350	0.5	5.8579
Feb-02	CR-1	380	0.8	5.9402
Mar-02	CR-1	340	0.8	5.8289
Feb-98	CR-2	110	0.0	4.7005
Mar-98	CR-2	180	0.3	5.1930
Apr-98	CR-2	150	0.2	5.0106
May-98	CR-2	180	0.4	5.1930
Jun-98	CR-2	280	0.1	5.6348
Jul-98	CR-2	120	0.0	4.7875
Aug-98	CR-2	230	0.8	5.4381
Sep-98	CR-2	230	1.0	5.4381
Oct-98	CR-2	280	0.8	5.6348
Feb-99	CR-2	210	0.1	5.3471
Mar-99	CR-2	220	0.6	5.3936
Apr-99	CR-2	190	0.6	5.2470
May-99	CR-2	210	0.3	5.3471
Jun-99	CR-2	300	1.0	5.7038
Mar-00	CR-2	140	0.3	4.9416
Apr-01	CR-2	260	0.9	5.5607
Jan-02	CR-2	200	0.6	5.2983
Feb-98	C-1	140	0.1	4.9416
Mar-98	C-1	330	0.8	5.7991
Apr-98	C-1	320	0.8	5.7683
May-98	C-1	310	0.8	5.7366
Jun-98	C-1	300	0.7	5.7038
Jul-98	C-1	300	0.7	5.7038
Aug-98	C-1	210	0.5	5.3471
Sep-98	C-1	210	0.8	5.3471
Jan-99	C-1	320	1.0	5.7683
Feb-99	C-1	280	0.3	5.6348
Apr-99	C-1	300	0.4	5.7038
May-99	C-1	330	0.7	5.7991
Jun-99	C-1	360	0.8	5.8861
Jul-99	C-1	310	0.6	5.7366
Aug-99	C-1	310	0.6	5.7366
Mar-00	C-1	320	0.7	5.7683
Apr-00	C-1	360	0.9	5.8861

Table 9
FSSD Representative Ambient Hardness Value Calculation

Date	Station	Hardness (mg/L)	Salinity (ppt)	Ln(Hardness)
May-00	C-1	360	0.9	5.8861
Aug-00	C-1	280	0.8	5.6348
Mar-01	C-1	320	1.0	5.7683
Apr-01	C-1	280	0.6	5.6348
May-01	C-1	270	0.7	5.5984
Jun-01	C-1	270	0.3	5.5984
May-02	C-1	300	0.8	5.7038
Jun-02	C-1	290	0.7	5.6699
Aug-02	C-1	290	0.9	5.6699
Jan-98	C-2	300	1.0	5.7038
Feb-98	C-2	180	0.2	5.1930
Mar-98	C-2	370	1.0	5.9135
Apr-98	C-2	380	0.8	5.9402
Jun-98	C-2	140	0.7	4.9416
Jul-98	C-2	270	0.7	5.5984
Aug-98	C-2	230	0.5	5.4381
Sep-98	C-2	230	0.7	5.4381
Dec-98	C-2	360	0.8	5.8861
Jan-99	C-2	320	0.8	5.7683
Feb-99	C-2	270	0.3	5.5984
Mar-99	C-2	360	0.6	5.8861
Apr-99	C-2	310	0.6	5.7366
May-99	C-2	350	0.8	5.8579
Jun-99	C-2	350	0.7	5.8579
Jul-99	C-2	350	0.6	5.8579
Aug-99	C-2	260	0.5	5.5607
Sep-99	C-2	400	0.7	5.9915
Mar-00	C-2	370	0.8	5.9135
Apr-00	C-2	360	0.8	5.8861
May-00	C-2	320	0.7	5.7683
Aug-00	C-2	300	0.9	5.7038
Feb-01	C-2	340	1.0	5.8289
Mar-01	C-2	310	0.8	5.7366
Apr-01	C-2	270	0.6	5.5984
May-01	C-2	250	0.5	5.5215
Jun-01	C-2	290	0.0	5.6699
May-02	C-2	280	0.7	5.6348
Jun-02	C-2	300	0.7	5.7038
Feb-98	C-3	120	0.0	4.7875
Mar-98	C-3	300	0.8	5.7038
Apr-98	C-3	350	0.8	5.8579
May-98	C-3	320	0.8	5.7683
Jun-98	C-3	360	0.8	5.8861
Jul-98	C-3	260	0.7	5.5607
Aug-98	C-3	270	0.7	5.5984
Feb-99	C-3	260	0.4	5.5607
Mar-99	C-3	340	0.7	5.8289
Apr-99	C-3	160	0.7	5.0752
May-99	C-3	350	0.8	5.8579
Mar-00	C-3	280	0.7	5.6348
Jun-01	C-3	400	0.0	5.9915

Table 9
FSSD Representative Ambient Hardness Value Calculation

Date	Station	Hardness (mg/L)	Salinity (ppt)	Ln(Hardness)
Jan-02	C-3	100	1.0	4.6052
Feb-98	C-4	220	0.0	5.3936
Mar-98	C-4	240	0.8	5.4806
Apr-98	C-4	340	0.8	5.8289
May-98	C-4	300	0.8	5.7038
Jun-98	C-4	290	0.7	5.6699
Jul-98	C-4	250	0.6	5.5215
Aug-98	C-4	270	0.9	5.5984
Feb-99	C-4	230	0.1	5.4381
Mar-99	C-4	310	0.7	5.7366
Apr-99	C-4	300	0.7	5.7038
May-99	C-4	330	0.8	5.7991
Jun-99	C-4	400	1.0	5.9915
Mar-00	C-4	280	0.8	5.6348
Feb-98	C-5	110	0.0	4.7005
Mar-98	C-5	260	0.7	5.5607
Apr-98	C-5	290	0.8	5.6699
May-98	C-5	270	0.8	5.5984
Jun-98	C-5	200	0.5	5.2983
Jul-98	C-5	200	0.4	5.2983
Aug-98	C-5	280	1.0	5.6348
Oct-98	C-5	240	0.8	5.4806
Feb-99	C-5	160	0.1	5.0752
Mar-99	C-5	260	0.7	5.5607
Apr-99	C-5	270	0.7	5.5984
May-99	C-5	310	0.7	5.7366
Jun-99	C-5	380	0.9	5.9402
Mar-00	C-5	250	0.8	5.5215
Mar-01	C-5	280	0.9	5.6348
Apr-01	C-5	280	1.0	5.6348
Feb-98	C-6	110	0.0	4.7005
Mar-98	C-6	300	0.8	5.7038
Apr-98	C-6	340	0.8	5.8289
May-98	C-6	310	0.8	5.7366
Jun-98	C-6	300	0.8	5.7038
Jul-98	C-6	260	0.7	5.5607
Aug-98	C-6	280	0.9	5.6348
Feb-99	C-6	170	0.1	5.1358
Mar-99	C-6	360	0.7	5.8861
Apr-99	C-6	310	0.7	5.7366
May-99	C-6	340	0.8	5.8289
Mar-00	C-6	270	0.7	5.5984
Jan-02	C-6	310	1.0	5.7366
			Mean	5.61
			Standard Deviation.	0.30
			Standard Error	0.02
			Mean - t0.7*Std. Error	5.59
			Adjusted Geometric Mean	**268.31**

Table 10
FSSD Ambient Water Monitoring Data - Heavy Metals

Sample Date	Site	Arsenic		Cadmium		Chromium (VI)		Copper		Lead		Mercury		Nickel		Selenium		Silver		Zinc	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
		µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
08/09/00	CR-1	<2	4	<0.2	<0.2	3	<1	6	4	<2	<2	0.0078	0.0010	8	4	<1	<1	<0.5	<0.5	<20	<20
	CR-2	3	4	<0.2	<0.2	5	<1	5	3	<2	<2	0.012	<0.0005	6	<3	<1	<1	<0.5	<0.5	<20	<20
	C-1	3	3	<0.2	<0.2	6	<1	6	3	<2	<2	0.0186	0.00175	8	4	<1	<1	<0.5	<0.5	40	<20
	C-2	3	4	<0.2	<0.2	6	<1	5	2	<2	<2	0.0130	0.0009	9	5	<1	<1	<0.5	<0.5	40	<20
	C-3	3	4	<0.2	<0.2	4	<1	5	3	<2	<2	0.0120	0.0010	8	5	<1	<1	<0.5	<0.5	30	<20
	C-4	3	4	<0.2	<0.2	4	<1	6	3	<2	<2	0.0100	0.0009	8	<3	<1	<1	<0.5	<0.5	<20	<20
	C-5	4	4	<0.2	<0.2	4	<1	6	4	<2	<2	0.0110	0.0007	8	3	<1	<1	<0.5	<0.5	20	<20
	C-6	5	4	<0.2	<0.2	2	<1	6	3	2	<2	0.0089	0.0017	9	4	<1	<1	<0.5	<0.5	<20	<20
10/18/00	CR-1	3	<2	<0.2	<0.2	2	<1	3	<2	<2	<2	0.007807	0.001911	8	8	<1	<1	<0.5	<0.5	<20	<20
	CR-2	3	<2	<0.2	<0.2	4	<1	6	<2	<2	<2	0.007809	0.000928	7	4	<1	<1	<0.5	<0.5	<20	<20
	C-1	2	<2	<0.2	<0.2	2	<1	4	<2	<2	<2	0.01146	0.003427	6	6	<1	<1	<0.5	<0.5	<20	<20
	C-2	<2	<2	<0.2	<0.2	3	<1	4	<2	<2	<2	0.01345	0.001614	8	6	<1	<1	<0.5	<0.5	<20	<20
	C-3	<2	<2	<0.2	<0.2	4	<1	4	<2	<2	<2	0.008488	0.002295	8	7	<1	<1	<0.5	<0.5	<20	<20
	C-4	<2	2	<0.2	<0.2	3	<1	5	<2	<2	<2	0.00970	0.001886	7	6	<1	<1	<0.5	<0.5	<20	<20
	C-5	<2	<2	<0.2	<0.2	4	<1	5	2	<2	<2	0.01149	0.002914	8	8	<1	<1	<0.5	<0.5	<20	<20
	C-6	<2	3	<0.2	<0.2	4	<1	5	<2	<2	<2	0.01414	0.000711	9	7	<1	<1	<0.5	<0.5	<20	<20
12/06/00	CR-1	4	3	<0.2	<0.2	2	<1	3	<2	<2	<2	0.01435	0.00403	7	6	<1	<1	<0.5	<0.5	<20	<20
	CR-2	5	2	<0.2	<0.2	4	<1	4	<2	<2	<2	0.01674	0.00145	5	3	<1	<1	<0.5	<0.5	<20	<20
	C-1	3	2	<0.2	<0.2	3	<1	5	<2	<2	<2	0.00535	0.00312	8	8	<1	<1	<0.5	<0.5	30	<20
	C-2	4	2	<0.2	<0.2	4	<1	5	<2	<2	<2	0.01001	0.00078	9	6	<1	<1	<0.5	<0.5	<20	<20
	C-3	3	<2	<0.2	<0.2	4	<1	6	3	<2	<2	0.00664	0.00096	10	6	<1	<2	<0.5	<0.5	<20	<20
	C-4	3	<2	<0.2	<0.2	3	<1	5	2	<2	<2	0.00859	0.00223	11	5	<1	<1	<0.5	<0.5	<20	<20
	C-5	4	<2	<0.2	<0.2	3	<1	5	2	<2	<2	0.00647	0.00418	9	5	<1	<1	<0.5	<0.5	<20	<20
	C-6	5	2	<0.2	<0.2	4	<1	5	2	<2	<2	0.01808	0.00098	9	6	<1	<2	<0.5	<0.5	<20	<20
03/07/01	CR-1	2	<2	<0.2	<0.2	8	<1	8	2	3	<2	0.034180	0.001890	14	5	<1	<1	<0.5	<0.5	30	<20
	CR-2	3	<2	<0.2	<0.2	12	<1	11	3	3	<2	0.036900	0.001985	18	3	<1	<1	<0.5	<0.5	20	<20
	C-1	2	<2	<0.2	<0.2	9	<1	8	3	3	<2	0.03007	0.001240	15	5	<1	<1	<0.5	<0.5	20	<20
	C-2	3	<2	<0.2	<0.2	9	<1	9	3	3	<2	0.02319	<0.000025	14	4	<1	<1	<0.5	<0.5	20	<20
	C-3	3	<2	<0.2	<0.2	10	<1	9	3	3	<2	0.045670	0.002280	16	5	<1	<1	<0.5	<0.5	<20	<20
	C-4	2	<2	<0.2	<0.2	10	<1	9	3	4	<2	0.017280	<0.000025	17	5	<1	<1	<0.5	<0.5	20	<20
	C-5	3	<2	<0.2	<0.2	11	<1	10	3	3	<2	0.01488	0.001300	19	6	<1	<1	<0.5	<0.5	20	<20
	C-6	2	<2	<0.2	<0.2	9	<1	8	3	3	<2	0.023020	0.005330	17	5	<1	<1	<0.5	<0.5	20	<20
05/03/01	CR-1	5	4.6	<0.1	<0.1	5.3	2.3	6.3	3.5	2.4	<0.25	0.015093	0.00132	11	6	4.4	3.9	<0.1	<0.1	10	<10
	CR-2	4.6	3.4	<0.1	<0.1	9.4	1.1	8.3	3.3	3	<0.25	0.034699	0.000750	12	3	4.9	3.9	<0.1	<0.1	20	<10
	C-1	4.3	4.2	<0.1	<0.1	5	1.8	6.3	4.7	2.1	<0.25	0.02974	0.001517	9.7	5.1	2.5	2.5	<0.1	<0.1	20	10
	C-2	4	3.9	<0.1	<0.1	4.6	2	6.2	4	2	<0.25	0.01460	0.002197	9.1	5	1.4	1.6	<0.1	<0.1	30	10
	C-3	5.1	4.7	<0.1	<0.1	5.9	1.8	6.8	4	2.2	<0.25	0.017238	0.001280	11	5.7	4.3	4.4	<0.1	<0.1	20	<10
	C-4	5.2	4.7	<0.1	<0.1	7	1.7	7.2	3.8	2.7	<0.25	0.021935	0.001037	12	5.8	4.6	4.1	<0.1	<0.1	20	<10
	C-5	4.6	3.9	<0.1	<0.1	6.7	1.5	6.6	3.5	2.3	<0.25	0.013663	0.001444	11	4.6	4.6	4.2	<0.1	<0.1	20	<10
	C-6	5.3	4.7	<0.1	<0.1	7.7	2.1	7.3	4.3	2.7	<0.25	0.028742	0.001435	12	7.2	4.9	4.3	<0.1	<0.1	20	<10

Table 11 (1)
Sacramento River RMP Data - Total Heavy Metals

Date	Cruise	Ag*	As	Cd*	Cr	Cu*	Hg	MeHg	Ni*	Pb*	Se	Zn*
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ng/L	µg/L	µg/L	µg/L	µg/L
3/5/1993	1993-03	0.0074	1.68	0.0212	8.4	5.23	0.0103	NA	6.66	0.92	0.197	8.4
5/27/1993	1993-05	0.0566	1.37	0.0309	3.68	3.35	0.006	NA	3.2	0.53	0.153	5
9/16/1993	1993-09	0.009	2.02	0.0263	4.44	3.74	0.01	NA	3.45	0.69	0.241	8.43
2/9/1994	1994-01	NA	1.89	0.0224	1.44	NA	0.005	NA	2.52	0.44	0.3	3.74
4/28/1994	1994-04	0.0155	2.18	0.0442	7.01	5.82	0.0126	NA	5.75	1.51	0.25	11.49
8/24/1994	1994-08	0.003	2.65	0.0376	2.36	3.44	0.0045	NA	2.85	0.45	0.16	2.75
2/15/1995	1995-02	0.0068	1.78	0.025	6.62	4.68	0.0066	NA	6.35	0.62	0.14	7.46
4/18/1995	1995-04	0.0075	1.35	0.025	5.79	4.3	0.0088	NA	4.94	0.8	0.11	5.67
8/23/1995	1995-08	0.007	1.94	0.02	2.7	2.62	0.0048	NA	2.7	0.5	e 0.02	3.36
2/14/1996	1996-02	0.006	1.77	0.03	8.2	3.9	0.006	NA	7.6	0.7	0.16	7.4
4/23/1996	1996-04	0.002	1.21	0.02	4	2.2	0.003	NA	2.5	0.3	0.07	2.6
7/22/1996	1996-07	0.003	2.08	0.02	5.2	3.3	0.007	NA	3.9	1.2	0.11	5.1
1/29/1997	1997-01	NA	3.65	0.06	26.13	9.9	0.0377	NA	21.8	2.35	0.14	18.2
4/23/1997	1997-04	NA	2.07	0.03	3.99	3.4	0.0074	NA	4.6	0.51	0.18	6.1
8/6/1997	1997-07	NA	2.3	0.03	5.21	2.2	0.0056	NA	4.2	0.65	0.08	4.9
2/4/1998	1998-01	0.019	3.35	0.05	19.77	6.7	0.0189	NA	11.8	1.75	0.18	16.1
4/16/1998	1998-04	0.007	ND	0.02	4.91	3.2	0.0006	NA	3.7	0.42	ND	4.8
7/29/1998	1998-07	0.003	2.31	0.03	4.71	2.8	0.0052	NA	2.9	0.5	0.16	4.6
2/10/1999	1999-02	0.007	1.25	0.016	3.19	2.9	b 0.0046	q 0.114	5.3	0.52	0.09	3.1
4/21/1999	1999-04	0.008	1.48	0.02	80.37	3.1	0.0035	q 0.048	3.7	0.36	0.1	3.8
7/21/1999	1999-07	0.006	2.2	0.024	6.04	3.8	b 0.0100	q b 0.079	5.1	0.87	0.1	5.8
2/9/2000	2000-02	NA	1.55	NA	NA	NA	b 0.0022	0.28	NA	NA	e 0.115	NA
7/19/2000	2000-07	NA	1.91	NA	NA	NA	Q	0.043	NA	NA	0.104	NA

Notes:

B = blank contamination >10% of measured concentration in 1998.

B = blank contamination >30% of measured concentration, b = blank contamination <30% of measured concentration in 1999.

e = estimated value, M = matrix interference, NA = not analyzed/not available (1997 silver samples lost due to methodological problems),

q = minimum level QA performed - only blank contamination and calibration checks

concentrations not reported because of analytical problems).

Table 11(2)
Sacramento River RMP Data - Total PAH

Date	2-Methylphenanthrene	Methylanthracene	Total Alkanes	SUM PAHS (SFEI)	SUM LPAHS (SFEI)	Biphenyl	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	2,6-Dimethylnaphthalene
	ng/L		ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
3/5/1993	0.09			1.568	0.675	NA	NA	NA	NA	NA
2/9/1994		ND	35.5	1.4	0.4	NA	NA	0.03	0.09	NA
4/28/1994		NA	175.6	0.9	0.2	NA	NA	Q	NA	NA
8/24/1994		NA	149.3	1.3	0.2	NA	NA	NA	NA	NA
2/15/1995			48.2	0.7	ND	NA	NA	NA	NA	NA
4/18/1995			42.3	1.2	0.6	NA	NA	NA	NA	NA
8/23/1995			87.2	5.4	1.2	NA	NA	NA	NA	NA
2/14/1996				5.2	4.1	0.6	0.3	0.41	1.4	0.12
4/23/1996				4.1	3	0.2	0.5	0.87	DEG	0.21
7/22/1996				7.7	5.2	0.3	2.1	0.7	DEG	0.17
1/29/1997				4.1	3.4	0.5	0.3	0.47	0.41	ND
4/23/1997				5.3	3.1	0.4	0.6	0.33	0.36	ND
8/6/1997				1.4	0.6	ND	ND	ND	ND	ND
2/4/1998				S	S	M	ND	ND	ND	M
4/16/1998				S	S	0.6	ND	ND	B	B
7/29/1998				S	S	ND	ND	ND	ND	ND
2/10/1999				1.7	0.64	ND	ND	0.22	ND	ND
4/21/1999				2	0.95	ND	0.19	0.18	ND	ND
7/21/1999				3.6	1.7	0.31	ND	0.17	0.38	ND
7/19/2000				2.09	0.51	ND	ND	ND	ND	ND

Notes:

LPAHs = Low molecular weight PAHs, HPAHs = High molecular weight PAHs.

B = blank contamination >10% of measured concentration, b = blank contamination <10% of measured concentration in 1998.

B = blank contamination >30% of measured concentration, b = blank contamination <30% of measured concentration in 1999 and onwards.

CE = coelution, DEG = Analyte degraded in standard: could not get accurate value, M = matrix interference,

NA = not analyzed/not available, ND = not detected, NS = not sampled, Q = outside QA limits,
(In 1994 Q = Present but not quantifiable)

R = unacceptably low surrogate recovery, S = compounds generally comprising a significant portion of sum not quantifiable, sum not calculated.

* Highly variable surrogate recoveries. Data should be interpreted with caution. For method detection limits, refer to QA Tables.

Table 11(2)
Sacramento River RMP Data - Total PAH

Date	2,3,5-Trimethylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Dibenzothiophene	Fluorene	Phenanthrene	1-Methylphenanthrene	SUM HPAHS (SFEI)	Benz(a)anthracene	Chrysene
	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
3/5/1993	NA	NA	NA	ND	NA	NA	0.65	0.03	0.893	ND	0.02
2/9/1994	NA	NA	NA	ND	NA	NA	0.28	NA	1.03	0.01	0.08
4/28/1994	NA	NA	NA	Q	NA	NA	0.22	NA	0.64	Q	Q
8/24/1994	NA	NA	NA	ND	NA	NA	0.22	ND	1.11	ND	0.09
2/15/1995	NA	NA	NA	ND	NA	NA	ND	ND	0.74	ND	0.02
4/18/1995	NA	NA	NA	Q	NA	NA	0.5	0.14	0.58	Q	0.03
8/23/1995	NA	NA	NA	0.05	NA	NA	0.62	0.56	4.22	0.22	0.61
2/14/1996	0.06	Q	Q	0.03	0.03	0.32	0.72	0.09	1.116	0.03	0.04
4/23/1996	0.15	Q	0.1	0.02	0.03	0.39	0.46	0.07	1.073	0.04	0.05
7/22/1996	0.11	0.27	0.08	0.02	0.04	0.46	0.88	0.1	2.427	0.11	0.19
1/29/1997	ND	0.24	0.12	ND	ND	0.38	0.86	0.17	0.62	ND	ND
4/23/1997	ND	ND	ND	ND	ND	0.44	1	ND	2.22	ND	ND
8/6/1997	ND	ND	ND	ND	ND	0.18	0.4	ND	0.8	ND	ND
2/4/1998	M	M	M	M	M	M	M	0.71	ND	ND	ND
4/16/1998	1	1.9	ND	ND	ND	2.4	CE	ND	1	CE	ND
7/29/1998	ND	ND	ND	ND	ND	0.4	CE	ND	S	CE	ND
2/10/1999	ND	ND	ND	ND	ND	0.23	NA	0.19	1.04	0.17	ND
4/21/1999	ND	ND	ND	ND	ND	ND	0.58	ND	1.01	ND	ND
7/21/1999	ND	ND	ND	ND	ND	0.24	0.46	0.14	1.86	ND	ND
7/19/2000	ND	ND	ND	ND	ND	ND	0.51	ND	1.58	ND	ND

Table 11(2)
Sacramento River RMP Data - Total PAH

Date	Pyrene	Benzo(a)pyrene	Benzo(e)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Dibenz(a,h)anthracene	Perylene	Benzo(ghi)perylene	Fluoranthene	Indeno(1,2,3-cd)pyrene
	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
3/5/1993	0.46	ND	ND	ND	ND	ND	NA	ND	0.414	ND
2/9/1994	0.52	0.06	ND	ND	0.021	ND	NA	ND	0.341	ND
4/28/1994	0.41	ND	Q	Q	Q	Q	NA	NA	0.23	Q
8/24/1994	0.69	NA	ND	ND	ND	ND	NA	ND	0.33	ND
2/15/1995	0.28	ND	0.07	0.09	0.036	ND	NA	NA	0.24	ND
4/18/1995	0.24	ND	ND	ND	ND	ND	NA	NA	0.31	ND
8/23/1995	1.2	ND	0.26	0.46	0.2	0.39	NA	NA	0.46	0.42
2/14/1996	0.6	ND	0.09	ND	0.048	ND	ND	0.034	0.27	ND
4/23/1996	0.54	ND	ND	ND	ND	ND	ND	ND	0.44	ND
7/22/1996	0.82	0.04	0.15	0.09	0.065	ND	ND	ND	0.9	0.064
1/29/1997	0.23	ND	ND	ND	ND	ND	ND	ND	0.388	ND
4/23/1997	0.92	ND	ND	ND	ND	ND	ND	ND	1.3	ND
8/6/1997	0.34	ND	ND	ND	ND	ND	ND	ND	0.46	ND
2/4/1998	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/16/1998	0.41	ND	ND	ND	ND	ND	ND	ND	0.54	ND
7/29/1998	B	ND	ND	ND	ND	ND	ND	ND	B	ND
2/10/1999	0.27	ND	ND	ND	ND	ND	ND	ND	0.6	ND
4/21/1999	0.49	ND	ND	ND	ND	ND	ND	ND	0.52	ND
7/21/1999	0.86	ND	ND	ND	ND	ND	ND	ND	1	ND
7/19/2000	0.68	ND	ND	ND	ND	ND	ND	ND	0.9	ND

Table 11 (3)
Sacramento River RMP Data - Total Pesticide

Date	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Methylchlorpyrifos	p,p^-DDMU	Toxaphene	Trifluralin	Chlorpyrifos	Dacthal	Diazinon	Oxadiazon	SUM DDTs (SFEI)	o,p^-DDD
	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L
3/5/1993	26.089	NA	NA					457	5484	NA	331	1060	104
2/9/1994	T	T	T	T	23.7	T	T	T	M	M	M	S	T
4/28/1994	ND	ND	ND	NA	NA	NA	NA	135	631	2500	157	592	50
8/24/1994	ND	ND	ND	NA	NA	NA	NA	134	519	1400	77	283	16.8
2/15/1995	ND	ND	ND					58	770	7800	283	435	8
4/18/1995	ND	ND	ND					69	57	3900	26	728	11
8/23/1995	ND	ND	ND					21	209	1500	7	470	35
2/14/1996	M	ND	ND					321	M	26000	M	724	34
4/23/1996	R	R	R					R	R	R	R	R	R
7/22/1996	2	ND	120					38	317	4500	ND	781	130
1/29/1997	ND	ND	179					358	206	37690	17	1769	104
4/23/1997	ND	ND	200					913	310	1800	ND	884	112
8/6/1997	ND	ND	146					950	93	3000	21	647	47
2/4/1998	ND	ND	7					b 110	b 820	M	1400	S	ND
4/16/1998	ND	7	1.8					ND	ND	790	b 6.4	S	b 48
7/29/1998	1.8	ND	195					b 506	b 165	860	273	S	B
2/10/1999	36	16	98					b 368	291	10000	2904	613	18
4/21/1999	ND	ND	79					b 290	3	2200	26	362	b 30
7/21/1999	7	42	121					390	2	6710	ND	333	44
7/19/2000	NA	NA	NA					NA	NA	1300	NA	S	NA

Notes:
B = blank contamination >10% of measured concentration, b = blank contamination <10% of measured concentration in 1997 and 1998.,
B = blank contamination >30% of measured concentration, b = blank contamination <30% of measured concentration in 1999 and onwards.
bi = significant blank signal, sample value used with extra caution. CE = coelution, e = estimated vale, M = matrix interference,
NA = not analyzed/not available, ND = not detected, NS = not sampled, Q = outside QA limits,

T = either the dissolved or particulate fraction is not available; therefore, a total value cannot be calculated.
For method detection limits, refer to QA Tables.

Table 11 (3)
Sacramento River RMP Data - Total Pesticide

Date	o,p^-DDE	o,p^-DDT	p,p^-DDD	p,p^-DDE	p,p^-DDT	SUM Chlordanes (SFEI)	alpha-Chlordane	gamma-Chlordane	cis-Nonachlor	trans-Nonachlor	Heptachlor	Heptachlor Epoxide	Oxychlordane
	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L
3/5/1993	29	NA	106	769	52	124	29	34	Q	61	NA	NA	NA
2/9/1994	e 10.8	T	T	191.9	T	NA	T	T	T	T	NA	T	T
4/28/1994	6.6	ND	210	298	27	128	27	27	9.2	30.6	1.3	31.2	1
8/24/1994	7.7	ND	82	142	34	132	25	29.9	9.3	19.9	11	34	3.4
2/15/1995	16	ND	53	352	6	106	18	16	5	13	ND	54	ND
4/18/1995	29	1	127	548	11	83	19	23	3	26	ND	12	ND
8/23/1995	15	3	99	310	9	116	30	28	6	32	2	18	ND
2/14/1996	22	Q	192	460	16	96	24	20	6	23	ND	22	2
4/23/1996	R	R	R	R	R	R	R	R	R	R	R	R	R
7/22/1996	87	Q	234	303	27	242.85	57	53	20	37	ND	45	31
1/29/1997	49	M	347	920	349	256	24	17	3	26	7	29	151
4/23/1997	33	M	241	440	57	302	31	18	ND	B	ND	97	156
8/6/1997	49	M	233	304	14	180	11	9	ND	B	ND	17	144
2/4/1998	b 22	Q	B	b 849	b 37	101.9	ND	8.2	ND	b 81	M	13	ND
4/16/1998	B	Q	B	b 323	B	104	b 58	b 25	B	17	B	b 3.2	ND
7/29/1998	B	B	B	b 210	38	S	B	B	B	B	b 6	b 41	ND
2/10/1999	B	Q	139	203	253	87	b 24	9	B	36	ND	13	5.3
4/21/1999	5.8	7.1	45	237	37	58	18	17	3.8	10	ND	7	1.6
7/21/1999	6.3	Q	102	147	34	62	14	15	20	12	Q	1.5	ND
7/19/2000	61	Q	NA	256	NA	S	NA	NA	NA	10	NA	NA	NA

Table 11 (3)
Sacramento River RMP Data - Total Pesticide

Date	Sum HCHs (SFEI)	alpha-HCH	beta-HCH	delta-HCH	gamma-HCH	Aldrin	Dieldrin	Endrin	Hexachlorobenzene	Mirex
	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L
3/5/1993	128	5	Q	NA	123	NA	Q	NA	53	NA
2/9/1994	NA	T	T	NA	T	NA	T	NA	15.1	NA
4/28/1994	386.8	70	27	ND	290	NA	179.5	CE	26	ND
8/24/1994	1506	347	118	38	1003.2	NA	7.1	ND	16.4	ND
2/15/1995	51	14	8	8	21	NA	30	ND	11	ND
4/18/1995	115	33	18	21	43	NA	3	ND	32	ND
8/23/1995	27	ND	14	4	10	NA	169	ND	3	ND
2/14/1996	30	6	6	8	9	NA	M	ND	12	ND
4/23/1996	R	R	R	R	R	NA	R	R	R	R
7/22/1996	511	137	16	18	340	NA	65	ND	41	ND
1/29/1997	325	174	17	14	120	NA	275	ND	29	ND
4/23/1997	1078	220	18	ND	840	NA	320	ND	21.1	ND
8/6/1997	356	74	59	ND	223	NA	380	ND	17.6	ND
2/4/1998	S	M	M	M	M	NA	201	ND	M	ND
4/16/1998	S	B	b 16	B	b 89	NA	2	B	b 31	ND
7/29/1998	369	b 45	28	b 13	283	NA	155	ND	bi 109	ND
2/10/1999	148	32	21	16	79	NA	89	19	B	54
4/21/1999	144	35	6.8	3.8	98	NA	61	ND	15	ND
7/21/1999	171	31	44	6.5	90	NA	53	3.7	20	ND
7/19/2000	NA	NA	NA	NA	NA	NA	NA	NA	b 65	ND

Attachment J

Fairfield-Suisun Sewer District
Infeasibility Analysis

Fairfield-Suisun Sewer District
2003 NPDES Permit Renewal

Infeasibility Analyses

June 17, 2003

Introduction

These infeasibility analyses and resulting requests for compliance schedule and interim limits are submitted to the Regional Water Quality Control Board (RWQCB) by Fairfield-Suisun Sewer District to demonstrate the District's inability to comply with the proposed water-quality based effluent limits for copper, mercury, cyanide, dichorobromomethane, bis(2-ethylhexyl) phthalate, 4,4'-DDE, and dieldrin.

Background

The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California (known as the State Implementation Policy (SIP), March, 2000) establishes statewide policy for NPDES permitting. The SIP provides for the situation where an existing NPDES discharger cannot immediately comply with an effluent limitation derived from a California Toxics Rule (CTR) or Basin Plan criterion. The SIP allows for the adoption of interim effluent limits and a schedule to come into compliance with the final limit in such cases. To qualify for interim limits and a compliance schedule, the SIP requires that an existing discharger demonstrate that it is infeasible to achieve immediate compliance with the CTR- or Basin Plan-based limit.

The term "infeasible" is defined in the SIP as "not capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors."

The SIP requires that the following information be submitted to the Regional Board to support a finding of infeasibility:

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

Pollutants to be Evaluated

The pollutants for which interim limits are needed for the District are as follows:

- copper
- mercury
- cyanide
- dichlorobromomethane
- bis(2-ethylhexyl) phthalate
- 4,4'-DDE
- Dieldrin

Effluent Limit Attainability

The proposed final and interim effluent limits contained in the draft tentative order for copper, mercury, cyanide, dichlorobromomethane, bis (2 ethylhexyl)phthalate, 4,4'-DDE, and dieldrin are compared to the maximum observed effluent concentrations for these constituents in Table 1.

Table 1. Proposed Effluent Limits for Fairfield-Suisun Sewer District

Pollutant	Water Quality Based Effluent Limits		Performance-Based Interim Effluent Limits		Fairfield-Suisun Effluent Quality
	AMEL[1]	MDEL[2]	Daily Max.	Monthly Avg.	MEC[3]
Copper	4.7	7.5	12.3		10
Mercury	0.021	0.040		0.023	0.021
Cyanide	0.4	1.0	32		28
Dichlorobromomethane	46	88	75		55
Bis(2-ethylhexyl) phthalate	5.9	11.8	13		13
4,4'-DDE	0.00059	0.00118	0.05		<0.001
Dieldrin	0.00014	0.00028	0.01		<0.002

All values in µg/L.
[1]AMEL: average monthly effluent limit
[2]MDEL: maximum daily effluent limit
[3]MEC: maximum effluent concentration

The final effluent limits shown above are calculated using procedures described in Section 1.4 of the SIP. Background values are based on Regional Monitoring Program (RMP) data collected at the Sacramento River Station. Dilution was taken as zero and the receiving water was classified as estuarine (i.e., lowest of freshwater and saltwater criteria is used for effluent limit calculation). Hardness, where applicable, was assumed to be 268 mg/L. Other variables in the effluent limit calculation included coefficients of variation for different pollutants in different effluents.

Maximum observed effluent concentrations are based on recent plant effluent quality data (2000-2002). As shown in the table above, the District will not be able to immediately comply with proposed effluent limits for copper, mercury, cyanide, dichlorobromomethane, Bis(2-ethylhexyl)phthalate, 4,4'-DDE, and dieldrin. The feasibility analyses for these constituents are discussed below.

Source Control and Pollution Prevention Efforts

In addition to its pretreatment program which regulates 11 industries and 3 groundwater remediation sites, the District has an active pollution prevention program that has been in place since 1992. Currently, the District considers mercury, organophosphate pesticides, perchloroethylene, copper, nickel, lead and zinc to be pollutants of concern. Mercury has the highest priority (A) while pesticides and perchloroethylene are assigned a B priority and the metals are priority C. The District has implemented a variety of activities targeting these pollutants over the years. Some of these activities are highlighted in Table 2.

Table 2. Fairfield-Suisun Pollution Prevention Program Activities

Pollutant of Concern	Source Control Activities
Mercury	Thermometer exchanges, Dental outreach
Organophosphate pesticides	Restaurant IPM inspections, school outreach, theatre slides, public events, PCO workshops
Perchloroethylene	Dry cleaner inspections
Copper, nickel, lead, zinc	Inspections/ BMPs for vehicles service facilities, metal fabricators, and industry; surface cleaner workshops

Several of the activities listed above have been conducted in cooperation with other local agencies in Vacaville, Vallejo, Fairfield and Suisun City. The District is also an active participant and supporter of several regional groups and programs, including:

- Bay Area Pollution Prevention Group (BAPPG)
- Bay Area Clean Water Agencies (BACWA)
- Bay Area Stormwater Management Agencies Association (BASMAA)
- North Bay Source Control Group
- Napa/ Solano Regional Environmental Public Education Group
- Solano County Environmental Management Local Task Force
- Napa/Solano Air Resource Team

Additional information on pollution prevention activities targeting each constituent requiring interim effluent limits is discussed below.

Copper
The maximum observed effluent concentration for copper is 10 µg/L (measured in June 2000) which would exceed a final MDEL of 7.5. The maximum average monthly copper value of 8.5 (measured January 2001) exceeds the proposed final AMEL of 4.7. In addition, 3 of 78 samples taken between January 2000 and December 2002 have copper concentrations that would exceed 7.5 (the proposed final MDEL) and 14 of 36 calculated monthly average values would exceed 4.7 (the proposed final AMEL). The District will not be able to immediately comply with the proposed final limits.

The District has identified copper as a priority C pollutant of concern and has conducted pollution prevention targeting copper sources including corrosion of copper plumbing, root control products, vehicle service facilities, mobile surface cleaners, and metal fabricators. Pollution prevention activities have contributed to a 34% reduction in copper influent levels between 1992 (59 µg/L) and 2000 (39 µg/L). The District has conducted source control for most of the common copper sources so it is not clear how much more reduction may be achieved. The District will review its current copper pollution prevention activities and modify as needed.

Mercury
The maximum observed effluent concentration for mercury is 0.021 µg/L (measured in October 2002) which is equal to the proposed final AMEL of 0.021 µg/L. The maximum average monthly mercury value of 0.015 µg/L (measured in October 2002) does not exceed the final AMEL of 0.021. The District will have difficulty consistently complying with the proposed effluent limits.

Mercury is a 303(d)-listed parameter and is the subject of a TMDL currently nearing completion. Final effluent limits for this pollutant will be derived from the wasteload allocation established under the TMDL. The final effluent limit listed above for this pollutant is projected to change based on the results of the TMDL and wasteload allocation. Available information indicates that mercury is a legacy pollutant in San Francisco Bay resulting from past activities and that ongoing loadings from POTWs are not a significant source of this pollutant. As a result, costly measures for either advanced treatment or zero discharge to control mercury loading from POTWs are not expected to be required.

Given that POTWs are not a significant source of mercury in the Bay, in addition to the District's existing high quality effluent, residential service area, and favorable discharge location, it is not immediately evident the extent to which additional pollution prevention efforts would be effective or have any detectable beneficial impact on the receiving water. Certainly, the highest value measured by the District is below the water quality objective. Reasonable potential was only triggered by background ambient data.

However, the District has a identified mercury as a pollutant of concern and has conducted pollution prevention activities for mercury sources including thermometer exchange programs in cooperation with other local agencies, and outreach to dentists in the District's service area. In addition, the District conducted a study of the impact of its effluent on methyl mercury levels in Suisun Marsh. The District will continue its efforts targeting mercury sources. Specifically, the

District has surveyed local dentists regarding their amalgam waste management practices and will develop future outreach based on the results of the survey.

Cyanide

The maximum observed effluent concentration for cyanide is 28 µg/L (measured in June 2001) which would exceed a final MDEL of 1.0 µg/L. The maximum average monthly cyanide value of 17 (measured June 2001) exceeds the proposed final AMEL of 0.4 µg/L.. In addition, 32 of 74 samples taken between January 2000 and December 2002 have cyanide concentrations that would exceed 1.0 (the proposed final MDEL), one sample has a cyanide concentration of 1 µg/L, and the remaining 41 samples have cyanide concentrations below the detection limit of 3 µg/L. All the calculated monthly average values would exceed 0.4 µg/L (the proposed final AMEL). The District will not be able to immediately comply with the proposed final limits and will have difficulty consistently complying with the proposed interim limits.

Cyanide has been detected occasionally (i.e., 6 of 30 samples from January 2000 – December 2002) but not consistently in the District's influent. Typically, cyanide is not present in wastewater influent but is generated in the treatment plant disinfection process. For example, based on a review of the literature[1] (including a study being conducted by water Environment Research Foundation (WERF)), effluent cyanide levels may be due to chlorination processes or may be the result of analytical interferences.

The District has not previously identified cyanide as a pollutant of concern and, therefore, has not conducted source investigations for this constituent. In addition, as noted above, it is unlikely that these investigations would be fruitful based on the influent data. A special study is being conducted under a region-wide effort to develop a site-specific objective for cyanide which is expected to more closely represent actual water quality conditions than current water quality objectives. The District is participating in this study. In addition, in accordance with the requirements of its NPDES permit, the District conducted a Cyanide Reduction Study focusing on determining if cyanide was being generated in the treatment process. The study determined that it was likely that cyanide levels in the effluent were an artifact of the chlorination/dechlorination process. This study was submitted to the Regional Board in February 2000.

Dichlorobromomethane

The maximum observed effluent concentration for dichlorobromomethane is 55 µg/L (measured in September 2002) which would exceed the proposed final AMEL of 46 µg/L.. Of the 6 samples taken between January 2000 and December 2002, two have dichlorobromomethane concentrations that would exceed 46 µg/L (the proposed final AMEL). The District will not be able to immediately comply with the proposed final limits.

Dichlorobromomethane is generated as a byproduct of chlorination of water and wastewater and does not typically have influent sources. The District has not previously identified dichlorobromomethane as a pollutant of concern and, therefore, has not conducted pollution prevention activities for this constituent. Influent levels of dichlorobromomethane average less than 1 µg/L and have not exceeded 2.1 µg/L. Therefore, it is unlikely that there are significant

sources of dichlorobromomethane in the influent, making source investigations and source control activities unlikely to be fruitful. With only six influent and effluent samples in 3 years, there is not enough information to completely assess the District's ability to comply with the proposed interim or final limits. Should reductions be necessary, the District will evaluate its treatment plant processes to determine if there are opportunities to optimize its processes to reduce generation of dichlorobromomethane.

Bis(2-Ethylhexyl)Phthalate

The maximum observed effluent concentration for bis(2-ethylhexyl)phthalate is 13 µg/L which exceeds the proposed final MDEL of 11.8 µg/L and the proposed final AMEL of 5.9 µg/L.. Only 7 data points are available for January 2000 through December 2002 with the two earliest samples having high detection limits (i.e., 25 µg/L). The District will have difficulty complying with the proposed interim and final limits but insufficient data are available to assess compliance with any certainty.

Bis(2-ethylhexyl)phthalate (Bis-2) is a plasticizer. Approximately 97% of the Bis-2 produced annually is used as a plasticizer for PVC and other plastics. Because of the widespread use of plastics in every facet of everyday life, Bis-2 is ubiquitous. Influent levels of Bis-2 average 30 µg/L. The District has not previously identified Bis-2 as a pollutant of concern and, therefore, has not conducted pollution prevention activities for this constituent. With only seven effluent samples in 3 years and six influent samples, there is not enough information to completely assess the District's ability to comply with the proposed interim or final limits. Since high levels of Bis-2 in POTW effluent are usually associated with sampling and/or laboratory analysis conditions, the District proposes to conduct a special study to determine if cleaner sampling and analysis techniques can reduce the amount of Bis-2 in the effluent.

4,4'-DDE, Dieldrin

The chlorinated pesticides, 4,4'-DDE and dieldrin , have not been detected in the District's effluent and have been below reporting limits of 0.01 µg/L. The reporting limits and the detection limits (0.001 µg/L for 4,4'-DDE and 0.002 µg/L for dieldrin) exceed the proposed final limits for both constituents. Therefore, there is insufficient information to determine if the District is able to comply with the proposed effluent limits.

4,4'-DDE is a decomposition product of DDT, which was banned in the US for most uses in 1972 and all remaining uses in 1988. Dieldrin was banned for most uses in 1974 and all remaining uses in 1987. Dieldrin is also a decomposition product of Aldrin whose use was also discontinued in the late 1980's. The District has not previously identified 4,4'-DDE or dieldrin as pollutants of concern and, therefore, has not conducted pollution prevention activities that directly target these constituents. However, the District has an ongoing pesticide pollution prevention program that includes a restaurant Integrated Pest Management (IPM) education program, residential outreach (theatre slides, bus boards, public events), school outreach and PCO workshops. As noted above, there is insufficient information to completely assess the District's ability to comply with the proposed effluent limits for 4,4'-DDE and dieldrin. Since reasonable potential for these constituents is triggered only by background ambient conditions, the District will continue existing efforts for pesticides generally.

Summary

This evaluation indicates that immediate compliance with projected final effluent limits for copper, mercury, cyanide, bromodichloromethane, bis(2-ethylhexyl) phthalate, 4,4'-DDE and dieldrin is not feasible for the District.

In accordance with the requirements of the SIP, the District requests that the Regional Board refrain from the adoption of final effluent limits for these constituents. In lieu of final limits, the NPDES permit should include the interim performance based limits with which the District can comply. Proposed source control actions are shown in Table 3 below.

Table 3. Proposed Source Control Actions

Constituent	Proposed Action	Estimated Time to Complete
Copper	Existing outreach to municipal water supply agencies, plumbers, vehicle service facilities, metal fabricators, and surface cleaners	Ongoing
Mercury	No additional activity since RP triggered by background data	N/A
Cyanide	Participate in study to develop site-specific objective	June, 2003
Dichlorobomomethane	Conduct source identification across plant processes	Three years after permit adoption
Bis(2-Ethylhexyl)Phthalate	Conduct study to evaluate clean sampling	Three years after permit adoption
4,4'-DDE	No additional activity since RP triggered by background data	N/A
Dieldrin	No additional activity since RP triggered by background data	N/A

Attachment K

Response to Comments

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

RESPONSE TO WRITTEN COMMENTS
ON THE NPDES PERMIT REISSUANCE FOR:

Fairfield Suisun Sewer District
Fairfield, Solano County
NPDES Permit No. CA 0038024

Two comment letters were received on this Tentative Order (TO): one from the Fairfield Suisun Sewer District (District), and the other from the Bay Area Clean Water Agencies (BACWA). The responses are given according to the order of the comments having been presented. For brevity, some comments are summarized.

Below are Board staff's responses to the District's comments.

Tentative Order

Comment 1. The District is concerned about the classification of the receiving water and contends that the Boynton Slough should be classified as freshwater because (1) the salinity data support this designation; (2) the previous permit used the same basis for salinity designation and concluded that Boynton Slough is freshwater; (3) the immediately downstream receiving water is classified as freshwater; (4) the San Francisco Bay Basin Plan supports this designation with the definition of freshwater and marine water; (5) the District's own special study on beneficial uses supports a freshwater designation. In adopting a policy, which effectively changes the classification of the receiving water from the existing permit with no new substantive information, the Regional Board failed to comply with the California Water Code.

Response 1. In the 1998 permit, Boynton Slough was classified as freshwater solely based on salinity data, but there was a provision in the permit requiring the District to perform a beneficial use study of Boynton Slough to determine if it supports any estuarine beneficial uses.

For this permit reissuance, Boynton Slough was re-evaluated using the best available information and determined to be estuarine based on two principal facts: (1) Boynton Slough is part of the Suisun Marsh "network". Suisun Marsh is classified as estuarine in the Basin Plan, so by virtue of the Tributary rule (Basin Plan, page 2-5), Boynton slough is also estuarine, and (2) the District's own beneficial uses study of Boynton Slough concludes that Boynton slough supports estuarine-type plants which is indicative of estuarine beneficial uses. This conclusion is based on the surveys performed in 2000 and 2001 on the vegetation species along the Boynton Slough, which find that although the plant community can be classified as tidal freshwater marsh, brackish marsh plants are found throughout the study area (Boynton Slough Beneficial Use Classification, January 24, 2002).

Comment 2. The District contends that in computing site-specific translators, when dissolved data are non-detect, one-half the detection limit should be used to calculate the translators.

Response 2. Board staff followed U.S.EPA guidance titled, "*The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion*", which states "If

only the dissolved concentration is nondetect, it could be assumed to equal one-half the detection level." (Page 18). Due to the limited data set the Board staff has to work with in calculating the translators, Board staff used discretion to substitute the non-detects with detection limit (DL) to be conservative. There is a provision in the TO requiring the District to collect more data to augment the data set for developing site-specific translators using better sampling and analysis techniques. Once more data are provided, Board staff may re-evaluate the translators in the future.

Comment 3. The District would like to review the Pretreatment Requirements as indicated to be in Attachment D.

Response 3. At a meeting held on July 21, 2003, Board staff provided to the District the Pretreatment Requirements. The requirements are the same as those under the pretreatment general permit the District is currently under. Furthermore, the Pretreatment Requirements are included as Attachment D of the TO.

Comment 4. The District contends that alternate bacteria limits (fecal coliform and enterococci limits) should not be required during a bacteria study which is to assess the appropriateness of testing for fecal coliform and /or enterococci instead of total coliform in compliance with Basin Plan bacteriological objectives, and suggests the language regarding alternate bacteria limits be removed. In addition, the District requests that the Regional Board apply the results from the bacteria studies performed by the South Bay Dischargers (Cities of San Jose and Santa Clara and City of Palo Alto) to the District's receiving water body.

Response 4. The requirement to comply with alternate bacteria limits during the bacteria study has been removed from the revised TO.

The District requests the Regional Board to consider the bacteria study performed in the South Bay by the Cities of San Jose, Santa Clara, and Palo Alto, as applicable to the District's receiving water body (North Bay). This request cannot be approved by Board staff for the following reasons:

(A) The District has not provided adequate technical or scientific information as how the South Bay studies are applicable to North Bay, and

(B) Receiving water studies are generally specific to the receiving water body. In other words, conclusions made about a slough in South Bay cannot be applicable to a slough in North Bay without a comparative analysis.

The District is encouraged to use available data, if they are able to justify the applicability to their own receiving water and/or treated effluent.

Comment 5. The District requests that chronic toxicity detection limits for the most sensitive species identified be acknowledged in the permit, in addition to the Self-Monitoring Program.

Response 5. Comment noted. The TO has been revised to include the following language at two places (B.6. and Provision E. 12. Whole Effluent Chronic Toxicity): "The 100% should be replaced with the highest percent of effluent achievable if salt solution is used to increase the salinity of the effluent (e.g. 70%)". However, Board staff is aware that another commercial lab is able to utilize the 100% effluent on the same test species for chronic toxicity testing. Board staff strongly recommends that the District work with its contract lab to explore the possibility of meeting the permit requirement, which includes a 100% effluent for the chronic toxicity test.

Comment 6. The District requests that the Bis(2-Ethylhexyl)Phthalate be expressed as a monthly average effluent limit.

Response 6. Comment noted. The revised TO reflects this change. This request is incorporated because the interim limit for Bis(2-Ethylhexyl)Phthalate is based on maximum effluent concentration (MEC) as opposed to a statistically derived value and the District is going to sample more frequent than monthly as part of a special study. Therefore, a monthly average limit will allow the District to average all the values obtained in a given month.

Comment 7. The District requests that the language for Provisions 2 and 3 be revised to show that compliance attainability and compliance alternatives will be evaluated during the permit term since there is no guarantee that the studies will result in compliance with the final limits within five years.

Response 7. Comment noted. The TO has been revised to state that the final task (Task c) of these two studies is to "conduct evaluation of compliance attainability with final limitations", and the compliance date is "within two years of permit adoption".

Comment 8. The District requests that the Regional Board revise language in the Bis(2-Ethylhexyl)Phthalate Study Provision to remove the requirement that the study must conclusively demonstrate that past laboratory techniques were erroneous.

Response 8. Comment noted. The TO has been revised to state that "the study will address whether past BEHP laboratory techniques were erroneous".

Comment 9. The District requests that the Regional Board revise language in Provision 7 to indicate that the final report of the BACWA Coordinated Receiving Water Monitoring Effort will be submitted by BACWA, not the District.

Response 9. Comment noted. The revised TO reflects this change.

Comment 10. The District requests that cadmium be removed from the list of minimum constituents for the site-specific translator study in Provision 8.

Response 10. Comment noted. The TO has been revised because all available cadmium data are non-detect. It is very likely that this would be the case with additional data collection, which makes it infeasible to calculate a translator.

Comment 11. The Pollutant Minimization Program required under Provision 11 should be removed.

Response 11. Provision 11 cannot be removed. The Pollutant Minimization Program (PMP) requirement has two bases: (1) the program and related tasks are committed by the District's infeasibility study in order to get interim limits with compliance schedule; and (2) the PMP is required by the SIP (2.4.5.1) and to be implemented under certain conditions as described in the provision.

Comment 12. Correct omissions, extraneous text, and typographical errors in the final NPDES permit.

Response 12. Comment noted. The revised TO reflects these changes.

Self-Monitoring Program

Comment 1. The District requests that the monitoring for bypasses due to high wet weather flows be revised to be consistent with previous permits.

Response 1. Comment noted. The revised TO reflects this change.

Comment 2. Correct omissions in the final Self-Monitoring Program.

Response 2. Comment noted. The revised TO reflects these changes.

Fact Sheet

Comment 1. The District requests that the Sacramento River RMP station data used in the reasonable potential analysis be attached to the fact sheet with the other data used.

Responses 1. Comment noted. The data are included as an attachment of the Fact Sheet.

Comment 2. Correct typographical errors in the final Fact Sheet.

Response 2. Comment noted. The revised TO reflects these changes.

Below are Board's staff's responses to BACWA's comments.

BACWA presented four major comments which are the same as those presented in the District's comments. Please refer to the above comments and responses for details.

Comment 1. Compliance attainability for final effluent limits.
Response 1. See **TO Response 7** above.

Comment 2. Salinity classification as estuarine.
Response 2. See **TO Response 1** above.

Comment 3. Bacteria study.
Response 3. See **TO Response 4** above.

Comment 4. Calculation of site-specific translators.
Response 4. See **TO Response 2** above.