San José/Santa Clara Water Pollution
Control Plant Master Plan

TASK NO. 4
PROJECT MEMORANDUM NO. 1
EXISTING REGULATORY REQUIREMENTS

FINAL DRAFT
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CITY OF SAN JOSÉ

SAN JOSÉ/SANTA CLARA WATER POLLUTION CONTROL PLANT MASTER PLAN

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1.0 INTRODUCTION

The San José/Santa Clara Water Pollution Control Plant Master Plan (Master Plan) addresses a wide range of issues and topics that impact the facility, its customers, and staff. Regulatory compliance is a major goal of the Master Plan. This project memorandum (PM) sets the stage for the overall Master Plan process by establishing the regulatory basis for planning objectives and strategies and describing current and pending regulatory requirements. Regulations pertaining to wastewater discharge, biosolids management, air quality, and regulations that will affect San José/Santa Clara Water Pollution Control Plant (WPCP) land use decisions will be considered.

Table 1 summarizes the federal, state, and regional regulations that apply to water quality, air quality, and biosolids disposal/reuse that were evaluated when considering the cross-media impacts of advanced treatment processes.

2.0 WASTEWATER DISCHARGE

The WPCP discharges approximately 110 million gallons per day (mgd) of advanced tertiary treated water into the Artesian Slough, which is a tributary to Coyote Creek, which ultimately discharges into South San Francisco Bay. The WPCP is considered a shallow water discharger, since its wastewater is not discharged through a diffuser and it does not receive a minimum initial dilution of 10:1 (San Francisco Bay Basin Water Quality Control Plan, 2007, Section 4.6.1.)

The City of San José (City) has a National Pollutant Discharge Elimination System (NPDES) permit that regulates the City's discharges: NPDES Permit No. CA0037842/WDR Order No. R2 2003-0085 (Appendix A). The following section presents the federal, state, and local regulations and guidance that form the basis for the NPDES discharge permits. This section also summarizes the permit requirements for which the WPCP wastewater discharges must comply.

2.1 Federal Wastewater Discharge Policies

In 1972, the Federal Water Pollution Control Act (Act) was adopted. This Act, later known as the Clean Water Act (CWA), set in motion a nationwide effort to clean up the country's waterways. The federal law expanded upon previous requirements that had already been established by California's 1969 Porter-Cologne Water Quality Control Act (Porter-Cologne Act). These two laws established the system that regulates the WPCP discharges.

Under the CWA, the Environmental Protection Agency (EPA) or a delegated State agency regulates the discharge of pollutants to waterways through the issuance of NPDES permits.

Table 1 Summary of Federal, State, and Regional Regulations Applicable to WPCP San José/Santa Clara Water Pollution Control Plant Master Plan City of San José

	Discharge to Receiving Water	Discharge to Land	Air Emissions
Federal	• Clean Water Act (CWA) of 1972 • National Pollutant Discharge Elimination System (NPDES) (40 CFR 122) • Water Quality Standards (40 CFR 131) • National Toxics Rule (40 CFR 131) • California Toxics Rule (40 CFR 131) • CWA 1972, Section 303(d)and Total Maximum Daily Load (TMDL) Program ((40 CFR 130) • Federal Endangered Species Act of 1973	• Sewage Sludge Regulation (40 CFR Part 503) • Landfill Requirements (40 CFR Parts 257 and 258) • Clean Air Act (CAA) of 1970 (amendments in 1977 and 1990) • Resource Conservation and Recovery Act (RCRA) of 1976 (amended in 1984 and 1986) • Clean Water Act (CWA) of 1972 • 40 CFR Part 761 (promulgated under Toxic Substances Control Act) • Federal Endangered Species Act of 1973	• Clean Air Act (CAA) and National Ambient Air Quality Standards (NAAQS) of 1970 (amendments in 1977 and 1990) • National Emission Standards for Hazardous Air Pollutants (NESHAPS) (40 CFR 61) • Sewage Sludge Regulation (40 CFR Part 503) • Occupational Safety and Health Administration (OSHA) (29 CFR 1910)
State	• Porter-Cologne Act of 1969 • Reclaimed Water Requirements (CCR Title 22) • Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, 2005 (SIP) • Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays And Estuaries Of California, 1998 (California Thermal Plan)	• CCR Title 23, Chapter 3, Chapter 15 • CCR Title 22, Article 3 • Toxic Pit Clean Up Act of 1984 (Katz Bill AB 3566/3121) • Porter-Cologne Act of 1969 • General Waste Discharge Requirements (GWDR) for Discharge of Biosolids to Land for Use as a Soil Amendment in Agriculture, Silviculture, Horticulture, and Land Reclamation Activities	• CARB State Implementation Plan, 2007 (SIP) • CARB Air Toxic Pollutant Program (Tanner Bill AB 1807) • Air Toxics "Hot Spots" Information and Assessment Act of 1987 (Connelly/ Stirling Bill AB 2588) • California Clean Air Act of 1988
Regional	• San Francisco Bay Basin Water Quality Control Plan, 2007 (Basin Plan) • Whole Effluent Toxicity Characterization Program		• Bay Area Air Quality Management District (BAAQMD) Rules and Regulations • Santa Clara County Toxic Gas Ordinance, 1990 (TGO)

Notes:
CARB = California Air Resources Board.
CCR = California Code of Regulations.
CFR = Code of Federal Regulations.

NPDES permits set limits on the amount of pollutants that can be discharged into the waters of the United States. Table 2 presents the various federal plans and policies that pertain to the WPCP's wastewater discharges.

2.1.1 EPA's National Toxics Rule

In 1992, EPA promulgated the National Toxics Rule (NTR). The NTR contains water quality criteria (WQC) for the states and territories that were designated as being subject to the NTR. California was one of the states designated under the NTR because the state had failed to adopt all of the 126 WQC required by EPA. The NTR set aquatic life and/or human health criteria for 99 constituents or compounds, only some of which were applicable to California.

A subsequent revision of the NTR changed the metals criteria from total recoverable to dissolved metals. This change represents a significant alteration in the scientific approach for trace metals regulation formerly advocated by the EPA. After careful consideration, EPA concluded that it was in the public interest to revise the metals criteria contained in the NTR. Thus, the NTR was promulgated to reflect the findings of EPA's October 1, 1993 Metals Policy, which stated:

> *It is now the policy of the [EPA] Office of Water that the use of dissolved metal to set and measure compliance with water quality standards is the recommended approach, because dissolved metal more closely approximates the bio-available fraction of metal in the water column than does total recoverable metal.*

The NTR also includes conversion factors for individual metals to facilitate adjustment of EPA criteria from total recoverable to dissolved values.

2.1.2 EPA's California Toxics Rule

On May 18, 2000, EPA Region IX published the final California Toxics Rule (CTR) in the Federal Register. The CTR establishes water quality standards for toxic pollutants (trace metals, pesticides, polychlorinated biphenyls (PCBs), other trace organics) for California that were not already addressed under the NTR. The CTR was intended to put numeric toxic pollutant standards in place until the State Water Resources Control Board (SWRCB) reissued the statewide water quality control plans that were judicially overturned in 1994.

Some of the key elements of the CTR include:

- Amended numeric standards for 30 toxic pollutants and new criteria for 8 toxic pollutants to protect aquatic life and human health uses.
- Dissolved standards for most trace metals and endorsement of the use of translator mechanisms.

Table 2	Federal Plans/Policies Applicable to Discharge of Toxic Pollutants to Surface Waters San José/Santa Clara Water Pollution Control Plant Master Plan City of San José	
Law or Regulation	**Application**	**Relevance**
Clean Water Act of 1972	• Establishes national policy that discharge of toxic pollutants in toxic amounts be prohibited.	• Impacts regulation of wastewater discharges to surface waters.
	• Requires states to adopt numerical water quality standards for EPA priority pollutants.	• National Toxics Rule, California Toxics Rule
	• Requires states to list waters not meeting water quality standards and adopt TMDLs that will result in achievement of standards.	• May lead to more stringent effluent limitations for discharges to listed surface waters.
40 CFR Part 122 - NPDES Permit Regulations	• Requires NPDES permits to contain effluent limits necessary to meet water quality criteria.	• Allows effluent limits to be incorporated into NPDES permit limits.
	• Requires NPDES permits to be consistent with waste load allocations (WLAs) included in TMDLs approved by EPA.	• Allows WLAs to be incorporated into NPDES permit limits.
	• Requires NPDES permits to contain effluent limits for whole effluent toxicity when discharge has reasonable potential for causing toxicity in the receiving water.	• Allows toxicity requirements to be incorporated into NPDES permit.
	• Establishes a consistent national approach for controlling Combined Sewer Overflow (CSO) discharges (i.e., CSO Control Policy).	• Regulates CSO discharges within NPDES permit.
40 CFR Part 131 - Water Quality Standards Regulations, National Toxics Rule, and California Toxics Rule	• Requires states to base water quality criteria on either EPA national guidance, national guidance modified to reflect site-specific conditions, or other scientifically defensible methods.	• Provides potential relief from statewide objectives on a scientific basis.
	• Allows de-designation of uses due to economic and social considerations.	• Provides potential relief from inappropriate beneficial uses.
	• Requires states to adopt antidegradation policies, which will maintain existing water quality unless necessary to accommodate important economic and social development.	• California has adopted an antidegradation policy, which has been accepted by EPA as satisfying this provision.
	• Establishes statewide water quality criteria for certain priority toxic pollutants in 14 states, including California.	• Applicable to dischargers to inland waters including bays and estuaries.
	• Establishes state-wide water quality criteria for the remainder of the priority toxic pollutants for California.	• Applicable to dischargers to inland waters including bays and estuaries.

- Provisions for compliance schedules (3-10 years) to provide time for permittees to meet new standards.
- Provisions for mixing zones.
- Use of interim limits.

The impact of both the NTR and the CTR on NPDES permit requirements are dependent on the implementation of the NTR/CTR criteria by California's regulatory agencies. The implementation of these criteria under California's State Implementation Policy (SIP) and San Francisco Bay Regional Water Quality Control Board (RWQCB) permitting processes are described later in this PM.

2.2 State and Regional Discharge Policies

2.2.1 Porter-Cologne Act

The Porter-Cologne Act requires the state to adopt water quality policies, plans, and objectives for the protection of the State's waters. The SWRCB and the nine RWQCBs meet this requirement by establishing WQC in regional Basin Plans, the SIP, the California Thermal Plan, and the California Ocean Plan. Pursuant to the Porter Cologne Act, NPDES permits issued by the nine RWQCBs must implement Basin Plan requirements, and the Porter-Cologne Act states that economic consideration must be taken into account when issuing permits.

Table 3 indicates the state policies adopted per the Porter Cologne Act, that are applicable to discharge of toxic pollutants to surface waters.

2.3 Regional Discharge Regulations

2.3.1 San Francisco Bay Basin Plan

The San Francisco Bay Basin Plan (Basin Plan) is applicable to the WPCP's discharges. The Basin Plan designates the water quality goals, or beneficial uses, for individual waters and their tributaries. Water quality objectives are established to protect those beneficial uses. With respect to the waters that receive the WPCP's discharges, the beneficial uses set by the Basin Plan for Coyote Creek and its tributaries including the Artesian Slough (Santa Clara Basin) are as follows:

- GWR - Groundwater Recharge.
- COLD - Cold Freshwater Habitat.
- MIGR - Fish Migration.
- RARE - Preservation of Rare and Endangered Species.

Table 3 State Policies Applicable to Discharge of Toxic Pollutants to Surface Waters San José/Santa Clara Water Pollution Control Plant Master Plan City of San José		
Law or Regulation	**Application**	**Relevance**
Porter-Cologne Act	Establishes policy to regulate waters of state so as to attain the highest water quality which is reasonable and authorizes preparation of Basin Plans and issuance of waste discharge requirements	Provides the State with authorities that go beyond federal regulations, e.g., Section 13267 provisions that allow requests for information, ability to regulate discharges to land.
State Implementation Policy	Contains provisions for establishing NPDES permit limits necessary to achieve the objectives for toxic pollutants.	Identifies the implementation approach for NPDES permit limits for toxic pollutants discharged into inland waters, bays, and estuaries (not ocean waters and wet weather discharges).
SWRCB Resolution No. 68-16 (Non-degradation Policy)	Requires existing high quality waters to be maintained to the maximum extent practicable.	May lead to more stringent permit limits than needed to meet water quality objectives for new or expanded discharges. Applies to both surface water and groundwater.
Bay-Delta Pollutant Policy	Requires RWQCBs 2 and 5 to develop mass emissions strategies.	May lead to reduction, freeze, or controlled increase in mass emissions of certain toxic pollutants.

- SPWN - Fish Spawning.
- WARM - Warm Freshwater Habitat.
- WILD - Wildlife Habitat.
- REC-1 - Water Contact Recreation.
- REC-2 - Noncontact Water Recreation.

Although the discharge point is in the Artesian Slough, the beneficial uses of the South San Francisco Bay, which ultimately receives the WPCP's discharge are also of relevance to the WPCP. In addition to the uses listed above, the beneficial uses for South San Francisco Bay include the following uses:

- IND - Industrial Service Supply.
- NAV - Navigation.
- COMM - Commercial and Sport Fishing.
- EST - Estuarine Habitat.
- SHEL - Shellfish Harvesting.
- MIGR - Fish Migration.
- RARE - Preservation of Rare and Endangered Species.
- SPWN - Fish Spawning.
- WILD - Wildlife Habitat.
- REC-1 - Water Contact Recreation.
- REC-2 - Noncontact Water Recreation.

To protect these beneficial uses, narrative and numerical water quality objectives are set forth in the Basin Plan. These objectives guide the effluent limits issued in NPDES permits. Since 2005, the CTR objectives have been formally adopted into the Basin Plan. With the exception of mercury and selenium, the objectives have not changed. New mercury regulations are discussed under Section 2.4.1 of this PM. Potential changes to selenium regulations are discussed in PM 4.3.

The receiving waters of the WPCP discharge are considered to be estuarine, for which the Basin Plan specifies the more stringent of freshwater and marine objectives. Table 4 shows the numerical water quality objectives that apply to the San Francisco Bay south of the Dumbarton Bridge. In determining several of the metals objectives that are hardness-dependent, a hardness of 400 milligrams per liter (mg/L) is specified by the Basin Plan. This hardness is less than the actual value of 510 mg/L measured at Regional Monitoring Program (RMP) station C-3-0 in the Artesian Slough, but is the maximum allowable value specified in the Basin Plan. Additionally, there are site-specific objectives for copper, nickel, and cyanide (proposed) that differ from that of the rest of the San Francisco Bay.

The objectives listed in Table 4 are expressed as dissolved metals. However, effluent limitations must be expressed as total recoverable metal. Site specific translators (SSTs) are included in the Basin Plan to convert total to dissolved concentrations for some metal constituents. The SSTs that are applicable to the South San Francisco Bay south of the Dumbarton Bridge are listed in Table 5.

The latest version of the Basin Plan received final approval from the Office of Administrative Law (OAL) on January 18, 2007. From the WPCP's perspective, the most significant

Table 4	**Basin Plan Numerical Water Quality Objectives for the Artesian Slough/South San Francisco Bay San José/Santa Clara Water Pollution Control Plant Master Plan City of San José**	
Constituent	**Aquatic Life Criteria (4-hr / 1-day)**	**Human Health Criteria, Consumption of Organisms**
Antimony		4,300 μg/L
Arsenic	36 μg/L / 69 μg/L[1]	–
Cadmium	3.4 μg/L / 19 μg/L[2]	–
Chromium (III)	554 μg/L / 1707 μg/L[2]	–
Chromium (VI)	11 μg/L / 16 μg/L[2]	–
Copper	6.9 μg/L / 10.8 μg/L[3]	–
Cyanide	1.0 μg/L / 1.0 μg/L[1,4]	220,000 μg/L
Lead	8.1 μg/L / 210 μg/L[1]	–
Mercury	–	0.051 μg/L
Nickel	11.9 μg/L / 62.4 μg/L[3]	4,600 μg/L
Selenium	5.0 μg/L / 20 μg/L[2]	–
Silver	1.9[5]	–[–]
Thallium	–	6.3 μg/L
Zinc	81 μg/L / 90 μg/L[1]	–
2,3,7,8-TCDD (dioxin)	–	1.4×10^{-8} μg/L
Acrolein	–	780 μg/L
Acrylonitrile	–	0.66 μg/L
Benzene	–	71 μg/L
Bromoform	–	360 μg/L
Carbon Tetrachloride	–	4.4 μg/L
Chlorobenzene	–	21,000 μg/L
Chlorodibromomethane	–	34 μg/L
Dichlorobromomethane	–	46 μg/L
1,2-Dichloroethane	–	99 μg/L
1,1-Dichloroethylene	–	3.2 μg/L
1,2-Dichloropropane	–	39 μg/L
1,3-Dichloropropylene	–	1,700 μg/L
Ethylbenzene	–	29,000 μg/L
Methyl Bromide	–	4,000 μg/L
Methylene Chloride	–	1,600 μg/L
1,1,2,2-Tetrachloroethane	–	11 μg/L
Toluene	–	200,000 μg/L
1,2-Trans-Dichloroethylene	–	140,000 μg/L
1,1,2-Trichloroethane	–	42 μg/L
Trichloroethylene	–	81 μg/L
Vinyl Chloride	–	525 μg/L

Table 4 Basin Plan Numerical Water Quality Objectives for the Artesian Slough/South San Francisco Bay (Continued) San José/Santa Clara Water Pollution Control Plant Master Plan City of San José		
Constituent	**Aquatic Life Criteria (4-hr / 1-day)**	**Human Health Criteria, Consumption of Organisms**
2-Chlorophenol	–	400 μg/L
2,4-Dichlorophenol	–	790 μg/L
2,4-Dimethylphenol	–	2,300 μg/L
2-Methyl-4,6-Dinitrophenol	–	765 μg/L
2,4-Dinitrophenol	–	14,000 μg/L
Pentachlorophenol	7.9 μg/L /13 μg/L[(1)]	8.2 μg/L
Phenol	–	4,600,000 μg/L
2,4,6-Trichlorophenol	–	6.5 μg/L
Acenaphthene	–	2,700 μg/L
Anthracene	–	110,000 μg/L
Benzidine	–	0.00054 μg/L
Benzo(a)Anthracene	–	0.049 μg/L
Benzo(a)Pyrene	–	0.049 μg/L
Benzo(a)Fluoranthene	–	0.049 μg/L
Benzo(k)Fluoranthene	–	0.049 μg/L
Bis(2-Chloroethyl)Ether	–	1.4 μg/L
Bis(2-Chloroisopropyl)Ether	–	170,000 μg/L
Bis(2-Ethylhexyl)Phthalate	–	5.9 μg/L
Butylbenzyl Phthalate	–	5,200 μg/L
2-Chloronaphthalene	–	4,300 μg/L
Chrysene		0.049 μg/L
Dibenzo(a,h)Anthracene	–	0.049 μg/L
1,2 Dichlorobenzene	–	17,000 μg/L
1,3 Dichlorobenzene	–	2,600 μg/L
1,4 Dichlorobenzene	–	2,600 μg/L
3,3 Dichlorobenzidine	–	0.077 μg/L
Diethyl Phthalate	–	120,000 μg/L
Dimethyl Phthalate	–	2,900,000 μg/L
Di-n-Butyl Phthalate	–	12,000 μg/L
2,4-Dinitrotoluene	–	9.1 μg/L
1,2-Diphenylhydrazine	–	0.54 μg/L
Fluoranthene	–	370 μg/L
Fluorene	–	14,000 μg/L
Hexachlorobenzene	–	0.00077 μg/L
Hexachlorobutadiene	–	50 μg/L
Hexachlorocyclopentadiene	–	17,000 μg/L

Table 4 Basin Plan Numerical Water Quality Objectives for the Artesian Slough/South San Francisco Bay (Continued)
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

Constituent	Aquatic Life Criteria (4-hr / 1-day)	Human Health Criteria, Consumption of Organisms
Hexachloroethane	–	8.9 μg/L
Indeno(1,2,3-cd) Pyrene	–	0.049 μg/L
Isophorone	–	600 μg/L
Nitrobezene	–	1,900 μg/L
N-Nitrosodimethylamine	–	8.1 μg/L
N-Nitrosodi-n-Propylamine	–	1.4 μg/L
N-Nitrosodiphenylamine	–	16 μg/L
Pyrene	–	11,000 μg/L
Aldrin	1.3 μg/L(1,6)	0.00014 μg/L
Alpha-BHC	–	0.013 μg/L
Beta-BHC	–	0.046 μg/L
Gamma-BHC	0.16 μg/L(1,6)	0.063 μg/L
Chlordane	0.004 μg/L / 0.09 μg/L(1)	0.00059 μg/L
4,4'-DDT	0.001 μg/L / 0.13 μg/L(1)	0.00059 μg/L
4,4'-DDE	–	0.00059 μg/L
4,4'-DDD	–	0.00084 μg/L
Dieldrin	0.0019 μg/L(1) / 0.24 μg/L(2)	0.00014 μg/L
Alpha-endosulfan	0.0087 μg/L / 0.034 μg/L(1)	240 μg/L
Beta-endosulfan	0.0087 μg/L / 0.034 μg/L(1)	240 μg/L
Endosulfan Sulfate	–	240 μg/L
Endrin	0.0023 μg/L / 0.037 μg/L(1)	0.81 μg/L
Endrin Aldehyde	–	0.81 μg/L
Heptachlor	0.0036 μg/L / 0.053 μg/L(1)	0.00021 μg/L
Heptachlor Epoxide	0.0036 μg/L / 0.053 μg/L(1)	0.00011 μg/L
PCBs	0.014(2,7)	0.00017 μg/L
Toxaphene	0.0002 μg/L / 0.21 μg/L(1)	0.00075 μg/L
Un-ionized ammonia	0.025 mg/L / 0.4 mg/L(8)	–

Notes:
(1) Based on CTR criteria for marine water.
(2) Based on CTR criteria for freshwater.
(3) Site-specific objectives for South San Francisco Bay.
(4) Pending Basin Plan amendment, cyanide site-specific objective will be revised to 2.9 μg/L / 9.4 μg/L in South San Francisco Bay.
(5) 30-day average.
(6) 4-hour average.
(7) 1-day average.
(8) Annual median / maximum.

Table 5 Site-Specific Translators for the South San Francisco Bay San José/Santa Clara Water Pollution Control Plant Master Plan City of San José		
Metal Constituent	**AMEL Translator**	**MDEL Translator**
Copper	0.53	0.53
Nickel	0.44	0.44
Zinc	0.24	0.56
Chromium (VI)	0.037	0.089
Lead	0.060	0.15
Notes: AMEL = Average Monthly Effluent Limitation. MDEL = Maximum Daily Effluent Limitation.		

change from the previous Basin Plan is the Basin Plan Amendment adopted by the RWQCB on January 21, 2004 that modified water quality objectives for arsenic, cadmium, chromium, copper (freshwater only), lead, nickel, silver, and zinc so that they are now consistent with the values published in the CTR. More recently, total maximum daily loads (TMDLs) have been adopted as Basin Plan amendments. These are discussed in more detail below.

Additional Basin Plan Amendments are underway that will impact the WPCP discharges. Currently, Basin Plan Amendments are being conducted for applying site-specific cyanide water quality objectives to marine waters in the San Francisco Bay, and site-specific objectives have already been adopted for copper for the Lower South San Francisco Bay, south of the Dumbarton Bridge. They have each been adopted by the RWQCB and the SWRCB, and are awaiting approval from the EPA. These pending amendments are discussed further in PM 4.3.

2.4 303(d) Lists and Total Maximum Daily Loads

The South San Francisco Bay is identified as impaired due to the presence of a number of constituents. These constituents are included on the 303(d) List of Impaired Waters and require that a TMDL be developed for each pollutant. A TMDL is equivalent to the assimilative capacity of a water body for a pollutant. Based on the TMDL, a waste load allocations (WLA) may be given to point sources and/or a load allocation to non-point sources to attain the allowable loadings into the water body of the pollutant.

The 303(d) listed pollutants for the South San Francisco Bay are presented in Table 6 along with the RWQCB scheduled completion time frame of the TMDL and the identified source of the pollution. A TMDL for mercury has been adopted into the Basin Plan. In addition, a TMDL for PCBs is underway and has been adopted by the RWQCB but not yet approved by the SWRCB. The following section describes these TMDLs. Other TMDLs are scheduled to be developed for the South San Francisco Bay as outlined in Table 6.

Table 6	2006 303(d) List of Impaired Waters - South San Francisco Bay San José/Santa Clara Water Pollution Control Plant Master Plan City of San José	
Pollutant	**Schedule**	**Source**
Chlordane	2008	Nonpoint
DDT	2008	Nonpoint
Dieldrin	2008	Nonpoint
Dioxin Compounds (including 2,3,7,8-TCDD)	2019	Atmospheric Deposition
Exotic Species	2019	Ballast Water
Furan Compounds	2019	Atmospheric Deposition
Mercury	2006	Industrial and Municipal Point Sources, Resource Extraction, Atmospheric Deposition, Natural Sources, Nonpoint Sources
PCBs	2006	Unknown Nonpoint Source
PCBs (dioxin-like)	2019	Unknown Nonpoint Source
Selenium	2019	Agriculture, Domestic Use of Groundwater

2.4.1 Mercury TMDL

The RWQCB developed a mercury TMDL and Implementation Plan for San Francisco Bay as a result of the 303(d) listing for elevated levels of mercury in San Francisco Bay fish tissues. The TMDL is documented in *Mercury in San Francisco Bay – Proposed Basin Plan Amendment and Staff Report for Revised TMDL and Proposed Mercury Water Quality Objectives* (Staff Report), April 21, 2006.

Mercury is a legacy pollutant issue in the San Francisco Bay. The RWQCB found that POTW discharges in the entire area collectively contribute approximately 1.5 percent of the total mercury discharged to the San Francisco Bay and already reduce mercury in their treatment processes by nearly 99 percent.

In the Staff Report, the RWQCB provided WLAs collectively for different groups. For example, all San Francisco Bay area Publicly Owned Treatment Works (POTWs) dischargers have one WLA applied to their discharges collectively, with all urban stormwater given a separate allocation. The TMDL also includes individual mass loadings and triggers for each POTW. If an individual mass limit or an effluent mercury trigger concentration is exceeded, the facility must report the exceedance in its Self-Monitoring Report and submit a report that:

- Evaluates the cause of the trigger or mass exceedances.

- Evaluates the effectiveness of existing pollution prevention or pretreatment programs and methods for preventing future exceedances.
- Evaluates the feasibility and effectiveness of technology enhancements to improve plant performance.

The interim WLA to be met collectively by San Francisco Bay area POTWs in ten years is 14 kilograms (kg) per year, and the final allocation to be met in 20 years is 11 kg/year.

If the collective, or aggregate, mass limit is exceeded, the RWQCB will pursue enforcement actions against those dischargers whose individual mass discharges exceed their individual mass limits. The individual mass limit for the WPCP is 1.0 kg per year, based on the 2000-2003 mercury loadings from the WPCP discharge. In 10 years this mass limit will be replaced by the interim limit of 0.8 kg per year, which is the same as the 20-year final limit. The interim/final value was based on a 20 percent reduction of current loads.

The effluent mercury trigger concentrations for tertiary treatment facilities are a daily maximum of 0.021micrograms (μg/L) total mercury and monthly average of 0.011μg/L total mercury. If the effluent exceeds these limits, then an action plan must be put in effect to help control mercury discharges. Pollution prevention programs are required of all dischargers, and are anticipated by the RWQCB to be the mechanism for POTWs to meet their interim limits.

Mercury mass and concentration limits are implemented through an NPDES watershed permit for mercury, as discussed in Section 2.6.1 below. The mercury TMDL and the associated NPDES watershed permit for mercury also requires studies to address methylmercury reduction measures. Methylmercury is a form of mercury produced by naturally occurring bacteria in surface waters and sediments. Methylmercury is the form of mercury that bioaccumulates, and is therefore key to reducing mercury concentrations in fish. The factors that affect methylmercury production are complex. The WPCP implements requirements to study methylmercury in-plant studies and by participation in national assessment of municipal treatment plants being funded by the Water Environment Research Federation (WERF).

2.4.2 PCB TMDL

PCBs are 303(d) listed in San Francisco Bay due to PCB contamination of San Francisco Bay area fish. On February 13, 2008, the RWQCB adopted Resolution R2-2008-12 to amend the Basin Plan to account for the PCB TMDL. The TMDL has not yet been adopted by the SWRCB, the OAL, or the EPA. The proposed TMDL gives a WLA of 0.4 kg/yr to the WPCP.

As proposed in the draft TMDL documents, NPDES permits will include the following requirements to be implemented as part of the TMDL:

- Implementation of best management practices (BMPs) to maintain optimum treatment performance for solids removal.
- Identification and management of controllable sources.
- An effluent limit based on current performance.
- Quantification of PCB loads to the San Francisco Bay.
- Support of actions to reduce the health risks of people who consume PCB-contaminated San Francisco Bay fish.
- Conduct or support of monitoring and studies to fill data gaps.

2.4.3 Copper and Nickel Action Plan

Copper and nickel were delisted from the State-wide 303(d) List for the South San Francisco Bay in 2001. In place of TMDL developments, along with the establishment of site-specific objectives, copper and nickel action plans were developed to protect the South San Francisco Bay. The Copper and Nickel Action Plan includes a receiving water monitoring program to determine if copper or nickel levels are increasing, and if so, contains wastewater effluent concentration triggers to control them, unless dischargers can show that levels are rising due to factors beyond their control. Additionally, there are baseline actions to manage nickel and copper discharges. The trigger concentrations are outlined in Table 7. These trigger levels are well below the site-specific objectives for copper and nickel in the South San Francisco Bay.

Table 7 Effluent Concentration Triggers for the Nickel and Copper Action Plans
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

Trigger	Copper (μg/L)	Nickel (μg/L)
Phase 1	4.0	6.0
Phase 2	4.4	8.0

2.5 Pollutants of Concern

The RWQCB conducted a reasonable potential analysis (RPA) to determine the constituents of the WPCP discharge may have the potential to exceed Basin Plan objectives. Water Quality Based Effluent Limits (WQBELs) are included in the WPCP's current NPDES permit for these constituents. The RWQCB has also completed an RPA for the purpose of drafting the next permit, and the results of this analysis form the basis for the WQBELs included in the preliminary Draft Permit. In addition, the City prepared a RPA for the purpose of this master planning process to identify constituents that would have

WQBELs in the next permit cycle. The results of this informal RPA are for planning purposes only.

For the master planning process, the constituents with WQBELs in the current permit and the preliminary Draft Permit were considered "pollutants of concern" (POCs) and include both metals and organic compounds. Both the existing (based on the current permit) and expected (based on the preliminary Draft Permit) POCs are presented in Table 8.

Table 8 WPCP Pollutants of Concern
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

Pollutant	Existing POC (2003 RPA Results)	WQBEL 2003 Permit Limit Result	Expected POCs (2008 RPA Results)
Copper	✓	18 μg/L / 12 μg/L(1)	✓
Mercury	✓	2.1 μg/L / 0.012 μg/L(2)	✓
Nickel	✓	34 μg/L / 25 μg/L	✓
Dieldrin	✓	0.01 μg/L(3)	
4,4-DDE	✓	0.05 μg/L	
Dioxin TEQ	✓	No limit - monitoring only	✓
Benzo(b)Fluoranthene	✓	10.0 μg/L	
Indeno(1,2,3-cd)Pyrene	✓	0.05 μg/L	
Heptachlor Epoxide	✓	0.01 μg/L	✓
Tributyltin			✓
Cyanide			✓
Ammonia			✓ (4)

Notes:
WQBEL = Water Quality Based Effluent Limit.
(1) Daily Max / Monthly Average.
(2) Interim Daily Max / Interim Monthly Average.
(3) Interim Daily Max.
(4) From RPA prepared by RWQCB, discussed further in PM 4.2.

A more detailed explanation of the how the RPA was analyses were conducted (i.e., methodology, data), and discussion of the most recent City and RWQCB RPAs are presented in the appendix of PM 4.3. A discussion of anticipated reductions in water quality objectives and regulation of emerging contaminants, such as pharmaceuticals and hormones, is included in PM 4.3.

2.6 WPCP's Existing and Potential NPDES Permits

2.6.1 Existing Permit Effluent Limits

The WPCP's current NPDES Permit CA0037842 contains effluent limitations that are summarized in Table 9. It is RWQCB practice to provide interim limits for pollutants with final effluent limits that cannot be attained at the time of permit writing. The interim limits provide time for the discharger to develop a plan to come into compliance with the final limit that would be adopted in the next permit cycle (a permit cycle is every five years). Interim limits were provided for mercury, 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene because it was apparent that the WPCP effluent would not meet proposed final limits at the time the permit was issued.

Mercury is now controlled by the San Francisco Bay Mercury Watershed Permit (Watershed Permit) (CA0038849) that sets effluent limits for all the dischargers to the San Francisco Bay and its tributaries. This permit supercedes the current WPCP NPDES effluent limits for mercury. The new mercury limits for the WPCP in the Watershed Permit are 0.025 μg/L as a monthly average and 0.027 μg/L as a weekly average.

2.6.2 Monitoring and Reporting

The WPCP submits monthly reports to the RWQCB in fulfillment of the Self Monitoring Program in the NPDES permit. Table 10 lists the monitoring and reporting requirements that are included in this Self Monitoring Program.

Additionally, the WPCP is required to monitor volatile organic compounds, base/neutral and acid extractable organic compounds, chromium (VI), metals and organophosphorus, and carbamate and urea pesticide in the influent, effluent, and biosolids as part of the pretreatment monitoring program.

2.6.3 Preliminary Draft Permit Effluent Limits

A preliminary Draft Permit was issued in August 2008. The preliminary Draft Permit provides information on potential discharge limits and other new requirements for the WPCP, however, this preliminary document may or may not be consistent with the Draft and Final Permits issued by the RWQCB. The preliminary Draft Permit contains discharge limits for different trace constituents, as reflected in the 2008 RPA (see PM 4.2), as well as more stringent limitations on ammonia. Table 11 shows the effluent limits included in the preliminary Draft Permit.

Further discussion on the changes between the current and preliminary Draft Permit is included in Section 2.11.

Table 9 Current WPCP NPDES Permit Effluent Requirements
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

Constituent	Units	Monthly Average	Daily Maximum	Instantaneous Maximum	Total Monthly	Range
Carbonaceous Biochemical Oxygen Demand (CBOD)	mg/L	10	30	–	–	–
Ammonia-Nitrogen	mg/L	3	8	–	–	–
Total Suspended Solids (TSS)	mg/L	10	20	–	–	–
Oil and Grease	mg/L	5	10	–	–	–
Settleable Matter	mg/L-hr	0.1	0.2	–	–	–
Turbidity	NTU	–	–	10	–	–
Chlorine Residual	mg/L	–	–	0.0(1)	–	–
pH	-	–	–	–	–	6.5 - 8.5
Copper	µg/L	12	18	–	–	–
Mercury(2)	µg/L	0.012	2.1	–	–	–
Mercury	kg/month				0.231(3)	
Nickel	µg/L	25	34	–	–	–
4,4-DDE(2)	µg/L	–	0.05	–	–	–
Dieldrin(2)	µg/L	–	0.01	–	–	–
Heptachlor Epoxide(2)	µg/L	–	0.01	–	–	–
Benzo(b)Fluoranthene(2)	µg/L	–	10.0	–	–	–
Indeno(1,2,3-cd)Pyrene(2)	µg/L	–	0.05	–	–	–
Enterococcus	Colonies /100 mL	35	–	276	–	–

Notes:

(1) Requirement defined as below the limit of detection in standard test methods defined in the latest EPA approved edition of *Standard Methods for the Examination of Water and Wastewater*.

(2) Interim Limits, valid until October 31, 2008, or until the RWQCB amends the limitations based on additional data, site-specific objective, or the waste load allocation in respective TMDLs.

(3) Dry weather months (May through October), the total mercury mass load shall not exceed the mercury mass emission limitation of 0.231 kilogram per month (kg/month).

Table 10 Self-Monitoring Program Requirements San José/Santa Clara Water Pollution Control Plant Master Plan City of San José	
Constituent	**Monitoring Frequency**
Flow Rate	Continuously
Turbidity	Daily
CBOD	Weekly
TSS	Weekly
Enterococcus	5 times per week
Oil and Grease	Quarterly
CBOD and TSS Percent Removal	Monthly
pH	Daily
Chlorine Residual	Hourly
Temperature	Daily
Dissolved Oxygen	Daily
Total and Unionized Ammonia	Monthly
Copper/Mercury/Nickel/Cyanide	Monthly
Benzo(b)fluoranthene/indeno(1,2,3-cd)pyrene/ 4,4'-DDE/ dieldrin/ heptachlor epoxide/aldrin	2 times per year
Furans	2 times per year
Dioxins	2 times per year
Acute and Chronic Toxicity	Monthly

The limits for settleable matter were removed from the preliminary Draft Permit because they are no longer required in the Basin Plan. New constituents listed in the preliminary Draft Permit include cyanide, dioxin toxicity equivalent (TEQ), heptachlor, tributyltin, and total ammonia, which were identified by reasonable potential analysis. Limits for copper were recalculated for the preliminary Draft Permit. Effluent limitations for 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene and indeno(1,2,3-cd)pyrene, all of which were included in the current permit, were not included in the preliminary Draft Permit because these constituents were not considered to have reasonable potential. Mercury limits are now promulgated by the Watershed Permit For enterococci bacteria, the single sample maximum limit of 276 colonies per 100 mg/L is no longer required by EPA criteria.

As mentioned previously, the preliminary Draft Permit may not be consisted with the draft and final permits issued by the RWQCB. However, the results of the Preliminary Draft Permit provide the best information available at this time of the potential water quality issues facing the WPCP over the next five to ten years. These future scenarios are further explored in PM 4.3.

Table 11	Preliminary Draft WPCP NPDES Permit Effluent Requirements San José/Santa Clara Water Pollution Control Plant Master Plan City of San José					
Constituent	**Units**	**Monthly Average**	**Daily Maximum**	**Instantaneous Maximum**	**Weekly Average**	**Range**
CBOD	mg/L	10	20	–	–	–
TSS	mg/L	10	20	–	–	–
Oil and Grease	mg/L	5	10	–	–	–
Turbidity	NTU	–	–	10	–	–
Chlorine Residual	mg/L	–	–	0.0(1)	–	–
pH		–	–	–	–	6.5 - 8.5
Copper	µg/L	11	19	–	–	–
Cyanide	µg/L	5.7	14	–	–	–
Dioxin-TEQ(2)	µg/L	1.4×10^{-8}	2.8×10^{-8}	–	–	–
Heptachlor	µg/L	0.00021	0.00042	–	–	–
Mercury(3)	µg/L	0.025	–	–	0.027	–
Nickel	µg/L	25	33	–	–	–
Tributyltin	µg/L	0.0061	0.012	–	–	–
Total Ammonia	mg/L	1.9	4.4	–	–	–
Enterococcus	Colonies/ 100 mL	35	–	–	–	–

Notes:

(1) Requirement defined as below the limit of detection in standard test methods defined in the latest EPA approved edition of *Standard Methods for the Examination of Water and Wastewater*.

(2) Final limits become effective 10 years from NPDES permit effective date.

(3) Mercury limits are not included in the Preliminary Draft Permit, rather they are included in the Watershed Permit (CA0038849).

2.7 South Bay Action Plan

The SWRCB has concerns over the effects of freshwater discharges on saltwater marsh habitat, and pollutant loading to the South San Francisco Bay. In Order WQ 90-5 (Order), the SWRCB found that the freshwater effluent from the WPCP contributed to the loss and degradation of habitat for two endangered species (California clapper rail and salt marsh harvest mouse). In 1990, the SWRCB adopted the Order and directed the RWQCB to set a cap on the average dry weather effluent flow (ADWEF) from the WPCP of 120 million gallons per day (mgd) average, or to flows that would not further adversely impact rare and

endangered species.. The RWQCB imposed the cap as a condition for approval of the WPCP's NPDES permit. To meet this limit, the WPCP submitted a South Bay Action Plan in 1991(Resolution 91-152), which included proposals for a salt marsh conversion and habitat protection project, a water conservation initiative, and a non-potable water reclamation and recycling project. The RWQCB approved the plan. Implementation of this plan by the WPCP resulted in the issuance of a WPCP permit by the RWQCB that did not contain a flow cap. Instead the permit contained a flow trigger that would result in conservation measures to be taken by the WPCP in phased steps if future San Francisco Bay discharge flows were found to be higher than 120 mgd (City of San José, 2006). The NPDES permit (Order No. R2-2003-0085) requires the WPCP to prepare a contingency plan with measures to be implemented if the ADWEF exceeds 120 mgd during the life of the permit. The same provision has been proposed in the preliminary Draft Permit.

2.8 Regulations to Protect Groundwater

The WPCP's NPDES permit does not contain provisions addressing groundwater quality. However, state regulations require that the WPCP's underlying groundwater not be degraded by treatment operations such as solids processing. Impacts to the groundwater must be quantified addressed with an antidegradation analysis, as per SWRCB Resolution 68-16. Where degradation is identified, different treatment and control options must be considered as to whether they can be feasibly implemented.

The groundwater quality was investigated and reported in 1992 (John Carollo Engineers, 1992). In order to assess the impact of residual sludge management (RSM) facility processes on groundwater quality, 36 monitoring wells were constructed at 20 locations across the RSM site and at one location south of the WPCP. The water quality in these wells showed high total dissolved solids and the presence of some metals, as summarized in PM 3.2. The overall finding at that time was that the groundwater underlying the RSM was not degraded by WPCP operations.

2.9 Salt Pond A18 Discharge Requirements

2.9.1 Background

Salt Pond A18 is located near Alviso in the City of San José as shown in Figure 1. It is situated south of Coyote Slough, east of the Artesian Slough, west of Browning-Ferris Industries (BFI) Newby Island Landfill, and north of the Zanker Road landfill and the WPCP.

The RWQCB issued Waste Discharge Requirements (WDR) on February 16, 2005 for Salt Pond A18 (Order No. R2-2005-0003), which is included as Appendix C. The order included details on the Salt Pond A18 Management Plan. The City took the ownership of Salt Pond A18 from Cargill Salt on October 17, 2005 and assumed responsibility of discharge under this order.

Figure 1
LOCATION OF SALT POND A18
SAN JOSÉ/SANTA CLARA WPCP MASTER PLAN
CITY OF SAN JOSÉ

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Two types of discharges are associated with the Salt Pond A18 Management Plan:

- Initial release of saline waters already in Salt Pond A18.
- Continuous circulation of water in and out of Salt Pond A18.

During the initial release period, brine was released from Salt Pond A18 to the Artesian Slough. Once the discharge salinity levels fall below 44 parts per thousand (ppt), Salt Pond A18 was to be operated under continuous circulation conditions. The initial release was completed by May 10, 2005, at which time continuous circulation operations commenced. In the continuous circulation phase, San Francisco Bay water is to be circulated through Salt Pond A18 at a rate that ensures discharge salinities remain near San Francisco Bay water salinity. The discharge requirements in this section focus on continuous discharge operations period of Salt Pond A18 under the ownership of the City. The City also submits self monitoring program reports for Salt Pond A18 annually as required by Order R2-2005-003.

2.9.2 Discharge Requirements

The main parameters of concern during the continuous discharge operations period include metals, salinity, pH, dissolved oxygen, and temperature.

2.9.2.1 Metals

During the continuous circulation period, it is assumed that metals concentrations in the discharge will not exceed applicable water quality objectives if the WPCP Salt Pond A18 maintains salinities below 44 ppt. In other words, Order R2-2005-003 uses salinity below 44 ppt as a surrogate measure to regulate the concentrations of the metals discharged. The WPCP is required to monitor to verify that evaporation does not concentrate metals to a point where they could be toxic to aquatic life. Table 12 shows the maximum metals concentration limits. The limits were established based on water quality objectives that were in effect at the time the permit was adopted. Even though Salt Pond A18 and receiving waters are generally saltwater, freshwater objectives are used when they are more stringent than saltwater objectives. This is because the receiving water is classified as an estuary, for which the Basin Plan specifies the more stringent of freshwater and saltwater objectives.

Table 12	Maximum Metals Concentration Limit for Continuous Circulation of Salt Pond A18 San José/Santa Clara Water Pollution Control Plant Master Plan City of San José
Metal	**Maximum Concentration Limit (µg/L)[1]**
Chromium[2]	11.4
Nickel[3]	27
Copper[3]	13
Zinc[4]	86
Arsenic[4]	36
Selenium[2]	5.0
Silver[4]	2.2
Cadmium[1]	0.76
Mercury[5]	0.050
Lead[4]	8.5

Notes:

(1) All limits are expressed as total recoverable, translated from dissolved objectives using appropriate translators. The translator expresses the fraction of total recoverable metal in receiving water that is present in the dissolved fraction. Total recoverable limits are derived by dividing the dissolved objective by the appropriate translator.

(2) Based on the CTR freshwater objective assuming a hardness of 400 mg/L as $CaCO_3$. The chromium limit is based on the CTR freshwater objective for hexavalent chromium.

(3) Based on site specific objectives for copper (6.9 µg/L) and nickel (11.9 µg/L) south of the Dumbarton Bridge as adopted in the Basin Plan. Total recoverable effluent limits are derived using the site-specific translators of 0.53 and 0.44 for copper and nickel, respectively.

(4) Based on the CTR saltwater objective.

(5) Based on the CTR objective for protection of human health, assuming consumption of both water and aquatic organisms.

Some assumptions in the implementation of existing regulations may need to be revisited in future permitting actions. Specifically, the chromium freshwater objective applied in the permit pertains to chromium(VI). If the chromium(VI) objective is to be used, the concentration limit should be specific to chromium(VI). Otherwise, the chromium(III) freshwater objective (180 µg/L, with a default translator of 0.86) may be more relevant. The mercury objective applied (0.050 µg/L) is only applicable to potential potable water, which is not relevant to discharges from Salt Pond A18 or its receiving waters. However, the applicable objective for consumption of organisms only (0.051 µg/L) is very close to the potential potable water objective. More significant mercury management issues result from the newly adopted mercury TMDL, as discussed in Section 2.4.1. Therefore, use of the

human health objective for the consumption of water and organisms is a relatively minor issue with respect to permitting and planning.

2.9.2.2 Salinity, Dissolved Oxygen, pH, and Temperature

Salinity, dissolved oxygen, and pH requirements established by the Basin Plan are shown in Table 13. Temperature requirements are established by the State Thermal Plan. Salt Pond A18 waters discharging to the Artesian Slough shall not exceed the natural temperature of the receiving waters by 20 degrees F or more, and shall not increase the natural water temperature of the receiving water more than 4 degrees F.

Table 13 Salinity, Dissolved Oxygen, and pH Requirements for Salt Pond A18 During Continuous Circulation
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

Constituent	Instantaneous Maximum	Instantaneous Minimum	Units
Salinity	44		ppt
Dissolved Oxygen(1)		5.0	mg/L
pH(2)	8.5	6.5	S.U.

Notes:

(1) The WPCP may select discharge station A-A18-D, or receiving water station A-A18-5 to evaluate compliance with the dissolved oxygen limitation. In cases where receiving waters do not meet the above objective, the WPCP must show that pond discharges do not further depress the dissolved oxygen level in the receiving water.

(2) The discharger may select discharge station A-A18-D, or receiving water monitoring A-A18-5 to evaluate compliance with the pH limitation.

2.9.2.3 Dissolved Oxygen Trigger

If the 10th percentile dissolved oxygen levels fall below 3.3 mg/L, calculated on a weekly basis at the point of discharge, the WPCP shall make a timely report to the RWQCB, and implement adaptive management techniques such as aeration, controlling the flow rate of the intake or discharge, reversing direction of flow, controlling the timing of the discharge, or temporarily suspending the discharge until this trigger is met.

Dissolved oxygen is the most challenging parameter for compliance in the WDR issued for Pond A18. This is generally true for all of the former salt producing ponds surrounding South San Francisco Bay. Growth of algae, and subsequent die-offs leading to dissolved oxygen depletion and accumulation of chemical oxygen demand (COD) and biochemical oxygen demand (BOD) were noted in the self monitoring reports of the Initial Stewardship Plan (ISP) that is being implemented by the United States Fish and Wildlife Services (USFWS) and California Department of Fish and Game (CDFG). These initial problems led to increased scrutiny of dissolved oxygen (SFRQCB, 2006). Continuous monitoring devices

installed by the USFWS at nearby ponds, including Pond A16, show that still "struggled with DO compliance in the 2007 season." (USFWS, 2008).

The RWQCB has directed the City of San Jose to prepare a description of monitoring and corrective actions needed to address low dissolved oxygen in discharges from Pond A18 (SFRWQCB, 2008). The City is currently working with the SFRWQCB to establish a reasonable time frame for completion of the plan. In developing the plan, San Jose may find it helpful to coordinate with nearby pond owners (e.g., USFWS) that are struggling with DO compliance, and to consider some of the adaptive management guidance developed for the South Bay Salt Pond Restoration Project (May and Abusaba, 2007).

2.10 Stormwater Discharge

Stormwater flows on the WPCP site are directed to the headworks and are treated along with the influent wastewater discharged to the WPCP. Therefore, discharge requirements for stormwater would come under wastewater discharge requirements permit, as discussed previously in Section 2.0.

The City of San José and 14 other co-permittees also own additional land area which drains into South San Francisco Bay. These lands are regulated by an area-wide NPDES Municipal Separate Storm Sewer System (MS4 permit) issued by the San Francisco RWQCB. The co-permittees include the County of Santa Clara, the Santa Clara Valley Water District, and twelve other municipalities in the county, excluding the cities of Gilroy and Morgan Hill. Together, these jurisdictions constitute the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP). The provisions of the SCVURPPP NPDES Permit require each of the co-permittees, including the City of San José, to implement measures/best management practices (BMPs) to reduce stormwater pollution from new developments or redevelopment projects to the maximum extent possible.

In addition to the SCVURPPP NPDES Permit provisions, all construction projects in the City of San José are regulated by the NPDES General Permit for Storm Water Discharges Associated with Construction Activity, which requires the preparation of a Storm Water Pollution Prevention Plan (SWPPP) and the filing of a Notice of Intent (NOI) with the State Water Resources Control Board (SWRCB) for all projects that disturb an area of one acre or greater (http://www.sanjoseca.gov/planning/stormwater/how_regulated.asp).

In summary, run-off from the lands owned by the WPCP that is not directed to the headworks are regulated by the MS4 permit. Any construction activity greater than one acre on the WPCP-owned lands are regulated by the NPDES General Permit for Storm Water Discharges Associated with Construction Activity.

2.10.1 Proposed Municipal Regional Permit for Urban Runoff

The draft Municipal Regional Permit (MRP) for urban runoff implements monitoring and control measures for urban runoff, including WLAs separately established by the State's

TMDL program. The permit consolidates six Phase 1 municipal stormwater permits, including the one for Santa Clara County, into one regional San Francisco Bay area permit. As of August 2008, a tentative order has been made available for public comment and has the provisions listed below (San Francisco Bay Regional Water Quality Control Board, 2008). As drafted, the permit will result in considerable increases in monitoring, data management, reporting, and cost to the municipalities.

- C1 – Water Quality Standards Exceedances.
- C2 – Municipal Maintenance.
- C3 – New Development and Redevelopment.
- C4 – Industrial and Commercial Discharge.
- C5 – Illicit Discharge Detection and Elimination.
- C6 – Construction Inspection.
- C7 – Public Information and Outreach.
- C8 – Water Quality Monitoring.
- C9 – Pesticide Toxicity Control.
- C10 – Trash Reduction.
- C11 – Mercury Load Reduction/Controls.
- C12 – PCBs Controls.
- C13 – Copper Control.
- C14 – Polybrominated Diphenyl Ether (PBDE) and Legacy Pesticides.
- C15 – Exempted and Conditionally Exempted Discharges.

Because the stormwater discharges from the WPCP are routed directly to the headworks for treatment, new requirements under the MRP will not have a significant direct impact on stormwater management at the WPCP. However, pilot programs that may be required under the Draft MRP Permit could include some treatment of urban stormwater. If so, this could potentially affect treatment performance, capacity, reliability, and biosolids quality. Depending on future land use of the Salt Pond A18 system, and WPCP-owned lands, MRP requirements could apply to that area as well.

2.11 Wastewater Collection System Regulations and Policies

The City's sanitary sewer system consists of 2,200 miles of pipelines, most of which are operated and maintained by the City's Department of Public Works. The Department of

Environmental Service, which manages the WPCP, is only responsible for the trunk lines on the WPCP site. Tributary agencies to the sanitary sewer system include West Valley Sanitation District, Cupertino Sanitary District, County Sanitation Districts 2 and 3, and portions of the City of Santa Clara, each of which are responsible for maintaining their own sewer lines and pump stations**.**

The SWRCB and the EPA have developed regulations requiring plans for wastewater collection systems that are known as a Sewer System Management Plan (SSMP) and Capacity, Management, Operation and Maintenance (CMOM) plan, respectively. CMOM and SSMP regulations were developed to help sewer agencies develop and implement a plan for effective management of a wastewater collection system. These plans will establish goals and present objectives to minimize the number and impact of sanitary sewer overflows (SSOs); provide sewer capacity to accommodate design storm flows; and maintain and improve the condition of the collection system so that reliable service can be provided now and into the future. The CMOM regulations required by EPA are on hold at the present time. However, San Francisco Bay area sewer agencies are required by the RWQCB to develop a SSMP.

The EPA began drafting CMOM regulations in the mid 1990s to require owners and operators of publicly owned wastewater collection systems to eliminate SSOs. SSOs occur when wastewater escapes the collection system as a result of blockages or capacity restrictions in the system. Both state and federal regulators have recently taken several enforcement actions against collection system agencies in California because of SSOs. The SSMPs developed by municipalities will satisfy the requirements of CMOMs that may eventually be required by EPA.

2.11.1 Sewer System Management Plan

All federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a POTW in California are required to comply with the terms of the statewide general wastewater discharge requirements (WDR) for wastewater collection agencies (State Water Resources Control Board, 2006). The goal of the WDR is to provide a consistent statewide approach for reducing SSOs. The WDR outlines these requirements:

- In the event of an SSO, all feasible steps must be taken to control the released volume and prevent untreated wastewater from entering storm drains, creeks, etc.
- If a SSO occurs, it must be reported to the SWRCB using an online reporting system developed by the SWRCB. (Note: All spills greater than 1,000 gallons must be reported to the California Office of Emergency Services).
- All publicly owned collection system agencies with more than 1 mile of sewer pipe in the State must develop a SSMP.

To facilitate proper funding and management of sanitary sewer systems, each public entity must develop and implement a system-specific SSMP. SSMPs must include provisions to provide proper and efficient management, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit analysis. Table 14 summarizes the various components of the SSMP and the deadlines applicable to the public entities. The SSMP must address 11 elements listed below that describe how the public entity will construct, manage, operate, and maintain its sanitary sewer system.

Table 14 Components of the SSMP and Key Deadlines
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

SSMP Element	Completion Date
• Goals • Organization • Overflow Emergency Response Plan • Fats, Oils, and Grease Control Program	August 31, 2006
• Legal Authority • Measures and Activities • Design and Construction Standards	August 31, 2007
• Capacity Management • Monitoring, Measurement, and Program Modifications • SSMP Audits	August 31, 2008

- Goals of the SSMP.
- Organization and Chain of Communications for SSMP.
- Legal Authority to Operate and Maintain Sewage Collection System.
- Sewer Collection System Operation & Maintenance Program.
- Sewer Collection System Design and Performance Provisions.
- Sewer Overflow Emergency Response Plan.
- Fats, Oil and Grease Control Program.
- Collection System Evaluation and Capacity Assurance Plan.
- Operation and Maintenance Monitoring, Management and Plan Modifications.
- SSMP Program Audits.
- Communication Program with Public and Stake Holders.

The City has already completed all required components of their SSMP. The City's primary "customers" are the residential, industrial, and commercial customers that connect to the sewers located within San José. In addition, seven satellite agencies contribute flow to the City's sanitary sewer collection system. These contributing agencies are the City of Santa Clara, the City of Milpitas, West Valley Sanitation District, Cupertino Sanitary District, Burbank Sanitary District, Sunol Sanitary District and County Sanitation Districts 2 and 3. The primary customers of the satellite agencies are the residential, industrial, and commercial customers that connect to the collector sewers located within the service areas of each of the contributing agencies. The City has developed and implemented a communications program with its seven contributing agencies. The plan has established a collaborative approach to communicate with contributing agencies and work together during the development and implementation of, and future improvements, to the SSMP.

2.11.2 Capacity, Management, Operation and Maintenance (CMOM) Requirements

CMOM requirements affect flow rates into the plant, informing the Plant's understanding of current and future treatment plan capacity needs. In developing the master plan, future needs that are driven by population growth will need to be accounted for, as well as emerging regulatory trends. The SFRWQB has expressed an interest in pilot projects to urban runoff from dry weather and / or first flush as part of regional strategic plans to protect water quality. In the event that the treatment plant should consider such pilot diversion projects, the impact on plant treatment capacity would also need to be considered in conjunction with other future capacity needs.

The basic requirements of a CMOM program are:

- Overflow Response Plan: CMOM requires a written plan to respond to and mitigate any collection system overflow that may occur. The plan must include provisions for public notification of the health hazards (posting signs, notifying media) and notifying appropriate regulatory agencies. CMOM requires periodic training to support the plan.

- Management Program: CMOM requires a comprehensive management program. There are two areas where the requirements go beyond current best practices summarized as follows:
  - Asset Management System: An asset management system tracks the location, condition, cost, and performance history for each line segment. This system provides documentation of performance. It is also the foundation for future decision making regarding preventive maintenance, inspection, repair, rehabilitation, or replacement.
  - Programmed Follow-up for SSOs: Each SSO should have a programmed follow-up. The follow-up actions must include evaluating the condition and capacity of the line segment. In cases where the capacity is deficient, the capacity must be upgraded in a timely manner. In cases where the condition is deficient, repair or replacement must be completed in a timely manner.

- System Evaluation and Capacity Assurance Plan: CMOM requires a plan for system evaluation and capacity assurance if peak flow conditions are contributing to an SSO discharge. At a minimum the plan must include:
  - Evaluation: Steps to evaluate those portions of the collection system that have operational control and are experiencing or contributing to an SSO discharge caused by hydraulic deficiency or to noncompliance at a treatment plant. The evaluation must provide estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, provide estimates of the capacity of key system components, identify hydraulic deficiencies, including components of the system with limiting capacity and identify the major sources that contribute to the peak flows associated with overflow events.
  - Capacity Enhancement Measures: Establish short and long term actions to address each hydraulic deficiency including prioritization, alternative analysis, and a schedule.
  - Plan Updates: The plan must be updated to describe any significant change in proposed actions and/or implementation schedule. The plan must also be updated to reflect available information on the performance of measures that have been implemented.

- Periodic Reports and Audits: CMOM requires periodic reports showing changes in key performance indicators, documented management review of the reports, and periodic audits to verify compliance with the program requirements.

The potential benefit of CMOM to the public will be a reduction in the number of SSOs. The potential benefits to collection system operators are twofold: 1) an integrated program that could improve access to the resources needed to correct recurring problems, and 2) some level of consideration during enforcement actions (the quality and implementation of the CMOM Program will be taken into account during enforcement actions). All aspects of collection system management require significant efforts in documentation. CMOM requires a comprehensive knowledge of the condition of assets, and organized and systematic planning of operation, maintenance, repairs, upgrades, and replacements.

2.12 Noncompliance and Emergency Regulations

Discharge of partially treated or untreated wastewater from the sewer system or the WPCP is forbidden. The regulations that pertain to sanitary sewer overflows are discussed in Section 2.10. The WPCP is required to maintain a Contingency Plan as required by SWRCB Resolution 74-10. If the Contingency Plan is not executed in an emergency, the WPCP is considered to be in violation of its permit, and is subject to fines. The Contingency plan must be reviewed annually, and updated if necessary.

In the Preliminary Draft Permit, “bypass”, the unintentional diversion of waste streams from any portion of a treatment facility, is prohibited unless:

- It is unavoidable for safety reasons, or to prevent severe property damage.
- It is unavoidable, even with adequate planning.
- The WPCP notifies the RWQCB 10 days in advance and is given permission to bypass.

In the case of an emergency or unanticipated bypass, the WPCP must alert the RWQCB within 24 hours.

In the case of an exceedance of a technology-based effluent limitation, the WPCP can avoid a finding of noncompliance if it can show that it was caused by temporary factors out of its control. This situation is called an “upset” and does not include exceedances due to operator error, inadequate or improperly designed facilities, lack of preventative maintenance or carelessness. An upset must be reported to the RWQCB within 24 hours.

In general, any incidence of noncompliance must be reported to the RWQCB orally within 24 hours, and in writing within five days. The report must contain the duration of the non-compliance and/or how long it is expected to continue, and what steps will be taken in the future to ensure it does not reoccur.

2.13 Changes Between Current Permit and Preliminary Draft Permit

A preliminary Draft Permit was circulated to City staff in August 2008. It contains updated discharge prohibitions, effluent limits, receiving water limitations, and provisions. The preliminary Draft Permit does not have any regulatory significance, but it gives an indication of the direction that the RWQCB is looking for the next Permit. Table 15 summarizes the changes in requirements between the preliminary Draft Permit and the current permit. In addition to the specific changes noted in Table 15, a general observation was that the Preliminary Draft Permit contains far fewer findings than the current 2003 permit.

3.0 RECYCLED WATER

The City operates the South Bay Water Recycling Program (SBWR) through the WPCP. The SBWR partner agencies are the City of San José, City of Milpitas, City of Santa Clara, West Valley Sanitation District, Burbank Sanitary District, Cupertino Sanitary District, Sunol Sanitary District, County Sanitation District No. 2-3, San José Water Company, Great Oaks Water Company, Santa Clara Valley Water District, and US Bureau of Reclamation. Recycled water is used for agricultural irrigation, landscape irrigation, and industrial use.

Table 15 Changes in the Preliminary Draft Permit San José/Santa Clara Water Pollution Control Plant Master Plan City of San José	
Permit Element	**Potential Changes from Current Permit**
Changes in Discharge Prohibitions	
Bypass Curtailed	Could we remove all of this? Potential stricter requirements, allowing bypass only for three reasons: 1) necessary to avoid injury/property damage; 2) no alternative due to unforeseeable equipment downtime or preventive maintenance during bypass; 3) prior notice has been submitted to RWQCB.
SSO Requirement	Potential SSO requirements that prohibit discharge of untreated or partially treated wastewater to the waters of the United States.
Changes in Effluent Limitations(1)	
Settleable Matter	Limit removed because no longer required by Basin Plan.
Enterococcus Bacteria	Single sample maximum limit of 276 colonies/100 mL no longer required.
Ammonia	Transition from technology-based limit to more stringent WQBEL (i.e., new 1.9 μg/L/4.4 μg/L average monthly/max daily limit).
Copper	Reduction in max daily limit from 19 μg/L to 18 μg/L.
Nickel	Reduction in max daily limit from 34 μg/L to 33 μg/L.
Cyanide	New limit of 5.7 μg/L/14 μg/L average monthly/max daily.
Dioxin-TEQ	New dioxin-TEQ limit of 1.4×10^{-8} μg/L/2.8 μg/L average monthly/max daily, with a 10-year compliance schedule.
Heptachlor	New limit of 0.00021 μg/L/0.00042 μg/L average monthly/max daily.
Tributyltin	New limit of 0.0061 μg/L/0.012 μg/L average monthly/max daily.
Indeno(1,2,3-cd)pyrene, aldrin, 4,4'-DDE, heptachlor epoxide, dieldrin	WQBELs removed and monitoring no longer required.
Receiving Water Limitations	
Dissolved Sulfide Limit	Potential Change in the receiving water limit for dissolved sulfide from 0.1 mg/L maximum to natural background levels.
Provisions	
Special Study Requirement on Ambient Background Levels in Receiving Water	Proposed new requirement to collect or participate in collecting background, receiving water monitoring data for priority pollutants that are required to perform a reasonable potential analysis and to calculate effluent limitations. A final report that presents all such data to the RWQCB is required 180 days prior to the expiration of the preliminary Draft Permit.

Table 15 Changes in Draft Permit (Continued) San José/Santa Clara Water Pollution Control Plant Master Plan City of San José	
Permit Element	**Potential Change from Current Permit**
Monitoring Requirements for Avian Botulism Control Program	Proposed new due date for annual report regarding Avian Botulism Control Program is February 28 each year instead of February 1
Monitoring Requirements for Salt Marsh Vegetative Assessment	Proposed new requirement of assessing marsh habitat and document changes to conversion of marsh habitat for determining potential impacts to endangered species.
Special Study on Laboratory Reliability Evaluation for Aldrin	Requirement removed because the report deadline of January 15, 2004 from this assessment is presumed to have been met by the WPCP.
Special Study on Mercury -POTW Fate and Transport	Requirement removed because the report deadline of December 15, 2007 from this study is presumed to have been met by the WPCP. Mercury provisions are be addressed through the new NPDES Watershed Permit for mercury.
Pretreatment Program	Proposed additional requirement added on evaluating the need to revise local limits under 40 CFR 403.5(c)(1).
Nickel Action Plan	Removed from the Preliminary Draft Permit possibly because the average concentration of dissolved nickel in the South San Francisco Bay is two to three times lower than the proposed site specific objectives limit (11.6 µg/l). The likelihood of triggering impairment due to major increases in dissolved nickel concentrations is small.
Cyanide Action Plan	Proposed additional requirement with details on implementing, monitoring, surveillance, pretreatment, source control and pollution prevention for cyanide.
Compliance Schedule for Dioxin-TEQ	Proposed new compliance schedule outlining actions to be completed in order to meet the final limits for dioxin-TEQ.
SSO and Sewer System Management Plan	Proposed new requirement which includes the General Waste Discharge Requirements for Collection System Agencies (Order No. 2006-0003 DWQ and WQ 2008-0002-EXEC).
Optional Near Field Site-specific Translator Study	Proposed new requirement in which the WPCP has the option of conducting a receiving water study near the discharge to determine new near-field site specific translators for chromium, zinc, and lead for use during the next permit reissuance.
Santa Clara Basin Watershed Management Initiative	Removed from the Preliminary Draft Permit.

Note:

(1) Routine monitoring is required for all constituents with effluent limits.

Several agencies have regulatory authority or jurisdiction over SBWR projects using recycled water. The major state agencies include the California Department of Public Health (CDPH), the SWRCB, and the RWQCB. In addition to state regulatory agencies, there may also be involvement by county and local authorities. There are currently no federal regulations pertaining to water recycling.

3.1 State Regulations and Policies

The CDPH is the primary state agency responsible for public health, whereas the SWRCB and the RWQCB are the primary state agencies charged with protection, coordination, and control of water quality. These agencies work together to develop discharge permits for recycling projects. A Memorandum of Agreement (MOA) has been developed between the CDPH and the SWRCB on water recycling. Therefore, the RWQCB is responsible for issuing Water Recycling Requirements (previously called Water Reclamation Requirements), which is a specific permit that governs water recycling agencies.

The existing recycled water regulations are contained in the California Administrative Code, Title 22, Division 4, Chapter 3, Sections 60301 through 60355. Article 1 contains definitions that define four types of recycled water. These types, along with the corresponding treatment process required, are summarized in Table 16. SBWR produces recycled water that meet Disinfected Tertiary Requirements.

The SWRCB is in the process of developing a State Recycled Water Policy. The purpose of this policy will be to streamline the permitting process for new recycled water projects, and to make sure that consistency is maintained between the different Regional Boards.

3.2 Local Water Recycling Regulations - SBWR Permit

The RWQCB issued Water Reclamation Requirements (WRR) Order No. 95-117 for the Cities of San José and Santa Clara South Bay Water Recycling Program at the WPCP. The WRR added new limits for turbidity, total coliform bacteria, dissolved oxygen, and dissolved sulfide, and kept the existing effluent limitations for CBOD, TSS, ammonia-nitrogen, oil and grease, and settleable solids from the WPCP's NPDES permit. The limits for these last five constituents are automatically updated when the NPDES permit is updated. The recycled water requirements are summarized in Table 17.

4.0 BIOSOLIDS MANAGEMENT

The WPCP generates Class A biosolids that are thickened, anaerobically digested and stabilized in lagoons and drying beds. The biosolids are then solar dried to about 75 percent total solids before reuse by land application or alternative daily cover in an authorized sanitary landfill. Class A biosolids are essentially free of pathogens prior to application and can be applied without pathogen related restrictions. Therefore, generation of Class A biosolids, provides WPCP with more opportunities for land application uses

Table 16 California Title 22 Water Recycling Criteria
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

Section	Recycled Water Type	Treatment Process	Median Coliforms (MPN/100 mL)	Total Coliforms (MPN/100 mL)
60301.230	Disinfected Tertiary	Filtered[1] and Disinfected[2]	2.2[3]	23[4] 240[5]
60301.220	Disinfected Secondary - 2.2	Oxidized and Disinfected[2]	2.2[3]	23[4]
60301.225	Disinfected Secondary - 23	Oxidized and Disinfected[2]	23[3]	240[4]
60301.900	Undisinfected Secondary	Oxidized	–	–

Notes:

MPN = Most Probable Number.

(1) "Filtered" means an oxidized wastewater that satisfied (A) or (B) below:

a. Has been coagulated and passed through natural soils or filter media with a specified maximum flux rate depending on the type filtration system and:

1) Daily average of 2 NTU.

2) 5 NTU more than 5 percent of the time within a 24-hour period.

3) 10 NTU at any time.

b. Has been passed through a microfiltration, ultrafiltration, nanofiltration, or reverse osmosis membrane so that the turbidity does not exceed any of the following:

1) 0.2 NTU more than 5 percent of the time within a 24-hour period.

2) 0.5 NTU at any time.

(2) Disinfected by either:

a. A chlorine process with continuous CT of 450 mg-min/l with a modal contact time of 90 minutes (based on peak dry weather design flow), or

b. A combined process that inactivates and/or removes 99.999 percent of F-specific bacteriophage MS-2, or polio virus.

(3) For the last 7 days which analyses have been completed.

(4) In no more than 1 sample in any 30 day period.

(5) In no samples.

because the biosolids are not subject to pathogen related restrictions. If additional requirements are met, Class A biosolids can be bagged and sold to the public.

Regulations governing beneficial use and disposal of biosolids are established and implemented by an array of federal, state, and local laws governing biosolids management practices discussed below. Regulations for using biosolids as fill in wetlands are also discussed in the following sections.

Table 17 Current WPCP Recycled Water Requirements San José/Santa Clara Water Pollution Control Plant Master Plan City of San José						
Constituent	**Units**	**Monthly Average**	**Daily Maximum**	**Instantaneous Maximum**	**Maximum Daily Average**	**7-day Average**
CBOD	mg/L	10	20	–	–	–
TSS	mg/L	10	20	–	–	–
Ammonia-N	mg/L	3	8	–	–	–
Oil and Grease	mg/L	5	10	–	–	–
Settleable Solids	mg/L-hr	0.1	0.2	–	–	–
Turbidity	NTU	–	–	5	2	–
Total Coliform Bacteria	MPN/100 mL	–	–	23	–	2.2
Dissolved Oxygen	mg/L	–	–	1.0 minimum	–	–
Dissolved Sulfide	mg/L	–	–	0.1	–	–

4.1 Federal Regulations

The applicable federal laws and regulations governing biosolids disposal at the WPCP are summarized in Table 18. The federal regulation 40 CFR 503 requires biosolids that are land applied to be treated to meet metal concentration limits as shown in Table 19, reduce pathogens as shown in Table 18, and reduce vector attraction as shown in Table 21 (State Water Resources Control Board, 2000). Biosolids that meet the high quality pollutant concentrations per Table 19, one of the Class A pathogen reduction requirements per Table 20, and one of the vector attraction reduction alternatives per Table 21, options 1 through 8, may be identified as ‘exceptional quality biosolids’. Exceptional quality biosolids may be used and distributed in bulk or bag form and are not subject to general requirements and management practices other than monitoring, recordkeeping, and reporting to substantiate that the quality criteria have been met.

4.2 State and Local Regulations

The applicable state laws and regulations governing biosolids disposal at the WPCP are summarized in Table 22. Numerous counties in California have recently developed or are currently developing ordinances for biosolids land application. Some counties have gone as far as banning all biosolids land application. These include San Joaquin, Yolo, Sutter, Yuba, Stanislaus, San Benito, and Monterey Counties. A summary of the current biosolids ordinances is presented in Table 23.

Table 18 Federal Biosolids Regulations Impact on the WPCP
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

Law or Regulation	Application	Relevance to the WPCP
40 CFR Part 50 Clean Air Act	Establishes National Ambient Air Quality Standards.	None
40 CFR Part 60 Clean Air Act	Regulates air emissions from incineration of biosolids.	None
40 CFR Part 61 Clean Air Act	Establishes National Emission Standards for Hazardous Air Pollutants (NESHAPs) for mercury and beryllium in incineration and heat drying of biosolids.	None
40 CFR 122-124 Clean Water Act	Inclusion of conditions for biosolids disposal in NPDES Permit.	Provisions made for inclusion in NPDES permit.
40 CFR Part 257 the joint authority of the Clean Water Act (1977 and 1992 Amendments) and the Resource Conservation and Recovery Act	Federal standards for land application of biosolids covered under 40 CFR 503.	These are federal standards for use and disposal of municipal biosolids not covered under 40 CFR 503.
40 CFR 258-1984 Resource Conservation and Recovery Act Amendments	Provides regulations for codisposal of biosolids and solid waste.	State Title 23 regulations are more restrictive.
40 CFR Part 261 and 271. Appendix II - Resource Recovery and Conservation Act	Defines State Hazardous Waste Program and toxicity characteristic leaching procedure (TCLP) to determine whether biosolids are hazardous.	California waste extraction test (WET) is more stringent than the TCLP. The WPCP biosolids have not been shown to be hazardous.
40 CFR 501 - Clean Water Act	Establishes State Sludge Management Regulations.	Places conditions on biosolids in WDR.
Water Quality Act of 1987 (also known as the 1987 Amendments to the Clean Water Act)	Added language to develop technical standards for disposal and beneficial use of biosolids (40 CFR Part 503).	Precursor to 40 CFR 503.
40 CFR 503 - 1993 Standards for the Use and Disposal of Sewage Sludge	Regulates land application of biosolids (see Tables 17, 18, and 19 below), surface disposal, and incineration of municipal biosolids.	These are current federal standards for use and disposal of municipal biosolids.
40 CFR Part 761 - promulgated under Toxic Substances Control Act	Establishes standard that biosolids containing more than 50 mg/kg PCBs are hazardous.	PCB concentration in the WPCP biosolids is well below this level.

Table 19 40 CFR 503 Biosolids Regulations – Pollutant Concentration and Loading Rates for Land Application of Biosolids
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

Constituent	Monthly Average Pollutant Concentration Limits (mg/kg) on a Dry Weight Basis[1]
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Molybdenum	_[2]
Nickel	420
Selenium	100
Zinc	2800

Notes:
(1) From Table 3 of 40 CFR 503.13.
(2) Limit is under reconsideration by EPA. Biosolids may not exceed 75 mg/kg molybdenum until a new pollutant concentration limit is established.

Table 20 40 CFR 503 Biosolids Regulations – Pathogen Reduction Requirements for Class A and Class B Biosolids
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

Class A Biosolids Requirements	Class B Biosolids Requirements
• Either fecal coliform density is less than 1000 MPN/gram of total dry solids, or the density of Salmonella species bacteria in the sludge is less than 3 MPN/4 grams of total dry solids. • Biosolids must be treated and/or meet one of the following alternatives before disposal. For more details on each treatment alternative, refer to 40 CFR 503.32(a): – Thermally treated. – High pH-high temperature treatment. – Treatment to reduce enteric virus to less than 1 PFU/4 grams of total dry solids) and viable helminth to less than 1/4 grams of total dry solids). – Treatment by composting, heat drying, heat treatment, thermophilic aerobic digestion, beta ray irradiation, gamma ray irradiation, or pasteurization process. Specific operating conditions for each process has been specified in 40 CFR 503.32(a). – Use of processes equivalent to the above (subject to authority approval).	• Comply with site restrictions of land application of Class B biosolids as specified in 40 CFR 503.32(b)(2), (b)(3), or (b)(4). In summary, these restrictions include harvesting of certain food crops, grazing of animals, turf harvesting, and public access to lands where Class B biosolids were applied. • Biosolids must be treated and/or meet one of the following alternatives before disposal. For more details on each treatment alternative, refer to 40 CFR 503.32(b): – Geometric mean of seven samples of treated biosolids collected at the time of disposal shall meet a fecal coliform density of 2 million CFU or MPN/gram of total dry solids. – Processes that significantly reduce pathogens which include aerobic digestion, air drying, anaerobic digestion, composting, or lime stabilization. Specific operating conditions for each process has been specified in 40 CFR 503.32(b). – Use of processes equivalent to the above (subject to authority approval).

Notes:
CFU = Colony Forming Unit.
PFU = Plaque Forming Unit.

Table 21	40 CFR 503 Biosolids Regulations – Vector Attraction Reduction Requirements San José/Santa Clara Water Pollution Control Plant Master Plan City of San José
Alternative Number in 40 CFR 503.33(b)	**Description**
1	Mass of volatile solids shall be reduced by a minimum of 38 percent during biosolids treatment.
2	If the above requirement cannot be met, vector attraction reduction can be demonstrated by reducing volatile solids by a minimum of 17 percent by digesting a portion of previously digested biosolids anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees C.
3	If the above requirement cannot be met, vector attraction reduction can be demonstrated by reducing volatile solids by a minimum of 15 percent by digesting a portion of previously digested biosolids aerobically in the laboratory in a bench-scale unit for 30 additional days at a temperature of 20 degrees C.
4	Specific oxygen uptake rate for biosolids treated in an aerobic process is less than or equal to 1.5 mg of oxygen per hour per gram of total dry solids at a temperature of 20 degrees C.
5	Biosolids shall be treated in an aerobic process for 14 days or longer. During that time the temperature of biosolids shall be higher than 40 degrees C, with an average of 45 degrees C or higher.
6	The pH of biosolids shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 2 hours, and then at 11.5 or higher for an additional 22 hours at 25 degrees C.
7	The percent solids of material that does not contain unstabilized solids shall be equal to or greater than 75 percent based on moisture content and total solids prior to mixing with other materials.
8	The percent solids of material that contains unstabilized solids shall be equal to or greater than 90 percent based on moisture content and total solids prior to mixing with other materials.
9	Sewage sludge shall be injected below the surface of the land. No significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected. When the sewage sludge that is injected below the surface of the land is Class A with respect to pathogens, the sewage sludge shall be injected below the land surface within eight hours after being discharged from the pathogen reduction process.
10	Sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land. When sewage sludge that is incorporated into the soil is Class A with respect to pathogens, the sewage sludge shall be applied to or placed on the land within eight hours after being discharged from the pathogen treatment process.

Table 22 Relevance of State Regulations Governing Biosolids and the WPCP Facilities
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

Law or Regulation	Application	Relevance to the WPCP
CCR Title 23, Chapter 15, discharges of waste to land (commonly known as Chapter 15 regulations)	Regulates biosolids and incinerator ash disposal to landfills (waste management units) and dedicated land disposal (land treatment units).	Permit required to dispose of biosolids in a landfill.
CCR Title 22, Division 4.5, Chapter 11	Defines hazardous wastes.	Historically, the WPCP biosolids have been shown to meet Title 22.
CCR Title 17, Division 3	Defines tests for emissions monitoring.	
Porter-Cologne Water Quality Act	Established SWRCB and RWQCBs.	NPDES permit for the WPCP is issued by the RWQCB.
California Environmental Quality Act (CEQA)	Establishes procedures for implementing a project following identification of environmental impacts.	None required at this time. Possible future requirement depending on future biosolids handling processes and method of beneficial use/disposal.
Toxic Pit Clean Up Act of 1984 (Katz Bill AB 3566/3121)	Applies to hazardous materials disposal.	Not applicable since the WPCP biosolids have been shown to be nonhazardous.
Public Resource Code (PRC)	Defines sewage sludge as solid waste and requires documentation for land application exemptions.	Solid waste designation puts biosolids under CCR Title 23 Chapter 15.
Food and Agriculture Code (FAC)	Limits use of biosolids as fertilizer.	Impacts distribution and marketing of biosolids as fertilizer.

Table 23 **Summary of County Biosolids Ordinances**
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

County	Ordinance Adoption Date	Acceptable Biosolids	Specific Prohibited Area/Time Period	Primary Responsible Agent
Riverside	2001	Class A only	Not within 500 feet of public area	County Department of Public Health
Fresno	2001	Class A & B	Conditional use permit required	County Department of Public Health
Kings	2001	Class A & B	Class A only after January 1, 2003	County Department of Public Health
Imperial	2000	Class A	Conditional use permit required	County Department of Public Health
Sutter	2000	Ban Completely	Unincorporated area	County Department of Public Health
Yuba	2000	Ban Completely	Everywhere	County Department of Public Health
Glenn	2000	Class A Only	Everywhere	County Department of Public Health
Kern	1999	Class A & B	• Ban on land application of biosolids not meeting Exceptional Quality Standards starting January 1, 2003. • Limited to existing permitted sites and subject to significant County oversight.	County Environmental Health Services Department
Merced	1994	Class A & B	None specified	County Department of Public Health, Division of Environmental Health
San Joaquin	1997	Ban Completely	Everywhere	County Department of Public Health, Division of Environmental Health
Solano	1997	Class A & B	Primary area of Suisun Marsh	County Department of Environmental Management, Environmental Health Division
Stanislaus	1998	Ban Completely	Unincorporated Stanislaus County	County Department of Public Health, Environmental Health Division
Yolo	1996	Ban Completely	Everywhere	County Agricultural Commissioner/Sealer
Tulare	1996	Class A only	• Urban improvement area. • Urban development boundary. • Urban area within 660 ft of the boundary. • East of easterly boundary of rural valley lands plan policy area.	County Department of Public Health

4.3 Regulations Governing the Use of Biosolids as Fill in Wetlands

40 CFR Part 503 specifies that sewage sludge cannot be applied to flooded, frozen or snow covered agricultural land, forests, public contact sites, or reclamation sites in such a way that it enters a wetland or other waters of United States, unless a permit is issued under Section 402 (NPDES permit) or Section 404 (dredge and fill permit of the CWA).

The authorizing agency that issues a permit for applying biosolids to waters of the United States, including wetlands is the U.S. Army Corps of Engineers (Corps) and the EPA. Although the Corps is the primary permitting agency, EPA retains a major role in overseeing the permitting process. Other federal agencies that are authorized to comment on the permit application include the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) to ensure that the activities do not threaten the endangered species (Erickson and King, 1999). If a wastewater treatment plant suspects that all or some portion of active biosolids is in a wetland, the local Corps division.

5.0 AIR EMISSIONS

At the WPCP, sources of air contaminants are predominantly derived from cogeneration engines, diesel engines, digester gas flares and boilers. The cogeneration engines are fueled by a combination of digester gas, landfill gas, natural gas, and diesel. In addition to the cogeneration engines and the diesel engines, diesel fuel is used by the trash pumps and air compressors. Combinations of digester gas, landfill gas, and natural gas power engine generators, dual fuel engines, flares and boilers. Other sources of air contaminants are derived from wastewater processes and associated fugitive emissions, paint spray booths, sandblast operations, and a gasoline dispensing island.

Several agencies at the federal, state, and local level have jurisdiction pertaining to air pollution and/or odor control at wastewater treatment plants. At the federal level, the major agencies are the EPA and the Occupational Safety and Health Administration (OSHA). At the state level, the applicable agencies are the California Air Resources Board (CARB) and Cal/OSHA. At the local level, it is the Bay Area Air Quality Management District (BAAQMD). These agencies establish ambient air quality criteria necessary to protect the public health and environment both off-site and on-site of a potential source. They also issue limits on emissions from stationary sources, which apply to WPCP equipment. The RWQCB also includes general nuisance (odor) provisions in their NPDES permits and WDRs. These agencies also have the responsibility to permit new facilities for construction and operation and to establish new source pollutant levels and treatment requirements.

5.1 Federal Regulations and Policies

The federal Clean Air Act (CAA), including the 1990 amendments, creates a comprehensive national framework designed to protect ambient air quality by limiting air emissions from both stationary and mobile sources. While the CAA deals primarily with

conventional air pollutants (criteria pollutants), it also addresses emissions of selected toxic materials defined as "toxic air pollutants." In addition to these national programs, California has its own comprehensive state air quality control program, which originated in the 1950's and has been modified and expanded many times since. California's regulations generally continue to be stricter than national requirements and therefore drive the necessary treatment requirements.

5.2 State Regulations and Policies

CARB prepares and enforces the state laws and regulations pertaining to air pollution control and air quality in California, however, BAAQMD is responsible for developing regulation of air emission sources and odor control in the San Francisco Bay area. EPA and CARB oversee the local air pollution control districts.

5.3 Air Permits

BAAQMD issues the San Francisco Bay area region air quality protocols and policies for air pollution control. The jurisdiction of BAAQMD comprises the following counties: San Francisco, San Mateo, Santa Clara and Napa, and portions of southwestern Solano and southern Sonoma.

One of BAAQMD's responsibilities is to issue and annually renew air quality permits for any air polluting equipment such as diesel generators, vehicles, compressors, etc. Air quality permits are required by state and federal laws as a part of doing business in the San Francisco Bay area. Additionally, BAAQMD also issues permits for modification of existing permitted equipment and for the installation of abatement equipment used to control emissions, such as activated carbon odor control units.

For new equipment, two permits are required: "Authority to Construct" and "Permit to Operate". A facility must file an application for an Authority to Construct before construction begins to ensure that all BAAQMD rules and regulations are considered. BAAQMD permit staff will evaluate the project before an Authority to Construct is issued. After an Authority to Construct has been issued and construction is complete, BAAQMD personnel may inspect the facility in operation to verify that equipment performs as required. If it does, BAAQMD issues a Permit to Operate, which may contain specific operating conditions for the equipment. The permit must be renewed annually.

5.3.1 WPCP Air Permit

The WPCP operates under the Major Facility Review Permit, Issued to San José/Santa Clara Water Pollution Control Plant, Facility No. A0778. It lists the WPCP's permitted equipment that emits airborne pollutants, as described at the beginning of this section, as well as its abatement devices. It lists which of the regional emissions limits and other regulations and rules are applicable to which equipment, and compliance is to be

determined with performance testing. Additionally, there are specifications as to the quality of fuels used by WPCP combustion equipment.

5.4 Odor Control

BAAQMD adopted Regulation 7 and Regulation 9 (Rule 1 and Rule 2) to regulate certain odorous substances emission limits. Odor emissions or ambient odor levels are listed in Table 24. However, the limits presented in Table 24 are not applicable until 10 or more complaints are received by the BAAQMD Air Pollution Control Officer in a period of 90 days. When the limits are in effect, these limits will be applicable for a year until no complaints are received. Limits are in effect again when BAAQMD receives five or more complaints within a 90-day period. BAAQMD also regulates the limits on hydrogen sulfide and sulfur dioxide ground level emissions. The limits for these sulfur-containing compounds are presented in Table 25.

Table 24 BAAQMD Odor Substances Limits
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

Elevation of Emission Above Grade in Meters (Feet)	Dilution Rate Volumes of Air – Free Air per Volume of Source Sample
Less than 9 (30)	1,000
9 to 18 (30 to 60)	3,000
18 to 30 (60 to 100)	9,000
30 to 55 (100 to 180)	30,000
Greater than 55 (180)	50,000

Table 25 Hydrogen Sulfide and Sulfur Dioxide Ground Level Concentrations Emission Limits
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

Substance	Limit Ground Level Concentration (ppm)	Duration
Hydrogen Sulfide	0.06 or	Averaged over 3 consecutive minutes in a day
	0.03	Averaged over 60 consecutive minutes in a day
Sulfur Dioxide	0.5 or	Averaged over 3 consecutive minutes in a day
	0.25 or	Averaged over 60 consecutive minutes in a day
	0.05 or	Averaged over 24 hour period

New nitrogen oxides (NO_x) and carbon monoxide (CO) limits for stationary internal combustion engines with greater than 50 brake horsepower have been adopted by BAAQMD (Regulation 9, Rule 8). They will come into effect on January 1, 2012. There are

also NO_x and carbon monoxide limits for boilers. The current and future limits for these stationary sources are summarized in Table 26.

Table 26 Nitrogen Oxides and Carbon Monoxides Concentrations Emission Limits for Stationary Sources
San José/Santa Clara Water Pollution Control Plant Master Plan
City of San José

Equipment	NO_x Limit (ppmv)[1]		CO Limit (ppmv)[1]	
	Current to 2012	2012	Current to 2012	2012
Spark-Ignited Engines Powered by Fossil Fuels - rich-burn engines	56[1]	25	2000	2000
Spark-Ignited Engines Powered by Fossil Fuels - lean-burn engines	140	65	2000	2000
Spark-Ignited Engines Powered by Waste-Derived Fuels - rich-burn engines	140	70	2000	2000
Spark-Ignited Engines Powered by Waste-Derived Fuels - lean-burn engines	210	70	2000	2000
Compression-Ignited Engines - 51 to 175 bhp	–	180	–	440
Compression-Ignited Engines - greater than175 bhp	–	110	–	310
Boiler, Steam Generator, or Process Heater Powered by Gaseous Fuel[2]	30[3]	–	400[3]	–

Notes:
bhp = Brake Horsepower.
ppmv = Part Per Million, Volumetric.
(1) Corrected to 15 percent oxygen, dry basis.
(2) Emission limits effective 1996 onward.
(3) Dry at 3 percent oxygen.

5.5 Greenhouse Gas Emissions

New regulations have been recently issued to address greenhouse gas (GHG) emissions in California and in the San Francisco Bay area in particular. The state issued Assembly Bill AB 32 – Global Warming Solution Act (AB 32) in 2006. AB 32 requires global warming emissions in California to be reduced to the 1990 level by the year 2020. There will be a statewide cap on GHG emissions to accomplish the goals set by AB 32 that will commence in 2012. CARB is in charge of developing regulations and setting up the mandatory reporting system for monitoring GHG emissions.

On December 2, 2008, CARB released developing the mandatory GHG regulations for the power/utilities sector, which includes the WPCP because it is considered a cogeneration

facility with a capacity of greater than 1 MW. The WPCP will need to begin to submit data reports on their GHG emissions resulting from cogeneration beginning in 2009.

In the future, the WPCP may also complete a GHG evaluation to establish baseline emissions from all direct and indirect sources. This issue is further discussed in PM 4.3.

6.0 WETLANDS AND SALT MARSHES REQUIREMENTS

Both land management and discharge requirements for the WPCP are driven by wetlands and salt marsh requirements. This section describes the applicable regulations.

6.1 Regulatory Context

A complex array of state and federal regulatory guidelines directs how the jurisdictional boundaries of wetlands are identified, defined, and regulated. The Corps is the major agency involved in regulation of activities affecting wetland and other waters under Section 404 of the CWA. The California Department of Fish and Game (CDFG) has authority over streams under Sections 1600-1607 of the California Fish and Game Code. Other agencies that have jurisdiction, comment authority, or review over wetlands and other waters include the EPA, USFWS, NMFS, RWQCB, and the Bay Conservation and Development Commission (BCDC). A summary of applicable regulations to wetlands and salt marshes are presented below.

6.1.1 Federal Regulations

6.1.1.1 Clean Water Act

Section 404 of the CWA of 1972 regulates activities that result in the discharge of dredged or fill material into waters of the US, including wetlands. The CWA authorizes the EPA to regulate water quality through the restriction of pollution discharges. The Corps regulates discharges of dredged or fill material into waters of the US, while the EPA provides oversight and comments on Corps decisions. Projects that include the discharge of dredge or fill material into waters of the US, including wetlands, must be reviewed by the Corps.

Under Section 401 of the CWA, any applicant for a federal permit to conduct any activity which may result in any discharge into navigable waters must obtain a certification (or a waiver from certification) from the appropriate state water quality control agency. In this region, the RWQCB has the authority to certify that such discharge will comply with the state water quality standards (Title 23, California Administrative Code, Section 3830 et. seq.). The RWQCB has a policy of no net loss of wetlands in effect and typically requires mitigation for all impacts to wetlands before it will issue a water quality certification.

6.1.1.2 Federal Endangered Species Act

The USFWS comments on Corps permit applications where the proposed work may affect threatened, rare, and endangered species that use a wetland or creek as habitat. In

addition, the NMFS acts in the same capacity with regard to species of marine habitats. For example, the steelhead trout, and possibly the red-legged frog, could be adversely affected by streambank stabilization work that changes the flow or water quality of a stream. While stabilization of the banks of a single property would not likely affect these species, the combined effects of many similar projects within a relatively concentrated part of a watershed could. If many separate projects are proposed, USFWS and NMFS may require that the Corps evaluate the combined impact on endangered species as if they were a single project. A Nationwide Permit may be issued by the Corps to streamline a project that is likely to have little or no environmental impact. The Corps will approve the use of a Nationwide Permit only after the determination has been made that the impacts to endangered species will be adequately avoided or mitigated.

6.1.2 State Regulations

6.1.2.1 California Fish and Game Code

The CDFG has jurisdictional authority over wetlands associated with rivers, streams, and lakes under California Fish and Game Code Sections 1600 to 1607. The CDFG has the authority to regulate work that will substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed. Typical activities regulated by CDFG include re-channeling and diverting streams, stabilizing banks, implementing flood control projects, river and stream crossings, diverting water, damming streams, gravel mining, and logging operations. The CDFG also administers the California Endangered Species Act.

6.1.3 Local Regulations

6.1.3.1 Bay Conservation and Development Commission

The BCDC was established to protect San Francisco Bay from increasing development. Consequently, the BCDC is interested in the wetlands and marshes in the San Francisco Bay, including near or adjacent to the WPCP. Further discussion of the BCDC regulations in presented in Section 7.0.

6.2 Special-Status Species

Special-status species are those that are listed, or proposed to be listed, as threatened or endangered under the provisions of the Endangered Species Act. The special-status species that could be affected by development on WPCP land were investigated in a report commissioned by the WPCP (H.T. Harvey and Associates, 2007). A figure showing the locations of existing and potential habitat for these species is shown in Appendix D.

6.3 Planning, Restoration and Management Projects

In South San Francisco Bay, there are several wetland planning, restoration, and management projects under way that may affect the planned uses of Salt Pond A18.

Approximately 15,000 acres of former salt producing ponds have been transferred to public ownership and are currently managed according to the Initial Stewardship Plan. The water quality and monitoring requirements of the Initial Stewardship Plan of the South Bay Salt Pond (SBSP) Restoration Project (Life Science, 2003) are set forth in a WDR adopted by the RWQCB in March, 2004. Those permit provisions are similar to the WDR issued for Salt Pond A18.

The plan for conversion of former salt ponds to either tidal wetlands or managed ponds is set forth in the Environmental Impact Statement/Environmental Impact Report (EIS/R) for the SBSP Restoration Project (U.S. Fish and Wildlife Service et. al., 2007). This is a 50 year program that will proceed in phases, using adaptive management to guide each phases based on lessons learned from applied studies conducted in the initial restoration actions. The nearest restoration activities to the Salt Pond A18 are being conducted in Alviso Salt Pond A16 (planned to be a managed pond), Salt Pond A8 (planned to be muted tidal habitat), and Salt Pond A6 (planned to be tidal habitat). The regulatory permit process for these initial actions will begin in August 2008; construction is anticipated to begin in 2009-2010.

The SBSP Restoration Project has identified three water quality issues that will be adaptively managed through the life of the fifty year project: 1) changes to phytoplankton population and composition, 2) dissolved oxygen, and 3) mercury methylation and bioaccumulation. These issues may also be relevant to permitting and planning issues related to Salt Pond A18. These are described in more detail in the EIS/R for the SBSP Restoration Project and associated documents. In particular, a dissolved oxygen management techniques technical memorandum may respond to RWQCB directives to monitor dissolved oxygen and propose management measures (May and Abusaba, 2007).

The Invasive Spartina Project (http://www.spartina.org) is a removal and monitoring program initiated by the CDFG that can affect salt pond restoration and management projects. Areas where invasive Spartina (also known as cordgrass) has been detected may have projects delayed until Spartina in the area has been eradicated. The requirements of this program have already caused a delay in the schedule for breaching levees at Salt Pond A6 to create tidal wetland habitat.

7.0 BAY CONSERVATION AND DEVELOPMENT COMMISSION REQUIREMENTS

Public agencies or private individuals proposing to fill, extract materials, or change the use of water, land, or structures in or around San Francisco Bay must first obtain a Development Permit from the BCDC, according to policies found in The San Francisco Bay Plan (Bay Plan) and the McAteer-Petris Act. The Bay Plan was prepared by the BCDC over a three-year period pursuant to the McAteer-Petris Act of 1965, which established BCDC as

a temporary agency to prepare an enforceable plan to guide the future protection and use of San Francisco Bay and its shoreline.

BCDC's permit jurisdiction includes San Francisco, San Pablo and Suisun Bays, sloughs, creeks, and tributaries that are part of the San Francisco Bay system, as well as salt ponds and certain other areas that have been diked-off from the San Francisco Bay. In addition, BCDC plays a role in protecting the Suisun Marsh; regulating new development within the first 100 feet inland from the San Francisco Bay; minimizing pressures to fill the San Francisco Bay; administering the federal Coastal Zone Management Act within the San Francisco Bay; and participating in California's oil spill prevention and response planning program. Therefore, BCDC will play a permitting role in the planning process for future uses of Salt Pond A18.

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REFERENCES

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APPENDIX A - WPCP NPDES PERMIT

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. R2 2003-0085
NPDES PERMIT NO. CA0037842

WASTE DISCHARGE REQUIREMENTS FOR:

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

09/17/2003

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER No. R2-2003-0085
NPDES PERMIT NO. CA0037842

REISSUING WASTE DISCHARGE REQUIREMENTS FOR:
CITIES OF SAN JOSE AND SANTA CLARA
SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT
SAN JOSE, SANTA CLARA COUNTY

FINDINGS

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

1. *Discharger and Permit Application.* The Cities of San Jose and Santa Clara (hereinafter called the Discharger) have applied to the Board for reissuance of waste discharge requirements and a permit to discharge treated wastewater to waters of the State and the United States under the National Pollutant Discharge Elimination System (NPDES).

Facility Description

2. *Location.* The Discharger owns and operates the San Jose/Santa Clara Water Pollution Control Plant (the Plant), located at 700 Los Esteros Road, San Jose, Santa Clara County, California. A location map of the facility is included as Attachment A of this Order.

3. *Service Area and Population.* The Plant provides tertiary treatment of wastewater from domestic, commercial and industrial sources from the cities of San Jose, Santa Clara, and Milpitas; County Sanitation District 2-3; the West Valley Sanitation District including Campbell, Los Gatos, Monte Sereno and Saratoga, and the Cupertino, Burbank, and Sunol Sanitary Districts (hereinafter called Satellite Agencies). The Discharger's service area has a present population of about 1.3 million.

4. The USEPA and the Board have classified this Discharger as a major discharger.

Purpose of Order

5. This NPDES permit regulates the discharge of treated wastewater to Artesian Slough, tributary of Coyote Creek and South San Francisco Bay, all waters of the State and the United States. These discharges are currently governed by Waste Discharge Requirements specified in Order No. 98-052, adopted by the Board on June 17, 1998 and as amended by Order No. 00-108 and Order No. 00-109.

Treatment Process Description

6. *Treatment Process.* The wastewater treatment process consists of screening and grit removal, primary sedimentation, secondary (biological nutrient removal) treatment, secondary clarification, filtration, disinfection, and dechlorination. A treatment process schematic diagram is included as Attachment B of this Order.

7. *Biosolids Handling and Disposal.* Biosolids are currently thickened, anaerobically digested and stabilized in lagoons and drying beds. The biosolids are then solar dried to about 75% total solids before reuse by land application or alternative daily cover in an authorized sanitary landfill.

Storm Water Discharge Description

8. *Regulations.* Federal Regulations for storm water discharges were promulgated by the USEPA on November 19, 1990. The regulations [40 CFR Parts 122, 123, and 124] require specific categories of industrial activity (industrial storm water from Publicly Owned Treatment Works) 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.

9. *Exemption from Coverage under Statewide Storm Water General Permit.* The State Board developed a statewide NPDES permit for storm water discharges associated with industrial activities (NPDES General Permit CAS000001) that was adopted November 19, 1991, amended September 17, 1992, and reissued April 17, 1997. Coverage under the General Permit, however, is not required because all storm water flows are directed to the wastewater treatment plant headworks and are treated along with the wastewater discharged to the Plant. Because all storm water from the facility is treated at the facility, this permit regulates the discharge of storm water from the Plant.

Discharge Description

10. *Discharge Location.* The treated wastewater effluent from the Plant flows into Artesian Slough (37° 26' 06" Latitude - 121° 57' 08" Longitude), tributary to Coyote Creek and South San Francisco Bay. Since May 1998, the Discharger has supplied recycled water for non-potable purposes to over 350 customers throughout the service area via the South Bay Water Recycling Program, a fixed piping system operated under Order No. 95-117. Customer uses include irrigation of golf courses, parks and playgrounds, farms, as well as industrial use. Recycled water is also available for construction use at remote locations.

11. *Discharge Volume and Plant Capacity.* The Plant has an average dry weather flow design capacity of 167 million gallons per day (MGD), and a 271 MGD peak hourly flow capacity. In 2002, the Plant discharged an annual average daily flow of 110 MGD.

12. Figure 1 in Attachment B shows the flow diagram for the process wastewater system.

South Bay Dischargers

13. NPDES permits have been issued to each of the three major publicly owned treatment works (POTWs) discharging into the South San Francisco Bay, south of the Dumbarton Bridge (South Bay or Lower South Bay), namely the San Jose/Santa Clara Water Pollution Control Plant (CA 0037842), the Palo Alto Regional Water Quality Control Plant (CA 0037834), and the Sunnyvale Water Pollution Control Plant (CA 0037621). The current NPDES Permits (the "1998 Permits") for the three South Bay POTWs were adopted by the Board in June 1998. The phrase "South Bay Dischargers" refers collectively to the San Jose/Santa Clara Water Pollution Control Plant, the Palo Alto Regional Water Quality Control Plant, and the Sunnyvale Water Pollution Control Plant.

Watershed Management Initiative

14. This Order was developed in cooperation with the Santa Clara Basin Watershed Management Initiative (WMI). The WMI, in which the Discharger is an active participant, is a stakeholder driven process that commenced in June 1996 as a pilot effort by the Board. The WMI seeks to integrate regulatory and watershed programs in the South San Francisco Bay region. This Order was

developed through the Regulatory Work Group to coordinate the permit reissuance process of the three South Bay POTWs. The Discharger is committed to encouraging stakeholder input with regard to permit requirements and programs. The Discharger has specifically participated in the Bay Monitoring and Modeling Subgroup of the WMI to develop site-specific objectives (SSOs) for copper and nickel in the South San Francisco Bay. On May 15, 2002, the Board adopted Resolution R2-2002-0061, and on October 17, 2002, the State Water Resources Control Board (SWRCB) adopted Resolution 2002-0151, which established SSOs for copper and nickel for the South San Francisco Bay. USEPA approved the SSOs on January 21, 2003.

15. The Discharger shall continue to participate with Board staff, other dischargers, representatives of the public, and concerned citizens in the WMI by reviewing and commenting upon technical and other proposals developed by the WMI and making technical information in its possession, available to stakeholder groups of the WMI as appropriate to develop its watershed management reports. The Discharger shall report to the Executive Officer annually describing its efforts in cooperating with the WMI.

Copper – Nickel Action Plans

16. *TMDL for Copper and Nickel*: Section 304(l) of the federal Clean Water Act (as amended in 1987) required States to develop lists of water bodies impaired by toxic pollutant discharges, identify point sources and pollutants causing toxic impacts, and develop individual control strategies (ICSs) for each point source identified. Section 303(d) of the Clean Water Act requires States every 2 years to list waterbodies that do not meet or are not expected to meet water quality objectives (WQOs) after existing controls are implemented. On March 9, 1998, the Board submitted the Section 303(d) List of Impaired Water Bodies and Priorities for Total Maximum Daily Loads (TMDLs) for the San Francisco Bay Region to the SWRCB. The list included a high priority ranking for copper and nickel in the South Bay. Municipal sources were listed as a source for these two pollutants and TMDLs for these pollutants were scheduled to begin in 1998. On November 28, 2001, the Board approved transmitting recommended revisions to the 1998 303(d) list to the SWRCB for inclusion in the state-wide 303(d) list, including delisting of copper and nickel. The SWRCB adopted the revised California 303(d) list on February 4, 2003 with copper and nickel delisted and placed on the new Monitoring List. USEPA approved the 2002 303(d) list on June 6, 2003. USEPA is currently in the process of depromulgating the CTR copper and nickel standards for the South San Francisco Bay. USEPA expects the promulgation to be complete Summer 2003.

17. In the *Impairment Assessment Report for Copper and Nickel in Lower South San Francisco Bay* (June 2000), a Workgroup to the WMI presented data and findings indicating that impairment of the South Bay due to copper or nickel was unlikely. The report recommended that copper and nickel be removed from the 303(d) list of impaired water bodies. The report also recommended the establishment of chronic SSOs for copper and nickel. In the report, the WMI Workgroup provided several options for developing SSOs from the watershed-specific toxicity data developed by the WMI Workgroup. Depending on the option selected, fully protective chronic criteria could range from 5.5 to 11.6 µg/l for dissolved copper and from 11.9 to 24.4 µg/l for dissolved nickel.

18. *Copper Action Plan*. As part of the adoption of SSOs, a Copper Action Plan was developed by the South Bay Dischargers and WMI stakeholders as a Water Quality Attainment Strategy (WQAS) to comply with the State Anti-Degradation Policy. This plan includes receiving water monitoring to determine if ambient copper levels are increasing in the South Bay and triggers pollution prevention actions to control copper. A requirement to comply with the plan was previously incorporated into the Discharger's current NPDES permit (Order No. 98-053) through Order No. 00-109. This Order also requires the Discharger to comply with the Copper Action Plan, which is incorporated into this Order by reference.

19. The Copper Action Plan requires dissolved copper to be monitored in the South San Francisco Bay during the dry season. If the mean dissolved copper concentrations measured at stations specified in this Order increases from its current level of 3.2 µg/l to 4.0 µg/l or higher, Phase 1 actions would be triggered to further control copper discharges. If the mean dissolved copper concentration increases to 4.4 µg/l, Phase 2 actions would be triggered. Such incremental increases in mean dissolved copper concentrations shall be used solely for triggering the aforementioned actions. Where triggers are exceeded, the Discharger is required to submit the appropriate Phase 1 or Phase 2 implementation plan with a schedule to implement additional measures to limit the Discharger's relative cause or contribution to the exceedance.

20. The Copper Action Plan contains specific actions to be completed by various entities as appropriate. Those actions applicable to the Dischargers include the tasks described below (the parenthetical references reference the numbered actions in the Copper Actions Plan). (Attachment E contains other tasks and associated responsible parties):

    Baseline Actions: City of Palo Alto to continue and track corrosion control of copper pipes (CB-9); Track the three South Bay Discharger's pretreatment programs and loadings (CB-13); Track and encourage South Bay Discharger water recycling programs (CB-14); and Continue to promote industrial water efficiency efforts (CB-19). In addition, the Dischargers will work with other entities to accomplish other Baseline actions: Industrial runoff reduction (CB-3); Track and encourage investigations of uncertainties in the South San Francisco Bay impairment decision (CB-17); Track and encourage investigations on factors influencing copper fate and transport (CB-18); and Copper Conceptual Model update (CB-20).

    Phase 1 Actions include: Identify copper source increases (CI-3); Prepare and implement a Phase I plan for improved corrosion controls (CI-4); Expand water recycling (CI-7); Evaluate industrial water efficiency efforts and develop additional actions (CI-10); Develop Phase II plan for South Bay Discharger treatment optimization (CI-11); and Develop plan to re-evaluate actions (CI-12). In addition, the South Bay Dischargers will work with other entities to accomplish other Phase I actions: Evaluate and investigate uncertainties in South San Francisco Bay impairment decision (CI-8); and Evaluate and investigate copper fate (CI-9).

    Phase 2 Actions include: Reconsider managing storm water in the South Bay Discharger wastewater treatment plants (CII-1); Implement additional corrosion control measures (CII-3); Implement wastewater treatment plant process optimization (CII-6); and Expand water recycling programs (CII-7).

21. The *Nickel Action Plan:* As part of the adoption of SSOs, a Nickel Action Plan was also developed by the South Bay Dischargers and WMI stakeholders to comply with the State Anti-Degradation Policy. This plan includes receiving water monitoring to determine if ambient nickel levels are increasing in the South Bay and triggers pollution prevention actions to control nickel. A requirement to comply with the plan was previously incorporated into the Discharger's current NPDES permit (Order No. 98-053) through Order No. 00-109. This Order also requires the Discharger to comply with the Nickel Action Plan, which is incorporated into this Order by reference.

22. The Nickel Action Plan requires that dissolved nickel be monitored in the South San Francisco Bay during the dry season. If the mean dissolved nickel concentrations measured at stations specified in this Order increases from its current level of 3.8 µg/l to 6.0 µg/l or higher, Phase 1 actions would be triggered to further control nickel discharges. If the mean dissolved nickel concentration increases to 8.0 µg/l, Phase 2 actions would be triggered. Such incremental increases in mean dissolved nickel

concentrations shall be used solely for triggering the aforementioned actions. Where triggers are exceeded, the Discharger is required to submit the appropriate Phase 1 or Phase 2 implementation plan with a schedule to implement additional measures to limit the Discharger's relative cause or contribution to the exceedance.

23. *The Nickel Action Plan* contains specific actions to be completed by various entities as appropriate. Those actions applicable to the Dischargers include the following tasks:

    Baseline Actions: Track the three South Bay Discharger's pretreatment programs and loadings (NB-13); Track and encourage South Bay Discharger water recycling programs (NB-4); Continue to promote industrial water efficiency efforts (NB-6); and Track and encourage a watershed model linked to a process oriented Bay model (NB-7).

    Phase 1 Actions include: Expand water recycling (I-7); Evaluate industrial water efficiency efforts and develop additional actions (I-10); Develop Phase II plan for South Bay Discharger treatment optimization (I-11); and Develop Phase I Plan (NI-3).

    Phase 2 Action includes: Implement actions developed during Phase I.

24. Some Phase 1 and Phase 2 actions in the Copper Action Plan and Nickel Action Plan may require the assistance of the Board to coordinate and assist in the efforts of the South Bay Dischargers and other entities to limit or reduce copper and nickel levels in the South San Francisco Bay. It is the intent of the Board that Board staff will, to the extent practicable, coordinate and assist Phase 1 and Phase 2 actions as identified in the Copper Action Plan and Nickel Action Plan.

25. Because the WQAS, of which the Copper and Nickel Action Plans are a part, is an adaptive management plan, modifications to the WQAS may be considered provided that the Discharger continues reasonable treatment, source control, and pollution prevention measures to control discharges. If the Discharger can demonstrate that increases in either copper or nickel concentrations are due to factors beyond the control of the Discharger, the Board will consider and determine reasonable control actions required under Phase 1 or Phase 2 of the Actions Plans.

Regional Monitoring Program

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

Basin Plan Discharge Prohibitions and Exceptions

27. The 1995 Basin Plan prohibits discharges south of the Dumbarton Bridge receiving less than 10:1 minimum initial dilution, discharges to dead-end sloughs, and discharge of any conservative toxic and deleterious substances above the levels that can be achieved by a program acceptable to the Board. Exceptions to the three Basin Plan prohibitions may be considered where the Discharger can show: (1) a net environmental benefit as a result of the discharge, (2) that the project is part of a reclamation project, or (3) an inordinate burden would be placed on the Discharger relative to beneficial uses and

an equivalent protection can be achieved by alternate means such as an alternative discharge site, a higher level of treatment, and/or improved treatment reliability.

28. The 1986 Basin Plan (at page III-5) suggests that criteria provided in Tables III-2B and III-2C should be used as guidance for the San Francisco Bay south of the Dumbarton Bridge. The Basin Plan indicates that the South Bay has a unique hydrogeologic environment, and that site-specific WQOs are absolutely necessary for this water segment. The NPDES permit amendments issued to the Discharger on December 21, 1988 (Order No. 88-176) contained requirements for studies to assess impacts from metals on the water body, to investigate controls on metals levels discharged in effluent, and to develop WQOs based on cost/impact. Based on those studies, the Discharger was allowed to propose WQOs based on toxicity testing. In connection with the issuance of amendments to the Discharger's NPDES permit, on December 21, 1988, the Board granted a conditional exception to the discharge prohibitions based on net environmental benefit. The conditions to the granted exception related to unresolved concerns regarding the potential impacts of heavy metals on the South Bay.

29. San Jose Permit Order No. 89-012 contained requirements for studies to assess impacts from metals on the water body, to investigate controls on metals levels discharged in effluent, and to develop WQOs based on cost/impact. The Discharger was further allowed to propose WQOs based on toxicity testing. A finding of net environmental benefit for the discharge could not be made in 1989 at the time waste discharge requirements were adopted because of impacts to endangered species habitat attributed to the freshwater characteristics of the discharge. The Board found that conditional approval for discharge under a finding of net environmental benefit could be made if the Discharger provided mitigation consistent with Cease and Desist Order No. 89-013. The Discharger appealed this requirement to the SWRCB.

30. *State Board Order WQ 90-5*. Subsequent to the permit appeal filed by Citizens for a Better Environment, the U.S. Fish and Wildlife Service (USFWS) and 11 other organizations, the SWRCB determined that a finding of equivalent level of protection for discharges South of Dumbarton Bridge could be made under several conditions, including: (1) incorporating water quality-based concentration limitations for metals and revised mass loading limitations for metals into the Discharger's permit, (2) developing an avian botulism control program, (3) implementing a water conservation and reclamation program, and (4) ensuring that the Discharger protects the beneficial use of preservation of rare and endangered species. WQ 90-5 also found that WQOs were needed for the South Bay, and directed the Board to adopt objectives by March 1991, and to amend the permit to include water quality-based metals limitations by April 1991 for metals found to have reasonable potential pursuant to 40CFR 122.44(d). In addition, the Board was required to modify the mass loading limitations for metals in the permit. On April 17, 1991, Order No. 91-067 was adopted by the Board and included revised concentration and mass loading limitations for metals. Order No. 91-067 amended Finding 13 in the December 21, 1988 permit so as to state that: "The requirements in this order support a finding of equivalent protection." The Board continued its granting of Basin Plan exceptions in the NPDES permits issued to the Discharger on July 21, 1993 and June 17, 1998.

31. *Avian Botulism Control Program.* The Discharger has conducted an avian botulism control program by monitoring Artesian Slough, Coyote Creek, and Alviso Slough for the presence of avian botulism since 1982. Outbreaks of avian botulism as well as other diseases have been controlled by the prompt removal of sick and dead vertebrates. The Discharger also supports the collection of bird and other wildlife data, in conjunction with the avian botulism program, to better understand the potential beneficial and detrimental impacts of the discharge on the associated habitat. This Order carries forward the requirement for the Discharger to continue its avian botulism control program.

32. *Concentration and Mass Limitations for Metals.* As shown in Findings 83-86, the Board has conducted a reasonable potential analysis (RPA) for metals based on the criteria contained in the California Toxics Rule (CTR), the Basin Plan, and the Basin Plan Amendment (copper and nickel), and the requirements in the State Implementation Policy (SIP). Based on the RPA, copper, mercury, and nickel show reasonable potential and effluent limitations are included in this Order for these constituents. The previous permit established mass-based limitations for metal constituents based on the requirements of State Board Order WQ 90-5, regardless of whether they exhibited reasonable potential. This permit does not automatically carry over the mass-based limitations for metals. Instead, discharges of metals are addressed through the provisions of the SIP as discussed in Finding 60. In addition, Order WQ 90-5 allows the development of SSOs for Lower South San Francisco Bay.

South Bay Action Plan

33. The State Board found in WQ 90-5 that freshwater effluent from the Discharger's treatment plant contributed to the loss and degradation of habitat for two endangered species (California clapper rail and salt marsh harvest mouse).

34. *Effluent Flow Reduction and Water Conservation/Recycling.* On October 4, 1990, the State Board adopted Order WQ 90-5, which directed the Board to limit flows from the Discharger's treatment plant to 120 MGD Average Dry Weather Effluent Flow (ADWEF) or to flows that would not further impact rare and endangered species habitat. On March 6, 1991, the Discharger submitted an "Action Plan", with a request that the "Action Plan" be accepted by the Board as fulfillment of the State Board requirement for a discharge flow limitation. A revised three-part "Action Plan" was accepted by the Board (Resolution 91-152). The three programs of the Action Plan included 380 acres of salt marsh mitigation, 46-51 MGD of water recycling, and a 12 MGD water conservation program. Resolution 91-152 requested that the State Board accept the "Action Plan" as the approach to fulfill the intent of the State Board requirement for a flow cap. By letter dated November 26, 1991, the State Board found Resolution 91-152 to be consistent with Order WQ 90-5.

35. In Resolution 91-152, the Board stated that the San Jose Action Plan (revised), dated September 30, 1991, fulfilled the intent of the State Board Order WQ 90-5 requirement to limit flows from the San Jose/Santa Clara Water Pollution Control Plant to a level that will prevent any further loss or degradation of endangered species habitat. The Resolution contained a provision requiring a Board hearing to consider adopting a 120 MGD ADWEF discharge limitation if delays occurred that threatened the timely completion or implementation of reclamation projects, or if the ADWEF exceeded 120 MGD.

36. The 1991 Action Plan proposed a Phase II recycling project, and Order No. 93-117 contained requirements for implementing the Phase II project. Since its initial proposal, Phase II recycling, at an estimated cost of $350 million, has been recognized to be prohibitively expensive. In 1995, the Discharger and Board staff began discussions on alternatives to the original Phase II project.

37. In 1996, the ADWEF of 132 MGD triggered the requirement in Resolution 91-152 for the Board to hold a hearing. On December 18, 1996, when the Board held a hearing on this issue, three options were considered: (1) amend the NPDES permit to limit flows to 120 MGD ADWEF; (2) direct the Discharger to propose an alternative solution by June 1997; and (3) no action. The Board adopted the second option.

38. On May 28, 1997, the Discharger submitted the Revised South Bay Action Plan (SBAP) to the Board. The SBAP proposed both near and long-term solutions to further reduce the discharge. These SBAP

projects were developed to reduce effluent flows to below 120 MGD. The SBAP provisions were incorporated into Order No. 98-052.

39. Based on the requirements of WQ Order 90-5, the Board adopted Resolution 91-152 accepting the South Bay Action Plan (SBAP) from the Discharger in lieu of a 120 MGD ADWEF discharge limitation. This SBAP contained general provisions for water conservation, recycling, and a proposal to mitigate for historic wetlands losses described in WQ Order 90-5. This Order requires full implementation of the SBAP.

40. Overall, the Discharger's Water Conservation Program of the SBAP consisted of multiple strategies to encourage water saving devices to be installed in residential, commercial, industrial and institutional facilities. From the inception of these strategies in early 1986, the amount of water used indoors in these facilities has been reduced by over 20 MGD**,** including 5.7 MGD in flow reduction, which has been achieved since adoption of the SBAP in 1997. This Order requires the Discharger to continue a water conservation program and provide annual program updates in its SBAP.

41. In October 1997, the Discharger began operation of a 60-mile recycled water pipeline with capacity to distribute 21.1 MGD for non-potable reuse. In 2002, the South Bay Water Recycling program delivered an average of 10 MGD to more than 350 customers during the three highest-use consecutive months. This Order requires the Discharger to continue its water reclamation program and provide annual program updates in its SBAP.

42. Since 1997, the Discharger has maintained an ADWEF below 120 MGD. In 1999, the ADWEF was 116.1 MGD; in 2000, the ADWEF was 116.4 MGD; in 2001, the ADWEF was 107.3 MGD; and in 2002, the ADWEF was 104.0 MGD. The Discharger has developed a mathematical model for Plant influent and effluent flows. Using the model, which considers changes in residential population, employment, and ongoing flow reduction programs, the Discharger projects that the ADWEF from the Plant will remain below 120 MGD through the term of this NPDES permit. Similar to Resolution 91-152 and Order No. 98-052, this Order requires a SBAP in lieu of a flow cap. The SBAP will contain a Contingency Plan in the event ADWEF flows increase above 120 MGD, or to levels that will adversely affect endangered species habitat.

43. *Protection of Endangered Species and Wetlands Mitigation*: WQ Order 90-5 directed the Board to require San Jose to submit a mitigation proposal to create or restore salt marsh habitat lost or converted before 1985. This so called "historic" mitigation requirement, required the Discharger to submit proposals to create or restore 380 acres of salt marsh or equivalent habitat, with a habitat suitability index for salt marsh harvest mice of approximately 0.9 by the year 2004. The tasks contained in the San Jose Action Plan, dated September 30, 1991 and accepted by the Board in Resolution 91-152, proposed that the Discharger acquire 380 acres of salt marsh as mitigation for endangered species habitat lost or degraded through 1985.

44. Resolution 91-152 requires that any proposed salt marsh mitigation for habitat loss and degradation occurring before 1985, and during design and construction of the water recycling projects, be evaluated consistent with the USFWS's Habitat Evaluation Procedure, used to calculate the mitigation requirements for past endangered species habitat loss and degradation.

45. Based on requirements in Resolution 96-137, the Discharger participated with State and local agencies to purchase and restore the Baumberg Tract to mitigate for historic habitat losses and to establish a mitigation bank. The Board finds through participation in the Baumberg purchase, the Discharger provided approximately 90% of the mitigation required by WQ Order 90-5. Additionally,

through Baumberg funding provided by the Discharger, the Discharger accrued a 10-acre mitigation credit, as required in the Discharger's 1993 NPDES Order for the creation of a salt marsh bank.

46. After consultation with State and local agencies, the Discharger purchased the 54-acre Moseley Tract from the Port of Oakland. At the time Resolution 96-137 was approved, accepting the Moseley Tract Salt Marsh Restoration Proposal from the Discharger, the Discharger appropriated funds for the Moseley restoration plan, including permitting and construction for fiscal years 1996/1997 along with an annual maintenance and monitoring budget for up to three years.

47. As of the date of this Order, restoration of the Moseley Tract has not occurred. The Discharger reports that it has no current plan to commence habitat restoration on the site due to seasonal drainage problems as a result of practices conducted by Cal Trans. The Discharger is currently in litigation with Cal Trans. Recently, Board staff held meetings with the Discharger, USFWS, and CDFG, to consider restoration alternatives to the Moseley Tract, and to address how the Discharger's decision not to restore the Moseley Tract would impact the Discharger's ability to fulfill the remaining historic mitigation requirements of WQ 90-5, and Resolution 96-137. Based on USFWS support of alternate approaches, the Executive Officer of the Board has agreed to accept an alternate salt marsh mitigation project from the Discharger, in lieu of the original Moseley Mitigation proposal. Additionally, because the Discharger is presumed to be acting in good faith at this time, staff advises no penalties be assessed against the Discharger due to restoration delays, per Resolution 91-152.

48. Therefore, in lieu of the mitigation proposal accepted by the Board in 1996 through Resolution 96-137, and the mitigation credit previously granted the discharger for its commitment to restore the Moseley Tract, the Discharger may provide funding for alternate mitigation. The Discharger shall continue working with USFWS, CDFG, and the Board to finalize the details of an agreement for funding alternate mitigation. An alternate salt marsh mitigation agreement must include a commitment by the Discharger to fund the acquisition and/or restoration of a salt marsh mitigation site, equivalent to the Moseley Tract in order to provide the 380 acre total that has been identified as the Discharger's "historic" obligation to mitigate for impacts of the discharger through 1985.

49. The Regional Board has adopted Resolution No. R2-2003-0077 to authorize the Executive Officer to enter into the agreement with the Discharger, USFWS, CDFG, and an administering agent, accepting the discharger's funding of an alternate salt marsh mitigation project, in lieu of the Moseley Tract Proposal, originally required to satisfy Resolution 96-137.

50. It is the intent of the Board to adhere to the 2004 restoration deadline named in WQ Order 90-5, and to assist the Discharger in finalizing its historic mitigation requirements during the life of this Order. Therefore, by August 2004, the Discharger will either restore a site approved by the Board and USFWS (may include Moseley), or provide funds for the acquisition and/or restoration of an alternate mitigation project- or other South Bay mitigation proposal deemed by USFWS and the Board to be equivalent to the Moseley Tract, as outlined in the proposed alternate wetlands mitigation agreement to be signed by the Executive Officer. Upon successful restoration of a site approved by the Board and USFWS, or execution of a formal alternative salt marsh mitigation agreement with transfer of funds as specified in the agreement, the Discharger will have completed all of its historic salt marsh mitigation requirements named in State Board WQ Order 90-5, and Resolution 96-137, up to 2002.

51. In addition to the alternate salt marsh mitigation project described above, if the Discharger also pursues restoration of the Moseley Tract, the Discharger may propose to the Board that it accrue restoration credit for the 54 acre Moseley Tract. The Board will make this determination through consultation with USFWS. The Discharger has proposed to continue working with the USFWS and

the CDFG to resolve the issues preventing the restoration of the Moseley Tract. If successful restoration of the Moseley Tract occurs, with the approval of USFWS and the Board the Discharger may "bank" restoration credits to be used at a future date to offset mitigation that may be required due to the conversion of salt marsh to brackish or freshwater marsh as a result of its discharge. The Board and USFWS may consider approval of application of these mitigation credits for other purposes.

52. Potential Salt Pond restoration efforts in the South Bay, slated to begin during the life of this Order, may alter the habitat and vegetative composition of the Discharger's Salt Marsh Assessment Study Area. Other factors that may influence the status of salt marsh habitat study area include; changes to channel morphology, vegetation control strategies (eradication of non-indigenous species), variable fresh water flows (unusual rain events, tributary discharges and delta flows), and changes in sea surface levels and temperature.

53. WQ Order 90-5 requires the Board to evaluate the impacts of the Discharger's effluent on the potential conversion of salt marsh habitat to brackish or fresh-water habitat, when issuing or reissuing permits to the Discharger. The Board distinguishes "recent" or permit-specific habitat impacts resulting from the Discharger's effluent each 5-year permit cycle, from "historic" impacts that occurred before 1985. To address potential "recent" habitat conversion, therefore, it is the intent of the Board to continue requiring in the Discharger's NPDES Orders, marsh habitat assessments and appropriate mitigation for wetland conversion (if conversion has occurred) due to the impacts of its discharge- in excess of mitigation already provided by the Discharger. Appropriate mitigation and the evaluation of contributing factors, shall be determined every 5 years after consultation with resource agencies and other interested parties. Additionally, the Discharger has agreed to conduct synoptic surveys of California clapper rail and salt marsh harvest mouse during this permit cycle.

54. To mitigate for "recent" habitat impacts as a result of its permitted discharge between 1985 and 1997, Provision 2.2 of Order No. 98-052, directed the City to "submit a plan for mitigation of wetlands losses caused by the discharge and not covered by previous Orders." In 1999, when Bair Island became available for purchase and restoration, the Discharger contributed funding in the amount of $720,000 toward the purchase and restoration of Bair Island, as administered by Peninsula Open Space Trust. The Board found that with the Discharger's contribution to this important wetland restoration project, satisfied Provision 2.2 of Order 98-052 through June 1998.

55. Based on recent review of Discharger reports titled "Marsh Plant Associations" assessing possible salt marsh conversion occurring between 1998-2002, the Board finds that no salt marsh to brackish or fresh-water marsh conversion has occurred between these dates, and therefore the Discharger is not responsible for additional mitigation in this Order.

56. Based on Findings 27-55, and the consideration of existing information, the Board has retained the exception to the Basin Plan prohibitions based on a finding of an equivalent level of environmental protection consistent with the requirements specified in State Board Order WQ 90-5.

Applicable Plans, Policies and Regulations

Basin Plan

57. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin on June 21, 1995 (Basin Plan). This updated and consolidated plan represents the Board's master water quality control planning document. The State Water Resources Control Board (SWRCB) and the Office of Administrative Law (OAL) approved the revised Basin Plan on July 20 and November 13, respectively, of 1995. USEPA approved the Basin Plan on June 29, 2000. A summary of regulatory provisions is contained in Title 23 of the California Code of Regulations at Section 3912. The Basin

Plan identifies beneficial uses for Waters of the State in the Region, including surface waters and ground waters. The Basin Plan also identifies WQOs, discharge prohibitions and effluent limitations intended to protect beneficial uses. This Order implements the plans, policies and provisions of the Board's Basin Plan.

Beneficial Uses

58. Beneficial uses for the San Francisco Bay, South Bay (south of the Dumbarton Bridge) and Coyote Creek receiving waters, as identified in the Basin Plan, are:

a. Industrial Service Supply*
b. Navigation*
c. Water Contact Recreation
d. Non-contact Water Recreation
e. Commercial and Sport Fishing*
f. Wildlife Habitat
g. Preservation of Rare and Endangered Species
h. Fish Migration
i. Fish Spawning (potential for San Francisco Bay)
j. Estuarine Habitat
k. Shellfish Harvesting*
*These uses only apply South Francisco Bay not Coyote Creek

Beneficial uses specific to Artesian Slough have not been assessed to determine which uses exist or potentially could exist. Board policy is to use the tributary rule to interpret which beneficial uses are currently or potentially supported where beneficial uses have not been specifically designated. The beneficial uses of Coyote Creek, therefore, are assumed to apply to Artesian Slough.

California Toxics Rule (CTR)

59. On May 18, 2000, the USEPA 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). These standards are generally referred to as the CTR. The CTR specified water quality criteria (WQC) for numerous pollutants, of which some are applicable to the South Bay.

State Implementation Policy (SIP)

60. 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 OAL approved the SIP on April 28, 2000. 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 USEPA through the CTR, the National Toxics Rule (NTR) 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 requirements for Pollutant Minimization Programs.

61. In addition to the documents listed above, other USEPA guidance documents upon which best professional judgment (BPJ) was developed may include in part:
- Region 9 Guidance For NPDES Permit Issuance, February 1994;

- USEPA 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

62. *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.

63. *Water Quality Objectives (WQOs) and Effluent Limitations.* WQOs/WQC 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* (USEPA 440/5-86-001, 1986 and subsequent amendments, "USEPA Gold Book"); applicable Federal Regulations (40 CFR Parts 122 and 131); the National Toxics Rule (57 FR 60848, 22 December 1992 and 40 CFR Part 131.36(b), "NTR"); NTR Amendment (Federal Register Volume 60, Number 86, 4 May 1995, pages 22229-22237); USEPA December 27, 2002 "Revision of National Recommended Water Quality Criteria" compilation (Federal Register Vol. 67, No. 249, pp. 79091-79095); and BPJ as defined in the Basin Plan. Where numeric effluent limitations have not been promulgated, 40 CFR 122.44(d) specifies that WQBELs may be set based on USEPA criteria and supplemented where necessary by other relevant information to attain and maintain narrative WQOs/WQC to fully protect designated beneficial uses. Discussion of the specific bases and rationale for effluent limitations are given in the associated Fact Sheet for this permit, which is incorporated as part of this Order.

Applicable Water Quality Objectives/Criteria

64. The WQOs and WQC applicable to the receiving waters for this discharge are from the Basin Plan, the CTR, and the NTR.

a. The Basin Plan specifies numeric WQOs for priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses in waters within the region. However, the numeric WQOs for priority pollutants in the Basin Plan do not apply to the South Bay below Dumbarton Bridge. As discussed in Findings 65-67, the Board adopted a Basin Plan Amendment that includes SSOs for copper and nickel that apply to the South Bay. 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." 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." Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on current 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 where the Basin Plan includes specific numeric objectives for certain of these priority toxic pollutants (i.e., only for copper and nickel in the South Bay south of the Dumbarton Bridge).

c. The NTR established numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta.

65. A Basin Plan Amendment adopted on May 22, 2002 (Board Resolution R2-2002-0061) and approved by the State Board on October 17, 2002 (State Board Resolution 2002-0151) contained SSOs and translators for copper and nickel in the South San Francisco Bay. The amendment was transmitted to USEPA on January 9, 2003 for approval. After review, USEPA approved the SSOs on January 21, 2003. USEPA is currently in the process of depromulgating the CTR copper and nickel standards to reflect the new SSOs, and expects the promulgation to be complete during Summer 2003. The SSOs were derived through USEPA-approved methods and are fully protective of the most sensitive aquatic life beneficial uses in the South San Francisco Bay. The Amendment includes SSOs in the South San Francisco Bay of 6.9 µg/L for a 4-day average and 10.8 µg/L for a 1-hour average for dissolved copper and 11.9 µg/L for a 4-day average and 62.4 µg/L for a 1-hour average for dissolved nickel.

66. The SSOs are currently being achieved and must be maintained. The SSOs are supported by the WQAS to not only ensure the ongoing attainment of SSOs but to prevent existing ambient levels of copper and nickel from increasing and degrading water quality. The implementation of the WQAS and the associated Copper-Nickel Action Plans are required by Provision E.9.

67. *Translators.* The Board also adopted metals translators specific to South San Francisco Bay for copper and nickel. The translators for copper and nickel are 0.53 and 0.44, respectively. The translator development rationale and approach are discussed in the Staff Report to the May 22, 2002 SSO Basin Plan Amendments.

68. *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 WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than one 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 water 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 latter calculated based on ambient hardness), for each substance. CTR salinity criteria apply to application of WQC contained in the CTR.

69. *Receiving Water Salinity:* The receiving waters for the discharge regulated by this Order are the waters of Artesian Slough, tributary of Coyote Creek and the South San Francisco Bay. Monitoring data from the San Jose Slough RMP station show salinities levels from 2.0 to 18.1 ppt. These data show estuarine conditions under the CTR salinity definition. San Jose's South Bay Monitoring Program (SBMP) data were also used to determine the salinity of the receiving waters. Pooling SBMP data produced 603 data points, 84 percent of which were greater than 10 ppt. Finally, Artesian Slough is clearly a tidally influenced receiving water and the delineation between fresh and saltwater conditions in the Slough varies continuously based on tidal conditions. Artesian Slough and Coyote

Creek near the discharge location, therefore, are estuarine in character under the CTR salinity policy. The applicable WQC are the lower of the marine and fresh WQC.

70. *Receiving Water Hardness:* Hardness data collected through the RMP were used to determine the hardness of the receiving water. RMP Local Monitoring station C-3-0 was used for determination of receiving water hardness. The RMP does not routinely measure hardness and hardness measurements are not available in the BA30 station otherwise being used for background data. The minimum observed hardness at the San Jose Slough RMP station (C-3-0) during 1994-2000 was 510 mg/L and the maximum observed hardness was 2650 mg/L. The CTR states that if the hardness is over 400 mg/L, criteria are calculated using a hardness of 400 mg/L in the hardness equation. The data from the RMP San Jose Slough Station represents the best available information for the hardness of the receiving water after it has mixed with the discharge.

71. *Technology-Based Effluent Limitations:* Effluent limitations for conventional pollutants are generally technology-based. Limitations in this permit are the same as those in the prior permit for the following constituents: Carbonaceous Biochemical Oxygen Demand (CBOD), total suspended solids (TSS), BOD and TSS removal efficiency, oil and grease, settleable matter, turbidity, and chlorine residual. Technology-based effluent limitations are included to ensure that adequate tertiary treatment is achieved by the wastewater treatment facility.

72. *Water Quality-Based Effluent Limitations:* Toxic substances are regulated by WQBELs derived from the Basin Plan SSOs for copper and nickel, the NTR, USEPA recommended criteria, CTR criteria, the SIP, and/or BPJ. WQBELs in this Order are revised and updated from the limitations in the previous permit and their presence in this Order is based on evaluation of the Discharger's data as described below under Reasonable Potential Analysis (RPA). Numeric WQBELs are required for all constituents that have reasonable potential to cause or contribute to an excursion above any State WQO/WQC. Reasonable potential is determined and final WQBELs are developed using the methodology outlined in the SIP. If the Board determines that the final limitations will be infeasible to meet, then interim limitations are established, with a compliance schedule to achieve the final limitations. Further details about the effluent limitations are given in the associated Fact Sheet. In addition, the ammonia-N limitation is retained from the previous permit.

WQBELs are expressed as monthly average and daily maximum limits. The following is a justification for applying a daily maximum effluent limitation in lieu of a weekly average effluent limitation.

a. Maximum Daily Effluent Limitations (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 USEPA'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 WQBELs be expressed as MDELs and average monthly effluent limitations (AMELs).
d. The TSD (page 96) states a MDEL 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 limitation would be toxicologically protective of potential acute toxicity impacts.

73. *Receiving Water Ambient Background Data Used in Reasonable Potential Analysis:* The receiving waters for the discharges are estuarine and subject to complex tidal conditions of the South San Francisco Bay. Therefore, the most representative location of ambient background data in the South San Francisco Bay for this facility is the Dumbarton Bridge RMP station (BA-30). The RPA was conducted using RMP data from 1993 through 2000 for the Dumbarton 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, 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.

74. *Constituents Identified in the 303(d) List:* On June 6, 2003, the USEPA approved a revised list of impaired waterbodies prepared by the State. The list (hereinafter referred to as the 2002 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. South San Francisco Bay is listed as an impaired waterbody. The pollutants impairing South San Francisco Bay include chlordane, DDT, diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, PCBs, dioxin-like PCBs, and selenium. Copper and nickel, which were previously identified as impairing South San Francisco Bay, were not included as impairing pollutants in the 2002 303(d) list and have been placed on the new Monitoring List.

Dilution and Assimilative Capacity

75. The Discharger's effluent is discharged to a shallow water slough, the Artesian Slough. The actual dilution received by the discharge in the Slough was modeled in 1989 by conducting a dye study of the South San Francisco Bay, including the area directly influenced by the discharge. Due to the tidal nature of the Slough, and limited upstream freshwater flows, the discharge is classified by the Board as a shallow water discharge. Therefore, effluent limitations in this permit are calculated assuming no dilution (D=0). Pursuant to Section 1.4.2.1 of the SIP, "*dilution credit may be limited or denied on a pollutant-by-pollutant basis . . . . .*" Furthermore, the Basin Plan states "shallow water dischargers may apply to the Board for exceptions to the assigned dilution ratio of D=0 based upon demonstration of compliance with WQOs 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 limitations and only after very rigorous scrutiny of source control and receiving water data."

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

76. Based on the 303(d) list of pollutants impairing South San Francisco Bay, the Board plans to adopt 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 USEPA. Future review of the 303(d) list for South San Francisco Bay may result in revision of the schedules and/or provide schedules for other pollutants.

77. The TMDLs will include WLAs and load allocations (LAs) for point sources and non-point sources, respectively, and are intended to result in the attainment of water quality standards in the water body. The final effluent limitations for the 303(d)-listed pollutants will be based on WLAs that are derived from the TMDLs. The permit will be re-opened, as necessary, to adopt the final WQBELs as enforceable limitations.

78. *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." The Board adopted Resolution No. 01-103, on September 19, 2001, which authorizes the Executive Officer of the Board to enter into a Memorandum of Understanding, with now the Clean Estuary Partnership (CEP), and previously with the Bay Area Clean Water Agencies (BACWA), a member of CEP and other parties to accelerate the development of Water Quality Attainment Strategies including TMDLs for the San Francisco Bay-Delta and its tributaries. The Discharger has made commitments to participate in TMDL development as a member of BACWA.

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

    a. Data collection – The Board will require Dischargers to characterize the pollutant loads from their facilities into the water quality limited water bodies. The result will be used in the development of TMDLs, but may also be used to update/revise the 303(d) list and/or change the WQOs/WQC for the impaired water bodies including South San Francisco Bay.

    b. Funding mechanism – The Board has received, and anticipates that it will continue to receive, resources from federal and state agencies for the development of TMDLs. To ensure timely development of TMDLs, the Board intends to supplement these resources by allocating development costs among Dischargers through the RMP or other appropriate funding mechanisms.

80. Until final WQBELs or WLAs are adopted, state and federal anti-backsliding and anti-degradation policies, and the SIP, allow the Board to include interim effluent limitations. The interim effluent limitations will be the lower of the following:
    - current performance; or
    - previous order's limitations, unless anti-backsliding requirements are met.

    This permit establishes interim concentration limitations for 4,4'-DDE, dieldrin, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, and heptachlor epoxide, and interim mass and concentration limitations for mercury.

81. Compliance schedules are established based on Section 2.2 of the SIP for limitations derived from CTR WQC. 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 limitation. 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.

Anti-degradation and Anti-backsliding

82. 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) Anti-backsliding does not apply to the interim limitations established under previous Orders; and
(4) If anti-backsliding 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 anti-degradation 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 degradation. Pollutant-specific discussions regarding the applicability of anti-degradation and anti-backsliding policies are provided in findings below.

Specific Basis

83. 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 from Outfall E-001 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 WQBELs are required. The RPA compares the effluent data with SSOs and narrative WQOs in the Basin Plan and numeric WQC from the USEPA Gold Book, the NTR, and the CTR.

84. *RPA Methodology*. The method for determining RPA 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 MEC is greater than the lowest applicable WQO/WQC, which has been adjusted for pH, hardness (400 mg/L), and translator data, if appropriate. An MEC that is greater than the (adjusted) WQO/WQC means that there is reasonable potential for that constituent to cause or contribute to an excursion above the WQO/WQC and a WQBEL is required. (Is the MEC>WQO/WQC?)

b. The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO/WQC, and the MEC is less than the adjusted WQO/WQC. If B is greater than the adjusted WQO/WQC, then a WQBEL is required. (Is B>WQO/WQC?)
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/WQC. A limitation is only required under certain circumstances required to protect beneficial uses.

85. *Summary of RPA Data and Results.* The RPA was based on effluent monitoring data of the past 3 years. 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 WQOs/WQC: copper, mercury, nickel, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, 4,4'-DDE, dieldrin, heptachlor epoxide, and dioxin TEQ. Based on the RPA, numeric WQBELs are required to be included in the permit for these constituents.

86. *RPA Determinations*. The MECs, WQOs/WQC, bases for the WQOs/WQC, background concentrations used and reasonable potential conclusions from the RPA are listed in the following table for all constituents analyzed. The RPA results for some of the constituents in the CTR were not able to be determined because of the lack of an objective/criteria or effluent data. (Further details on the RPA can be found in the Fact Sheet.)

Constituent[1]	SSO/ WQC (µg/L)	Basis[2]	MEC Outfall 001 (µg/L)	Maximum Ambient Background Conc. (µg/L)	Reasonable Potential
Arsenic	36	CTR, sw	1.9	4.59	No
Cadmium	7.3	CTR, fw, H=400	< 0.5	0.1707	No
Chromium(VI)	200	CTR, fw, H=400, T=0.08	1.7	14.74	No
Copper*	13.02	SSO T=0.53[3]	8.3	7.19	Yes[5]
Lead	8.52	CTR, sw	1	3.78	No
Mercury*	0.051	CTR (#8)	0.008	0.0682	Yes[4]
Nickel*	27.05	SSO T=0.44[3]	12	13.03	Yes[5]
Selenium*	5.0	NTR	0.998	0.63	No
Silver	2.24	CTR, sw	< 0.2	0.1193	No
Zinc	170	CTR, sw T=0.53	102	14.85	No
Cyanide	1	NTR	< 5	Not Available (NA)	No[6]
Aldrin	0.00014	CTR (#102)	<0.01[7]	NA	No[7]
Dieldrin*	0.00014	CTR (#111)	< 0.01	0.000292	Yes[4]
4,4-DDE*	0.00059	CTR (#109)	< 0.04	0.000678	Yes[4]
Dioxin TEQ*	$1.4x10^{-8}$	CTR (#16)	$< 4.3x10^{-7}$	NA	Yes[8]
Benzo(b)Fluoranthene	0.049	CTR (#62)	< 0.1	0.0572	Yes[4]
Indeno(1,2,3-cd)Pyrene	0.049	CTR (#92)	< 0.06	0.078	Yes[4]
Heptachlor Epoxide	0.00011	CTR (#118)	< 0.001	0.000174	Yes[4]
Tributyltin	0.01	BP, narrative	.004	NA	No
CTR #s 1, 3, 5a, 12, 15, 17-126 except, 62, 92,	Various or NA	CTR	Non-detect, less than WQC, or NA	Less than WQC or NA	No or Undetermined[9]

Constituent[1]	SSO/ WQC (µg/L)	Basis[2]	MEC Outfall 001 (µg/L)	Maximum Ambient Background Conc. (µg/L)	Reasonable Potential
102, 109, 111, and 118					

1. * = Constituents on 2002 303(d) list, applies WHO 1998 to Toxicity Equivalent Factors (TEQ) of 2,3,7,8-TCDD.
2. RPA based on the following: Hardness (H) is 400 in mg/L as $CaCO_3$; BP = Basin Plan; CTR = California Toxics Rule; NTR=National Toxics Rule; SSO=Site-Specific Objective; fw = freshwater; sw = saltwater; T = translator to convert dissolved to total concentrations.
3. SSOs and translators are based on the Basin Plan Amendment, Resolution R2-2002-0061 (dated May 15, 2002), as discussed in Findings 65-67.
4. Mercury, benzo(b)fluoranthene, indeno (1,2,3-cd)pyrene, 4, 4'-DDE, dieldrin, and heptachlor epoxide: RPA = Yes, based on B > WQO/WQC.
5. Reasonable potential for copper and nickel has been determined based on the third trigger, see Finding 89.
6. Order WQ 2001-16 Napa Sanitation District State Board Remand states that no reasonable potential should be concluded if all of the following conditions are satisfied (1) all data are non-detects, (2) background levels are below the objective, or no background data is available, and (3) there is no additional information in the record supporting the need for a limitation.
7. One detected value of 0.032 µg/L was observed for aldrin. However, the validity of this result is uncertain. See Finding 97 for further discussion of the RPA results for aldrin.
8. As discussed in Finding 94, trigger 3 was used to determine RPA, however there was not enough data available to calculate an interim limitation. The Discharger will continue to monitor for this pollutant.
9. Undetermined due to lack of objectives/criteria or lack of effluent data (See Fact Sheet Table for full RPA results).

87. *RPA Results for Impairing Pollutants.* While TMDLs and WLAs are being developed, effluent concentration limitations and a mass limitation for mercury 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. Constituents on the 2002 303(d) list for which the RPA determined a need for effluent limitations are mercury, 4,4'-DDE, dieldrin, and dioxin.

Interim Limitations with Compliance Schedules

88. The Discharger has demonstrated and the Board confirmed infeasibility to meet the WQBELs calculated according to Section 1.4 of the SIP for 4,4'-DDE, dieldrin, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, and heptachlor epoxide. The bases for the compliance schedules are further described in the Fact Sheet.

Specific Pollutants

89. *Copper and Nickel.* The SIP (Section 1.3, Step 7) allows the Board to consider additional available information to determine if a WQBEL is required, notwithstanding Steps 1 through 6, to protect beneficial uses. The Board has considered the following additional information in determining that WQBELs are necessary for copper and nickel:

Concern over copper and nickel in the Lower South San Francisco Bay watershed led to an impairment assessment, which indicated that impairment to beneficial uses of the San Francisco Bay south of the Dumbarton Bridge due to ambient copper and nickel concentrations is unlikely. This conclusion, however, is not without uncertainty with respect to copper's toxicity to phytoplankton,

copper and nickel cycling in the Lower South San Francisco Bay, sediment toxicity and loading estimates. Given the results of the impairment study, the Board recently approved a Basin Plan Amendment (Board Resolution No. R2-2002-0061) adopting SSOs for copper and nickel, specific translators to compute effluent limits during permit reissuance for the three municipal wastewater treatment plants discharging into the Lower South San Francisco Bay, and the WQAS. Given the uncertainties associated with the impairment study and the need to meet anti-degradation policies, the WQAS was developed to ensure that ambient levels of copper and nickel do not increase due to POTW discharges in the San Francisco Bay south of the Dumbarton Bridge.

Effluent limitations are included in this permit due to remaining uncertainties identified in the Copper and Nickel Impairment Assessment. New data will be available as part of the implementation of the Copper and Nickel Action Plans and the impairment assessment for copper and nickel in the San Francisco Bay north of the Dumbarton Bridge. It is the intent of the Board to review the need for copper and nickel limitations for the next permit cycle.

To ensure that ambient levels of copper and nickel do not increase as a result of POTW discharge, the Discharger will continue to maintain Plant performance and ongoing pollution prevention measures for copper and nickel.

Based on the foregoing, as permitted by the SIP, Section 1.3, Step 7, numeric WQBELs are included for copper and nickel, in this permit cycle, to protect beneficial uses.

90. *Chromium and Zinc.* For all metals except copper and nickel, which utilize translators adopted in the May 22, 2002 Basin Plan Amendment, Board staff initially assessed reasonable potential using the conversion factors (Cfs)/translators included in the CTR. These conversion factors/translators are generally considered very conservative because they are intended to be applied to a wide range of water body conditions. After this initial assessment, reasonable potential was suggested for chromium VI and zinc. Board staff, with support from the WMI, then evaluated whether site-specific translators could be developed based on RMP data from the Dumbarton Bridge Station. Board staff have determined that the RMP data are representative of seasonal and spatial variability in water body conditions; were collected and evaluated according to rigorous quality assurance and control requirements; and meet USEPA's recommended guidelines for translator development. Based on these conclusions, Board staff followed the procedures in Section 1.4.1 of the SIP to establish chromium VI and zinc translators. Acute translators are based on the 90th percentile of the dissolved to total concentration ratios, while chronic translators are based on the median ratio. The acute and chronic translators for chromium VI are 0.08 and 0.03, respectively. The acute and chronic translators for zinc are 0.53 and 0.2, respectively. Additional information on translator development is presented in the Fact Sheet for this Order.

91. *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 USEPA's intent to adopt revised WQC guidance subsequent to their health reassessment for dioxin-like compounds. The SIP applies to all toxic pollutants,

[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.

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.

92. Basin Plan contains a narrative WQO for bio-accumulative substances:

> "Many pollutants can accumulate on particulates, in sediments, or bio-accumulate in fish and other aquatic organisms. 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.

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 bio-accumulate in the fatty tissue of fish and other organisms.

93. The USEPA'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 fish tissue.

94. Routine semi-annual dioxin TEQ monitoring required under the previous Order show no detected values in the effluent, but the levels of detection are above the CTR criterion. As discussed in Finding 101, the South Bay dischargers undertook a research-based low-level monitoring program to characterize organics, including dioxins, in their effluent. The results of this study have not been used in developing this Order because of questions about data quality and reliability. The research data, however, suggest elevated levels of dioxin in the effluents. On May 15, 2003, a group of several San Francisco Bay Region dischargers (known as the Bay Area Clean Water Agencies, or BACWA) submitted a collaborative receiving water study, entitled the *San Francisco Bay Ambient Water Monitoring Interim Report*. This report addresses monitoring results from sampling events in 2002 and 2003 for the remaining priority pollutants not monitored by the RMP. While these "interim" data have not been used to evaluate RP using trigger 2, they also show elevated dioxin levels at the Dumbarton Bridge RMP station. Based on these data and the inclusion of dioxins and furans on the 303(d) list for San Francisco Bay, the Board has determined that there is reasonable potential for dioxin using trigger 3 in the SIP.

95. *4,4'-DDE, Benzo(b)fluoranthene, Indeno (1,2,3-cd)pyrene, Dieldrin, and Heptachlor Epoxide* have not been detected in the effluent, although all of the detection limitations are higher than the lowest WQC (Section 1.3 of the SIP). Board staff compared the WQC with RMP ambient background concentration data for each constituent. Since the background concentrations are above the WQC, the RPA indicates that these pollutants have reasonable potential and numeric WQBELs are required.

96. The current 303(d) list includes the South San Francisco Bay as impaired for dieldrin and DDT based on fish tissue data. 4,4'-DDE is chemically linked to the presence of DDT due to fish tissue data. The Board intends to develop TMDLs that will lead towards overall reduction of dieldrin and 4,4'-DDT (and thus 4,4'-DDE). The WQBELs specified in this Order may be changed to reflect the WLAs from these TMDLs.

97. *Aldrin.* In March 2002, the Discharger reported a detected level of aldrin (0.032 µg/L). The Discharger subsequently submitted information documenting the questionable reliability of this contract laboratory-supplied data. Split samples sent to different labs showed varied results for aldrin suggesting inter- and intra-calibration problems in the analysis. In addition, aldrin was detected in the effluent in March 2003, but not in the influent (<0.005 µg/L) to the Plant and there are no known sources of aldrin in the treatment process. Therefore, Board staff did not use the March 2002 aldrin data to determine reasonable potential in this Order. Because of the possible detection of aldrin in the

effluent, the Discharger shall continue to monitor for aldrin. The Discharger shall also conduct and submit to the Board the results of a Lab Reliability Study as required by Provision E.3 to demonstrate that reliable data for aldrin and other pesticide are consistently being generated. If aldrin is reliably detected in the effluent above the WQC, the Discharger will be required to implement pollution prevention measures, as appropriate and, as necessary the Board will reevaluate reasonable potential and the need for WQBELs.

98. *Tributyltin.* The criterion for tributyltin has been determined by translating the narrative WQO in the Basin Plan to a numerical WQO of 0.01µg/L. This is based on the USEPA chronic water quality criterion for the protection of marine water aquatic life. Based on the effluent data, the effluent limitations for tributyltin in the previous permit are excluded in this Order as it does not pose reasonable potential to cause, or contribute to an excursion above any numeric or narrative WQOs. Additional monitoring of the effluent and the receiving water for tributyltin is required under the provisions of the August 6, 2001 letter.

99. *Cyanide.* The CTR specifies that the saltwater criteria Maximum Concentration (CMC) and Criterion Chronic Concentration (CCC) of 1 µg/L. Based on the effluent data, the effluent limitations for cyanide in the previous permit are excluded in this Order as it does not pose reasonable potential to cause, or contribute to an excursion above any numeric or narrative WQOs/WQC. Additional monitoring of the effluent and the receiving water for cyanide is required under the provisions of the August 6, 2001 letter.

100. *Other organics.* The Discharger has performed effluent sampling and analysis for the organic constituents listed in the CTR. This data set was used to perform the RPA. The full RPA is presented as an attachment in the Fact Sheet. In some cases, reasonable potential cannot be determined because detection limits are higher than the lowest WQC, and/or ambient background concentrations are not available. The Discharger will continue to monitor for these constituents in the effluent and the receiving water using analytical methods that provide the best feasible detection limits. When additional data become available, further RPA will be conducted to determine whether to add numeric effluent limitations to the Order or to continue monitoring.

101. Provision E.9 in Order No. 98-052 required the Discharger and the other lower South Bay Dischargers to jointly conduct low-level monitoring with ultra-clean procedures. 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.

102. *Continued Effluent Monitoring.* This Order does not include effluent limitations for constituents that do not show reasonable potential, but continued monitoring for these pollutants is required as described in the August 6, 2001 letter, which is further described in a later finding. 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 reasonable potential to cause or contribute to an excursion above the applicable WQC.

103. *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

Copper

104. *Copper Water Quality Objectives*. The SSOs for dissolved copper in the Basin Plan Amendment adopted on May 15, 2002 are 6.9 µg/L for a 4-day average and 10.8 µg/L for a 1-hour average. Included in the Basin Plan Amendment are translator values to convert the dissolved criteria to total criteria. Using the site-specific translator (0.53), translated criteria of 13.02 µg/L for a 4-day average and 20.38 µg/L for a 1-hour average were used to calculate effluent limitations.

105. *Copper Effluent Limitations*. The calculated final WQBELs for copper are: AMEL of 12 µg/L and MDEL of 18 µg/L. Self-monitoring data from April 1999 through March 2002 indicates that effluent copper concentrations ranged from 1.4 µg/L to 8.3 µg/L, which are below the WQBELs. Therefore, no interim limitations are required.

106. *Anti-backsliding/Anti-degradation.* The previous copper effluent limitation (in Order 98-052) was a daily average limitation of 11.3 µg/L based on Plant performance. This copper effluent limitation was an interim limit. Anti-backsliding provisions, therefore, do not apply. Anti-degradation is addressed through the development and implementation of the SSOs and the WQAS.

Mercury

107. *Mercury Water Quality Criteria.* The CTR specifies a long-term average criterion for protection of human health of 0.051 µg/L.

108. *Mercury TMDL*. The 1998 303(d) list includes the receiving waters 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 San Francisco Bay watershed. The final mercury limitation will be based on the Discharger's WLA in the TMDL, and the permit will be revised, as necessary, to include the final WQBEL as an enforceable limitation.

109. *Mercury Control Strategy.* Board staff is developing a TMDL to control mercury levels in San Francisco Bay. The Board, together with other stakeholders, will cooperatively develop water quality attainment strategies as part of TMDL development. The current strategy is applying interim limitations to maintain point source mercury loadings 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 the interim concentration and mass limitations and conducting studies to characterize mercury fate and transport and, as appropriate, identifying and implementing additional mercury source controls.

110. *Concentration-Based Mercury Effluent Limitations.* Based on background data, there is reasonable potential for exceedances of the WQC for mercury. WQBELs, therefore, are required. Pending completion of a TMDL, this Order establishes an interim effluent limitation of 12 ng/L as a monthly average and 2.1 µg/L as a daily maximum, which are the existing permit limitations. Since mercury is monitored monthly, these limitations are more stringent than the statistically calculated performance-based limitation of 23 ng/L that the Board 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*). This Order will be re-

opened, as appropriate, to incorporate the requirements of the mercury TMDL and WLA upon their completion. The Clean Water Act's antibacksliding rule, Section 402(o), indicates that this Order may be modified to include less stringent requirements following completion of the TMDL and WLA, if the requirements for an exception to the rule are met.

111. *Mass-Based Mercury Effluent Limitation.* In addition to the concentration-based interim mercury effluent limitation, this Order establishes an interim mercury mass-based effluent limitation of 0.231 kg/month. This limitation is calculated based on the concentration-based effluent limitation (12 ng/L) and the dry weather design capacity of the Plant (167 mgd). This interim mass limitation only applies during the dry weather season (May through October). The final mass-based effluent limitation will be based on the WLA derived from the mercury TMDL. The Clean Water Act's antibacksliding rule, Section 402(o), indicates that this Order may be modified to include less stringent requirements following completion of the TMDL and WLA, if the requirements for an exception to the rule are met.

112. *Additional Mercury Studies and Controls*. In other Orders, the Board has established interim mercury mass-based effluent limitations based on actual treatment plant performance to maintain current loadings until a TMDL is established. The Board has determined that the mass-based limitation calculated as described in Finding 111 is appropriate for this Discharger for the following reasons: (1) recent monitoring data show very low levels of mercury in the discharge, well below the applicable water quality criteria, (2) the interim concentration limitations, which are more stringent than the WQBELs calculated according to the SIP methodology, will ensure that mercury levels remain low in the discharge, (3) the Discharger will continue to identify and, to the extent feasible, address mercury sources under its pollution prevention program, and (4) the interim mass limitation based on the design flow will preclude any significant increases in mass loadings from the Plant. Overall, the Discharger already has minimized mercury influent loadings to the Plant and provided for a high level of mercury removal in the treatment process. The Board anticipates that is unlikely that the TMDL will require additional reductions in mercury loadings beyond current treatment levels. Further, to complement the dry weather interim mercury mass limitations, the South Bay dischargers have proposed to complete scientific studies designed to further the Board's understanding of mercury fate and transport in the South Bay and identify specific sources and potential advanced control opportunities. As part of this effort, a provision is included in this Order requiring the Discharger to study total and methyl mercury fate and transport at the Plant. This study, along with the work of the other South Bay dischargers, is expected to yield valuable data to support completion of the TMDL.

113. *Anti-backsliding/Anti-degradation.* The previous mercury effluent concentration limitations (in Order 98-052) were 12 ng/L as a monthly average and 2.1 µg/L as a daily maximum limitation. These concentration limitations are retained in this permit. A mercury effluent mass limitation of 0.231 kg/month is included this Order, which is lower than the previous mercury mass limitation of 2.7 kg/month. Anti-backsliding and anti-degradation provisions, therefore, do not apply.

Nickel

114. *Nickel Water Quality Objectives.* The SSOs for dissolved nickel in the Basin Plan Amendment adopted on May 15, 2002 are 11.9 µg/L for a 4-day average and 62.4 µg/L for a 1-hour average. Included in the Basin Plan Amendment are translator values to convert the dissolved criteria to total criteria. Using the site-specific translator (0.44), translated criteria of 27.05 µg/L for a 4-day average and 141.82 µg/L for a 1-hour average were used to calculate effluent limitations.

115. *Nickel Effluent Limitations.* The calculated final WQBELs for nickel are: AMEL of 25 µg/L and MDEL of 34 µg/L. Self-monitoring data from April 1999 through March 2002 indicate that effluent nickel concentrations ranged from 4 µg/L to 12 µg/L. Therefore, no interim limitations are required.

116. *Anti-backsliding/Anti-degradation.* The previous nickel effluent limitation (in Order 98-052) was a daily average limitation of 18.0 µg/L based on Plant performance. This nickel effluent limitation was an interim limit. Anti-backsliding provisions, therefore, do not apply. Anti-degradation is addressed through the development and implementation of the SSOs and the WQAS.

4,4'-DDE, Dieldrin, and Heptachlor Epoxide

117. *Water Quality Criteria*. In the CTR, the lowest criteria for 4,4'-DDE, dieldrin, and heptachlor epoxide are the human health values of 0.00059 µg/L, 0.00014 µg/L, and 0.00011 µg/L, respectively. These criteria are well below the Minimum Levels (MLs) of 0.05 µg/L, 0.01 µg/L, and 0.01 µg/L, respectively, identified in Appendix 4 of the SIP.

118. *4,4'-DDE, Dieldrin, and Heptachlor Epoxide Effluent Limitations.* Based on the RPA, there is reasonable potential for exceedances of the WQC for 4,4'-DDE, dieldrin, and heptachlor epoxide. The Board intends to establish a TMDL that will lead towards overall reduction of 4,4'-DDE and dieldrin mass loadings into the South San Francisco Bay. If the Discharger is found to be contributing to 4,4'-DDE and dieldrin impairment in South San Francisco Bay, the permit will be re-opened to establish revised effluent limitations based on the Discharger's WLA in the TMDL. The Discharger cannot determine if it is feasible to comply with the final WQBELs at this time as the MLs are higher than the final calculated WQBELs. Therefore, interim limitations are established at the respective MLs. The interim limitations are as follows; 4,4'-DDE is 0.05 µg/L, Dieldrin is 0.01 µg/L, and heptachlor epoxide is 0.01 µg/L. During the most recent sampling in September 2001 and March 2002, 4,4'-DDE, dieldrin, and heptachlor epoxide were not detected in the effluent with detections limits below the SIP MLs.

PAHs

119. *Water Quality Criteria.* The CTR contains numeric WQC for a number of individual PAHs of 0.049 µg/L, including benzo(b)fluoranthene and indeno(1,2,3-cd)pyrene.

120. *PAH Effluent Limitations.* There is reasonable potential for benzo(b)fluoranthene and indeno(1,2,3-cd)pyrene, because the background concentration for each parameter exceeded the WQC. The final effluent limitations for each of these parameters are: AMEL of 0.049 µg/L and MDEL of 0.098 µg/L. The Discharger cannot determine if it is feasible to comply with the final WQBELs at this time as the MLs are higher than the final calculated WQBELs. Therefore interim limitations are established at the respective MLs. The interim limitations are as follows: benzo(b)fluoranthene is 10.0 µg/L and indeno(1,2,3-cd) pyrene is 0.05 µg/L. Self-monitoring data from 1999-2002 indicate that PAHs were not detected in the effluent although detection limits for indeno (1,2,3-cd)pyrene were higher than the ML.

121. *Impairing Status for PAHs.* Interim limitations for PAHs are supported by recent evidence that suggests high molecular PAHs are bioaccumulative with impairing status under further review. The Board staff report entitled *Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maximum Daily Loads*, dated November 14, 2001, states:

> "PAHs are known carcinogens that accumulate in shellfish tissue, but do not accumulate in fish tissue. The weight of evidence from the Regional Monitoring Program (RMP) indicates that although water quality criteria are almost never exceeded at RMP stations (between 0 and 1% of

RMP water samples individual PAHs exceeded the USEPA and CTR criterion) there is evidence that PAHS may be accumulating at higher levels over time (Hoenicke, Hardin, et al., in prep.; Thompson et al., 1999)."

The Board staff Report Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maximum Daily Loads also states:

"PAH water quality objectives from the California Toxics Rule (CTR) are human health-based and are therefore incomplete with respect to potential impacts to aquatic life described above. PAHs are elevated in sediments of about half the toxic hotspot sites identified in the Bay Protection Program exhibiting a correlative (not causative) but potentially synergistic effect on aquatic life along with other chemicals, as evidenced by sediment toxicity tests and degraded benthic communities (BPTCP, 1998). Occasional exceedances of the human health criteria in ambient samples, evidence of increasing shellfish concentrations, and preponderance of PAHs at toxic sites warrant increased assessment activities for PAHs by dischargers and cities around the region."

PAHs are included on the State's 2002 Monitoring List for South San Francisco Bay to provide additional data allow future evaluation of impairment status.

Dioxin TEQ

122. *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. Findings above discuss the use of TEQs 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.

123. *Dioxin Monitoring.* The final limitations for dioxin TEQs 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 the CEP. The special dioxin project will consist of an impairment assessment and a conceptual model for dioxin loading into the Bay to be completed by mid-2004. The additional dioxin monitoring required by this permit, as specified in the Self-Monitoring Program, includes using increased sample volumes to attempt to achieve lower detection limit to the greatest extent practicable.

Whole Effluent Acute Toxicity

124. This Order includes effluent limitations for whole effluent acute toxicity. Compliance evaluation is based on 96-hour flow through or static bioassays. USEPA promulgated updated test methods for acute and chronic toxicity bioassays on December 27, 2002 in 40 CFR Part 136. Dischargers have identified several practical and technical issues that need to be resolved before implementing the new procedures, 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 limitations. 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 granting the Discharger up to 1 year to implement the new test method. In the interim, the Discharger may continue using the current test protocols. The previous Order included acute toxicity testing requirements and limitations. The limitations remain unchanged in this Order. During 1999-

2001, the eleven sample median survival was 100 percent. The 90th percentile survival was between 96-100 percent.

Whole Effluent Chronic Toxicity

125. *Discharge Monitoring.* The Discharger participated in the second round of ETCP screening and variability testing in 1991-1993. During the course of this ETCP monitoring, the Discharger did not detect a pattern of acute and/or chronic toxicity. In 1997 and 2002, the Discharger repeated these acute and chronic screening and variability experiments, and again did not detect any patterns in toxicity.

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

127. *Permit Reopener.* The Board will consider amending this permit to include numeric toxicity limitations 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.

Bacteria Limitations

128. Pursuant to the previous Order, the Discharger conducted a study of alternate limitations of bacteriological quality as a replacement for the total coliform limitations. Based on the results of that study submitted on March 18, 2003, the Discharger has established to the satisfaction of the Board that the use of alternative limitations will not result in unacceptable adverse impacts on the beneficial uses of the receiving water. Thus, this permit includes effluent limitations based on enterococcus instead of total coliform.

Bioassessment Criteria Studies

129. Order No. 98-052, Provision E.4, required the Discharger to conduct a study to develop additional tools and measurements for characterizing water and sediment quality in Artesian Slough and areas of the South Bay adjacent to the discharge location. The purpose of these studies was to develop techniques, with the assistance of academic and regulatory groups, which could lead to site-specific environmental indicators for the South San Francisco Bay. The Discharger initiated several projects to develop bioassessment techniques between 1998 and 2003. The Discharger sponsored an indicator workshop in September 1999 to evaluate the feasibility of performing bioassessments in the South Bay. Work products from this workshop included a metadata summary, annotated bibliography, South Bay species lists, and a prospective Study Plan. The Discharger also commissioned a study that presented an assessment approach to developing environmental indicators of ecological condition for the South Bay. The report, entitled *Evaluating the Ecological Condition of the South Bay: A Potential Assessment Approach,* was submitted to the Board in August 2002. The Discharger also contracted with California State University at San Francisco, Romberg Tiburon Center (RTC), to perform a multi-year study to evaluate plankton community composition and abundance and possible covariance with water quality conditions, which could lead to site-specific environmental indicators for the South Bay. This study produced seven quarterly cruise reports and a draft report entitled *Plankton Communities in South San Francisco Bay: Historical Data Analysis and Pilot Monitoring*, which was submitted to a Technical Advisory Group and Board staff in May 2003. This Order

recognizes that the Discharger's bioassessment activities have satisfied the requirements of Order No. 98-052, Provision E.4.

Pretreatment Program

130. The Discharger has implemented and is maintaining a USEPA approved pretreatment program in accordance with Federal Pretreatment Regulations (40 CFR 403) and the requirements specified in Attachment K "Pretreatment Requirements". Order 01-059 amended the Discharger's permit (as well as 14 other dischargers' permits in the Region) to reflect the Board's most recent pretreatment program requirements. The requirements of this Order supersede Order 01-059, as allowed by Provision 10 of Order 01-059.

Pollutant Prevention and Pollutant Minimization

131. The Discharger has established a Pollution Prevention Program under the requirements specified by the Board.
    a. The Discharger's Pretreatment and Pollution Prevention Programs have resulted in a significant reduction of toxic pollutants discharged to the treatment Plant and to the receiving waters.
    b. 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.
    c. There may be some redundancy required between the Pollution Prevention Program and the Pollutant Minimization Program.
    d. 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.
    e. For constituents with compliance schedules under this permit (benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, 4,4'-DDE, dieldrin, and heptachlor epoxide), the applicable source control/pollutant minimization requirements of Section 2.1 of the SIP will also apply.

132. 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

133. *Insufficient Effluent and Ambient Background Data*. The Board review of the effluent and ambient background monitoring data found that there were insufficient data to determine reasonable potential and calculate numeric WQBELs, where appropriate, for some of the pollutants listed in the SIP.

134. *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 limitation 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.

135. 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".

136. Pursuant to the August 6, 2001 Letter from Board Staff, the Discharger has submitted workplans for characterizing the levels of selected constituents in the effluent and ambient receiving water. The Workplans have been approved November 13, 2001, and monitoring is underway.

137. *Monitoring Requirements (Self-Monitoring Program).* The SMP includes monitoring at the outfall for conventional, non-conventional, and toxic pollutants, and acute and chronic toxicity that is generally the same as in the previous Order. To ensure Plant reliability, the Discharger is required to monitor its effluent on a daily basis. This will be accomplished through daily turbidity monitoring. Turbidity is a good performance indicator for a tertiary treatment plant. Turbidity is typically monitored with an online probe, so the incremental costs if any, justify the incremental benefit. Because of this requirement, the Board has retained the weekly monitoring frequencies for CBOD and TSS. Settleable matter monitoring is added to the SMP because there is an effluent limitation. The Discharger has consistently been well below the effluent limitations for these parameters. The monitoring frequency for bacteria has been increased to five times per week. This will provide for assessment of compliance with the new bacteria limitations, while the Discharger reduces chlorine usage at the Plant. The oil and grease monitoring frequency has also been reduced from monthly to quarterly since it has been consistently below the effluent limitations. This Order requires monthly monitoring for copper, mercury, and nickel to demonstrate compliance with effluent limitations. Because they were not detected in the effluent during 1999-2002, this Order requires twice yearly monitoring for benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, 4,4'-DDE, dieldrin, and heptachlor epoxide to demonstrate compliance with the interim limitations. Until analytical methods improve and MLs are lowered, more frequent monitoring will not generate more useful data. Twice yearly monitoring for aldrin is also required to verify no reasonable potential. For dioxins and furans, this Order also requires twice yearly monitoring using methods with low detection limits.

138. *Optional Mass Offset.* This Order contains requirements to prevent further degradation of the impaired waterbody. Such requirements include the adoption of interim mass limitations 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.

Clean Bay Strategy

139. The Discharger submitted "The Pollution Prevention Strategy for a Clean Bay, Including Proposed Local Limits for Copper, Nickel, and Cyanide" to the Executive Officer of the Board on October 26, 1994 pursuant to requirements in section II.C.1 of the Discharger's 1993 CDO (Order 93-118). The Clean Bay Strategy contains watershed programs that target pollutant reductions from nonpoint, residential and water supply, as well as revised local limitations for industrial and commercial sources. The strategy is based on five principles: (1) a holistic approach toward environmental restoration; (2) cost-effective environmental protection; (3) regulatory certainty for the tributary cities and industrial Dischargers; (4) sound science and data collection and (5) environmental equity. The Discharger has implemented the Clean Bay Strategy and provided semi-annual updates to the Executive Officer, since its acceptance by the Board.

Other Discharge Characteristics and Permit Conditions

140. *NPDES Permit.* This Order serves as an NPDES Permit, adoption of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code [California Environmental Quality Act (CEQA)] pursuant to Section 13389 of the California Water Code.

141. *Notification.* The Discharger and interested agencies and persons have been notified of the Board's intent to reissue requirements for the existing discharge and have been provided an opportunity to submit their written views and recommendations. Board staff prepared a Fact Sheet and Response to Comments, which are hereby incorporated by reference as part of this Order.

142. *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, regulations, and plans and policies 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 process wastewater at any point where it does not receive an initial dilution of at least 10:1 is prohibited.

3. Discharge of waste to dead-end sloughs or confined waterways is prohibited.

4. Discharge of waste to waters of San Francisco Bay south of the Dumbarton Bridge or tributaries is prohibited.

5. The bypass or overflow of untreated or partially treated process wastewater to waters of the State, either at the Plant or from the collection system is prohibited. Bypass is only allowed under the conditions stated in 40 CFR Part 122.41(m)(4) and in Standard Provisions A.13. Bypassing of individual treatment processes during periods of high wet weather flow in the form of blending, 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.

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

7. The Average dry weather influent flow (ADWIF) shall not exceed 167 MGD, determined during any five-weekday period during the months of June through October. The average dry weather effluent flow (ADWEF) is the lowest average effluent flow for any three consecutive months between the months of May and October.

8. By complying with the metals limitations in B.6 and Provisions E.2 and E.11 through E.14 the Discharger is granted an exception to discharge prohibitions 2 through 4.

B. EFFLUENT LIMITATIONS

Conventional Pollutants

1. The discharge at Outfall E-001 containing constituents in excess of any of the following limitations, is prohibited:

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

A. Requirement defined as below the limit of detection in standard test methods defined in the latest US EPA 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 sodium bisulfite dosage (including a safety factor) and concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Board staff will conclude that these false positive chlorine residual exceedances are not violations of this permit limitation.

2. The discharge shall not have pH of less than 6.5 nor greater than 8.5. If the Discharger monitors pH continuously, the Discharger shall be in compliance with the pH limitation 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. The arithmetic mean of the carbonaceous biochemical oxygen demand (CBOD) and total suspended solids (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, i.e., at least 85 percent removal.

Toxic Pollutants

4. **Whole Effluent Acute Toxicity**
   Representative samples of the discharge at Outfall E-001 shall meet the following limitations for acute toxicity. Bioassays shall be conducted in compliance with Provision E.8.

   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 limitations are further defined as follows:
      (1) 11-sample median limitation:
      Any bioassay test showing survival of 90 percent or greater is not a violation of this limitation. A bioassay test showing survival of less than 90 percent represents a violation of this effluent limitation, if five or more of the past ten or fewer bioassay tests also show less than 90 percent survival.
      (2) 90th percentile limitation:

Any bioassay test showing survival of 70 percent or greater is not a violation of this limitation. A bioassay test showing survival of less than 70 percent represents a violation of this effluent limitation, if one or more of the past ten or fewer bioassay tests also show less than 70 percent survival.

c. Bioassays shall be performed using the most up-to-date USEPA protocol and the most sensitive species as specified in writing by the Executive Officer based on the most recent screening test results. Bioassays shall be conducted in compliance with "Methods for Measuring The Acute Toxicity of Effluents and Receiving Water To Freshwater and Marine Organisms", currently 5th Edition, with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP) upon the Discharger's request with justification.

5. **Chronic Toxicity**

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

(1) Routine monitoring;

(2) Accelerated monitoring after exceeding a three sample median value of 1 chronic toxicity[2] (TUc)[2] or a single sample maximum of 2 TUc or greater. Accelerated monitoring shall consist of monitoring at frequency intervals of one half the interval given for routine monitoring in the SMP of this Order;

(3) Return to routine monitoring if accelerated monitoring does not exceed either "trigger" in "2", above;

(4) Initiate approved toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) work plan if accelerated monitoring confirms consistent toxicity above either "trigger" in "2", above;

(5) Return to routine monitoring after appropriate elements of TRE work plan are implemented and either the toxicity drops below "trigger" level in "2", above or, based on the results of the TRE, the Executive Officer authorizes a return to routine monitoring.

b. Test Species and Methods: The Discharger shall conduct routine monitoring with the most up-to-date USEPA approved protocol and most sensitive species determined during the most recent chronic toxicity screening performed by the Discharger and approved by the Executive Officer. Bioassays shall be conducted in compliance with the "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms," currently 4th edition (EPA 821-R-02-01), with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP) upon the Discharger's request with justification.

6. **Toxic Substances**: The discharge at Outfall E-001 shall not exceed the following limitations:

[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 numerical effluent limitations for chronic toxicity.

Constituent	Daily Max	Monthly Average	Interim Daily Maximum	Interim Monthly Average	Units	Notes
Copper	18	12			µg/L	(1)(4)
Mercury			2.1	0.012	µg/L	(1)(2)(3)(4)
Nickel	34	25			µg/L	(1)(4)
4,4'-DDE			0.05		µg/L	(1)(3)(4)
Dieldrin			0.01		µg/L	(1)(3)(4)
Heptachlor Epoxide			0.01		µg/L	(1)(3)(4)
Benzo(b)Fluoranthene			10.0		µg/L	(1)(3)(4)
Indeno(1,2,3-cd)Pyrene			0.05		µg/L	(1)(3)(4)

Footnotes:

(1) (a) All analyses shall be performed using current USEPA methods, or equivalent methods approved in writing by the Executive Officer.

(b) Limitations apply to the average concentration of all samples collected during the averaging period (Daily = 24-hour period; Monthly = calendar month).

(2) This Order will be re-opened, as appropriate to incorporate the requirements of the mercury TMDL and WLA upon their completion. The Clean Water Act's antibacksliding rule, Section 402(o), indicates that this Order may be modified to include less stringent requirements following completion of the TMDLs and WLAs, if the requirements for an exception to the rule are met. Effluent mercury monitoring shall be performed by using ultraclean sampling and analysis techniques to the maximum extent practicable, with a minimum level of 0.002 µg/L, or lower.

(3) The Discharger shall comply with these interim limitations until October 31, 2008, or until the Board amends the limitations based on additional data, site-specific objectives, or the waste load allocation in respective TMDLs. However, during the next permit reissuance, the Board may re-evaluate the interim limitations.

(4) A daily maximum or monthly average value for a given constituent shall be considered non-compliant with the effluent limitations only if it exceeds the effluent limitation and the reported ML for that constituent. The table below indicates the highest minimum level that the Discharger's laboratory must achieve for calibration purposes.

Constituent	Minimum Level	Units
Copper	0.5	µg/L
Mercury	0.002	µg/L
Nickel	5	µg/L
4,4'-DDE	0.05	µg/L
Dieldrin	0.01	µg/L
Heptachlor Epoxide	0.01	µg/L
Benzo(b)Fluoranthene	10	µg/L

Constituent	Minimum Level	Units
Indeno(1,2,3-cd)Pyrene	0.05	µg/L

7. Dry Weather Interim Mass Emission Limitation for Mercury

Dry weather months (May through October), the total mercury mass load shall not exceed the mercury mass emission limitation of 0.231 kilogram per month (kg/month), as computed below:

$$Monthly\ Total\ Mass\ Load, kg/month = Q * C * 0.1151$$

where

Q = monthly average WWTP dry weather effluent flow (May-Oct), MGD, as reported

C = effluent concentration, µg/L, corresponding to each month's flow.

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

0.1151 = unit conversion factor to obtain kg/month

This Order will be re-opened, as appropriate to incorporate the requirements of the mercury TMDL and WLA upon their completion. The Clean Water Act's antibacksliding rule, Section 402(o), indicates that this Order may be modified to include less stringent requirements following completion of the TMDLs and WLAs, if the requirements for an exception to the rule are met.

8. Bacteria Limitations

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

a. 30-day geometric mean of less than 35 enterococcus colonies per 100mL; and

b. No single effluent sample exceeding 276 colonies per 100mL, as verified by a follow-up sample taken within 24 hours.

C. RECEIVING WATER LIMITATIONS

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

   a. Dissolved Oxygen: 5.0 mg/L, minimum

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

   b. Dissolved Sulfide: 0.1 mg/L, maximum

   c. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH by more than 0.5 pH units.

   d. Un-ionized Ammonia: 0.025 mg/L as N, annual median; and
      0.4 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 discharges 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 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 more stringent standards.

D. BIOSOLIDS/SLUDGE REQUIREMENTS

1. For biosolids management, the Discharger shall comply with all requirements of 40 CFR Part 503.

2. The Discharger of biosolids shall not allow waste material to be deposited in the waters of the State.

3. The Discharger shall submit an annual report to the USEPA and the Board containing reuse information and other information requirements as specified by 40 CFR Part 503.

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. 98-052, Order No. 00-108, Order No. 00-109, and Order No. 01-059. Order Nos. 98-052, 00-108, and 00-109 are hereby rescinded upon the effective date of this permit.

2. **Avian Botulism Control Program**
The Discharger shall continue to monitor Artesian Slough, Coyote Creek, and Alviso Slough for the presence of avian botulism, and control outbreaks through the prompt collection of sick and dead vertebrates. The Discharger shall continue to submit annual reports to the Board, the CDFG, and the USFWS. Annual reports shall be due on February 1 each year.

3. **Lab Reliability Evaluation for Aldrin**

Task	Deadline
a. The Discharger shall conduct a lab reliability study and submit a report, acceptable to the Executive Officer. This evaluation shall provide documentation to verify the data accuracy and reliability of laboratory data (inter and intra-lab calibration) for aldrin. The evaluation shall identify the laboratory (or laboratories) that will perform consistent and reliable analysis and the rationale for their selection, their QA/QC protocols, and the steps to be taken (e.g., resampling and retesting) if invalid data are generated.	January 15, 2004
b. The Discharger shall submit a report acceptable to the Executive Officer that identifies sources of aldrin influent to the Plant and that proposes a work plan for how those sources will be reduced and controlled.	Within 180 days of reliable detection of aldrin above current WQC

4. **Mercury Special Study-POTW Fate and Transport**

Task	Deadline
a. Workplan. The Discharger shall submit a workplan, acceptable to the Executive Officer, that includes the following: the methods to be used to collect samples for mercury analysis at various locations throughout the plant, methods of analysis of total and methyl mercury, and a schedule to implement the minimum 2 year study.	Within 120 days after permit adoption
b. Final Report. The Discharger shall submit a final report, acceptable to the Executive Officer, that includes the following: analysis of data to determine influent mercury fate and transport; documentation of temporal trends and correlation of mercury transport to other chemical and physical parameters, and evaluation of feasibility of implementation of a methyl mercury reduction program within the Plant, as appropriate.	December 15, 2007
c. Progress Reports	Annually on February 28

5. **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 K**, "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 USEPA, the State Board and the Board, as described in **Attachment K** "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 Board, the SWRCB, or USEPA may take enforcement actions against the Discharger as authorized by the Clean Water Act.

6. **Effluent Characterization for Selected Constituents**
The Discharger shall monitor and evaluate the discharge from Outfall E-001 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. A final report that presents all the data shall be submitted to the Board no later than 180 days prior to the permit expiration date.

7. **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 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. The Discharger shall also identify sources or potential sources not directly within the ability or authority of the Discharger to control such as pollutants in the potable water supply and air deposition.
   (iv) *Identification of tasks to reduce the sources of the pollutants of concern.* This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. 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 concern into the Plant. The Discharger may provide a forum for employees to provide input to the Program. The overall goal of this task is to 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 Plant.
   (vi) *Continuation of a public outreach program.* The Discharger shall continue its public outreach program to communicate pollution prevention to its service area. Outreach may include participation in existing community events such as county fairs, initiating new community events such as displays and contests during Pollution Prevention Week, conducting school outreach program, conducting plant tours, and providing public

information in newspaper articles or advertisements, radio, television stories or spots, newsletters, utility bill inserts, and web site. Information shall be specific to the target audiences. The Discharger shall coordinate with other agencies as appropriate.

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

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

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

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

(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, or

(iii) For Dioxin TEQ, if the effluent concentrations exceed the WQO.

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 (c)(i),(c)(ii), or c(iii) is triggered or (2) if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level.

d. If triggered by the reasons in Provision E.7.c. and notified by the Executive Officer, the Discharger's Pollution Prevention Program shall, within 6 months, also include:

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

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

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

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

(v) An annual status report that shall be sent to the RWQCB including:

1. All Pollution Prevention monitoring results for the previous year;
2. A list of potential sources of the reportable priority pollutant(s);
3. A summary of all actions undertaken pursuant to the control strategy; and
4. A description of actions to be taken in the following year.

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

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

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

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

8. **Acute Toxicity**

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

a. From permit adoption up to October 31, 2004:

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

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

(3) 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. Upon the Discharger's request with justification, exceptions may be granted by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP), if appropriate.

b. No later than November 1, 2004:

(1) Compliance with the acute toxicity effluent limitations of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour flow through bioassays, or static renewal bioassays. If the Discharger will use static renewal tests, they must submit a technical report by April 30, 2004, identifying the reasons why flow-through bioassay is not feasible using the approved USEPA protocol in 40 CFR 136 (currently 5th edition).

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

(3) All bioassays shall be performed according to the most up-to-date protocols in 40 CFR 136, currently in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms," 5th Edition. Upon the Discharger's request with justification, exceptions may be granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP), if appropriate.

9. **Copper – Nickel Water Quality Attainment Strategy: Action Plans**
Baseline Actions to control copper and nickel (Appendix E), as described in the Copper and Nickel Action Plans herein incorporated in their entirety in this Order, shall be implemented immediately. The Discharger shall submit annual reports to the Bay Monitoring and Modeling Subgroup (or the equivalent group) of the Santa Clara Basin Watershed Management Initiative and the Executive Officer, either included in, or at the same time as, the annual pretreatment report, on the status of these actions. The reports shall be acceptable to the Executive Officer, who will consider comments from the interested parties.

Ten stations described in the Copper Action Plan shall be monitored monthly during the dry season (June through November) for dissolved copper and nickel. Monthly data and results of this monitoring shall be reported in the annual (February) Pollution Prevention and Minimization Program Report, to the Board and to the Bay Monitoring and Modeling Subgroup of the Santa Clara Basin Watershed Management Initiative. The Discharger may reference the monthly or annual Self-Monitoring Report of another Lower South Bay Discharger to comply with this Provision.

Phase I Triggers:

If the results of the required monitoring for Stations SB03, SB04, SB05, SB07, SB08, and SB09 show that mean dissolved copper concentrations have risen to 4.0 µg/l, the Dischargers shall implement Phase 1 actions as described in the Copper Action Plan and this Order (Findings 18-20 and Attachment E). Within 90 days after the determination of Phase I trigger exceedances, the Discharger shall submit, for Executive Officer concurrence, its proposed Phase I plans with implementation schedules to implement additional measures to limit its relative cause or contribution to the exceedances. This submittal shall, at a minimum, include evaluation of the Phase I actions and development of a Phase II plan.

If the results of the required monitoring for Stations SB03, SB06, SB07, SB08, SB09, and SB10 show that mean dissolved nickel concentrations have risen to 6.0 µg/l, the Dischargers shall implement Phase 1 actions described in the Nickel Action Plan and this Order (Findings 21-23 and Attachment E). Within 90 days after the determination of Phase I trigger exceedances, the Discharger shall submit, for Executive Officer concurrence, its proposed Phase I plans with implementation schedules to implement additional measures to limit its relative cause or contribution to the exceedances. This submittal shall, at a minimum, include evaluation of the Phase I actions and development of a Phase II plan.

Phase II Triggers:

If the results of the monitoring required for Stations SB03, SB04, SB05, SB07, SB08, and SB09 show that mean dissolved copper concentrations have risen to 4.4 µg/L, the Dischargers shall implement Phase II actions described in the Copper Action Plan and this Order (Findings 18-20 and Attachment E). Within 90 days after the determination of Phase II trigger exceedances, the Discharger shall submit, for Executive Officer concurrence, its proposed Phase II plans with

implementation schedules to implement additional measures to limit its relative cause or contribution to the exceedance.

If the results of the monitoring required for Stations SB03, SB06, SB07, SB08, SB09, and SB10 show that mean dissolved nickel concentrations have risen to 8.0 µg/L, the Discharger shall implement Phase II actions described in the Nickel Action Plan and this Order (Findings 21-23 and Attachment). Within 90 days after the determination of Phase II trigger exceedances, the Discharger shall submit, for Executive Officer concurrence, its proposed Phase II plans with implementation schedules to implement additional measures to limit its relative cause or contribution to the exceedance.

If the required submittals are not received within 90 days of the determination of a Phase I or Phase II trigger exceedance or required actions are not being implemented in accordance with the Discharger's implementation schedule following the Executive Officer's concurrence, the Board may consider enforcement action to enforce the terms of the Discharger's permit.

Because the WQAS is an adaptive management plan, modifications to the WQAS may be considered provided that the Discharger continues reasonable treatment, source control, and pollution prevention measures to control discharges. Therefore, to respond to changed conditions and to incorporate more effective approaches to pollutant control, requests for changes may be initiated by the Executive Officer or by the Discharger. Minor changes may be made with the Executive Officer's approval and will be brought to the Board as information items and the Discharger and interested parties will be notified accordingly. If proposed changes imply a major revision of the WQAS, the Executive Officer shall bring such changes before the Board as permit amendments and notify the Discharger and interested parties accordingly.

10. **Santa Clara Basin Watershed Management Initiative**
The Discharger shall continue to participate in the Santa Clara Basin Watershed Management Initiative (WMI).

11. **South Bay Action Plan (SBAP)**
The Discharger shall update and implement a revised SBAP in order to comply with Resolution 91-152, which accepted the Discharger's original Action Plan in lieu of a 120 MGD ADWEF limitation. The updated SBAP shall contain: a description of current and planned water recycling and conservation programs, and a Contingency Plan in the event that ADWEF increase above 120 MGD. The Discharger shall update its SBAP annually (February 28) to contain the following:

a. **Water Conservation and Water Recycling Programs**
The Discharger shall continue to implement its water conservation, industrial recycling and reuse, and recycling programs. Additionally, Discharger agrees to maintain flows below 120 mgd ADWEF or to those levels that will not affect rare and endangered species habitat. Every February 28, the Discharger will submit its annual updated SBAP reporting on the previous year's accomplishments and activities planned for the coming year.

b. **South Bay Action Plan- Contingency Plan**
Within the South Bay Action Plan, the Discharger will include a contingency plan with measures to be implemented if ADWEF exceeds 120 MGD during the life of this permit. The contingency plan will include a description of a planning effort to identify water recycling and conservation efforts Discharger plans to implement over and above current levels of effort, in order to reduce flows below 120 MGD, or to levels that will not adversely impact endangered

species habitat. Discharge impacts to habitat will be evaluated using 1998 vegetative surveys as baseline, to determine impacts in excess of mitigation already provided by the Discharger. Upon discharge of an ADWEF of 120 MGD, Discharger will implement immediately its Contingency Plan. Additionally, the Board will allow the Discharger six months to propose a solution to reduce flows, or document that effluent flow increases are beyond Discharger's control. This report may contain discussion of ecological factors believed to affect marsh conversion, not related to Discharger's effluent.

12. Wetlands Mitigation

a. **Alternate Mitigation Project-** *Planning:* The Discharger shall either continue meeting with USFWS, CDFG, and Board staff to finalize details for an alternate wetlands mitigation agreement that will include a commitment by the Discharger to fund both the acquisition and/or restoration of a salt marsh mitigation site deemed by the Board and USFWS, to be equivalent to the Moseley Tract, or restore a site approved by the Board and USFWS (may include Moseley) by August 2004. If the alternate salt marsh mitigation agreement option is chosen, the Discharger shall submit the details of this alternate wetland mitigation agreement, in a formal agreement, to the Executive Officer within 6 months of the adoption of this Order. In the event of delays caused by the agencies (i.e., the Board, USFWS, or CDFG), the Executive Officer may extend the time schedule.

b. **Alternate Wetlands Mitigation Agreement-** *Funding for Acquisition and Restoration and Reporting***:** If the Discharger elects to restore Moseley or another site approved by the agencies, the Discharger shall report annually on the status of such restoration until the site has been fully restored. Upon successful execution of an alternate funding agreement including signature by all parties, and transfer of funds, the discharger will have fulfilled its historic mitigation requirement to restore 380 acres of salt marsh habitat under WQ Order 90-5, and Resolution 96-137 and will have no further obligation to restore the Moseley Tract.

c. **Permit Reopener Specific to Alternate Mitigation Agreement:** In the event that the Discharger cannot complete restoration of the Moseley Tract or other site acceptable to the Board and USFWS, or is unsuccessful in negotiating an alternative funding agreement as specified in this Order and Resolution R2-2003-0077, prior to August 31, 2004, it is the intent of the Board to hold a public hearing to consider alternate mitigation scenarios to satisfy historic mitigation requirements.

13. **Salt Marsh Vegetative Assessment**

a. The Discharger shall continue to document changes in marsh habitat to determine the status of endangered species habitat, twice during the life of this permit (in years 2005 and 2007) in areas that are or reasonably could be influenced by the San Jose/Santa Clara discharge. These areas include, but are not limited to, Artesian Slough, Coyote Creek downstream to Calaveras Point and upstream to Fremont airport, Coyote Slough, and mud Slough downstream from the former Union Sanitary District wastewater facility. The Discharger will also monitor vegetation types at an agreed-upon reference site unaffected by the discharge. The Discharger shall submit its vegetative assessment reports to the Board, the CDFG, and USFWS-Sacramento Office**.**

b. *Habitat Evaluation Procedure*
The Discharger shall also continue to study habitat utilization by endangered species in these areas in accordance with the Habitat Evaluation Procedure (HEP) of the Action Plan requirements. The status of marsh conversion within the study area, if any, will be assessed in

consultation with USFWS, by comparing future marsh habitat to the 1998 distribution of vegetation within the 1989 baseline footprints. If it is determined that additional analysis is needed based on this comparison and after consideration of other factors that may influence the status of salt marsh habitat (finding 52), a HEP analysis will be completed, in consultation with USFWS and CDFG staff, using the same assumptions as the 1990 modified HEP performed by the Board. The Discharger shall submit the HEP analysis, if necessary, to the Board, CDFG, and USFWS – Sacramento Office as part of the application for its next permit renewal.

14. **California Clapper Rail and Salt Marsh Harvest Mouse Surveys**
In order to provide information on the presence or absence of California clapper rail and salt marsh harvest mouse, the Discharger will conduct a synoptic survey for these species in the year 2006. The Discharger shall submit to the Board, the CDFG, and the USFWS, Sacramento Office, its proposed survey work plan 6 months prior to beginning the survey. The final report shall be included with the annual South Bay Action Plan to be submitted by February 28th, 2007.

15. **Regional Monitoring Program**
The Discharger has committed to continue participating in the Regional Monitoring Program (RMP) for trace substances in San Francisco Bay in lieu of more extensive effluent and receiving water self-monitoring requirements that may be imposed.

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 & Maintenance Manual and Reliability Report Updates**
    a. The Discharger shall maintain an Operations and Maintenance Manual (O & M Manual) 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 90 days of completion of such changes.

    c. Annually, the Discharger shall submit to the Board a report describing the current status of its O & M Manual review and updating. This report shall include an estimated time schedule for completion of any revisions determined necessary, a description of any completed revisions, or a statement that no revisions are needed. This report shall be submitted in accordance with Provision E.19 below.

    d. As part of reviewing requests for exceptions to the Basin Plan discharge prohibitions the Board is required to evaluate the reliability of the Discharger's system in preventing inadequately treated wastewater from being discharged to the receiving waters. The Discharger shall submit to the Board an updated version of the Reliability Report. Reviews shall be conducted annually, and updates shall be completed as necessary.

18. **Contingency Plan Update**
    a. The Discharger shall maintain a Contingency Plan as required by Board Resolution 74-10 (attached), and as prudent in accordance with current industrial 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. Each year the Discharger shall submit to the Board a report describing the current status of its Contingency Plan review and update. This report shall include a description or copy of any completed revisions, or a statement that no changes are needed. This report shall be submitted in accordance with Provision E.19 below.

19. **Annual Status Reports**
    The reports identified in Provisions E.17 and E.18 above shall be submitted to the Board annually, by February 28th 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 development of a TMDL or SSO for mercury, selenium, 4,4'-DDE, dieldrin, dioxin, and PCBs. By January 31 of each year, the Discharger shall submit an update to the Board to document efforts made in participation in the development of TMDLs and/or site-specific objectives. Active participation by the Discharger in the Clean Estuary Partnership (CEP) shall fulfill the requirements of this provision. The Discharger, along with other CEP partners, may elect to annually report TMDL progress collectively through the partnership. 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 Self-Monitoring Program (SMP) for this Order as adopted by the Board. The SMP may be amended by the Executive Officer pursuant to USEPA regulations 40 CFR 122.62, 122.63, and 124.5.

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

24. **Permit Reopener**

The Board may modify or 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 or 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 antibacksliding analysis.

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 on November 1, 2003, provided the USEPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

26. **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 September 17, 2003.

_____
LORETTA K. BARSAMIAN
Executive Officer

Attachments:
A. Discharge Facility Location Map
B. Discharge Facility Treatment Process Diagram

C. South Bay RMP and Monitoring Stations Diagram
D. Self-Monitoring Program, Part B
E. Nickel and Copper: Tables of Baseline Control Actions, Phase I, and Phase II
F. Fact Sheet
G. Self-Monitoring Program, Part A (available on-line)

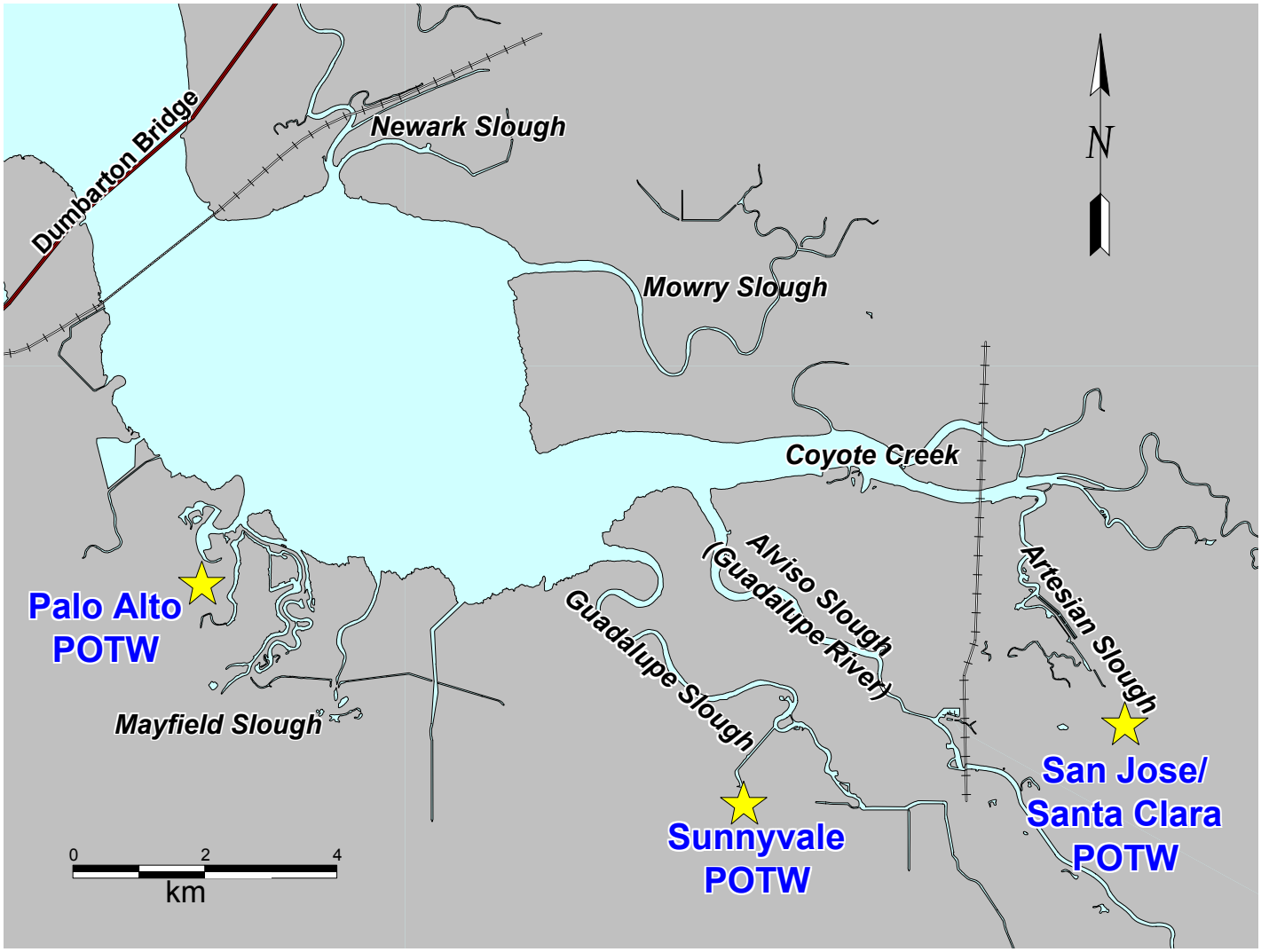
Standard Provisions and Reporting Requirements, August 1993
(http://www.swrcb.ca.gov/~rwqcb2/Agenda/04-17-02/res74-10standprov.doc)

I. Board Resolution No. 74-10 (http://www.swrcb.ca.gov/~rwqcb2/Agenda/04-17-02/res74-10.doc)

J. Mercury Staff Report [http://www.swrcb.ca.gov/rwqcb2/sfbaymercurytmdl.htm]
click on the link for "Project Report."

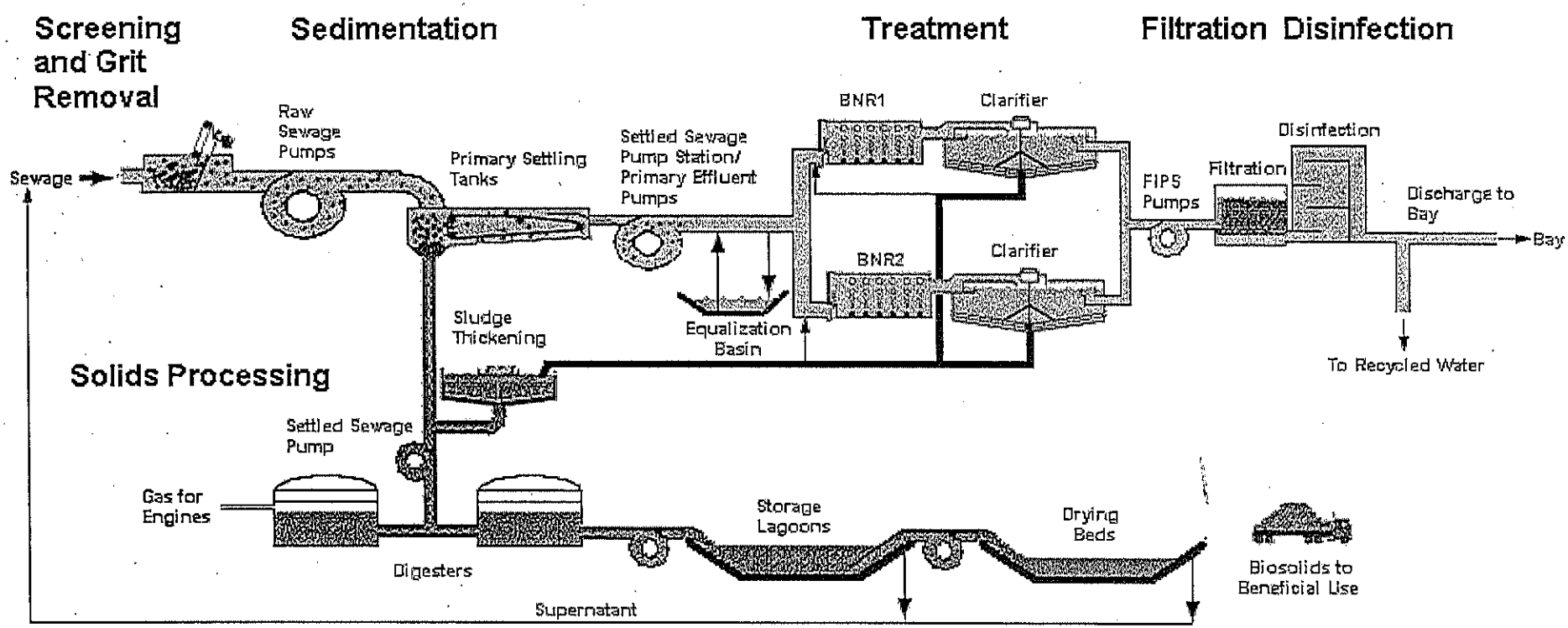
K. Pretreatment Requirements
L. Response to Comments

Attachment A - Discharge Facility Location Map



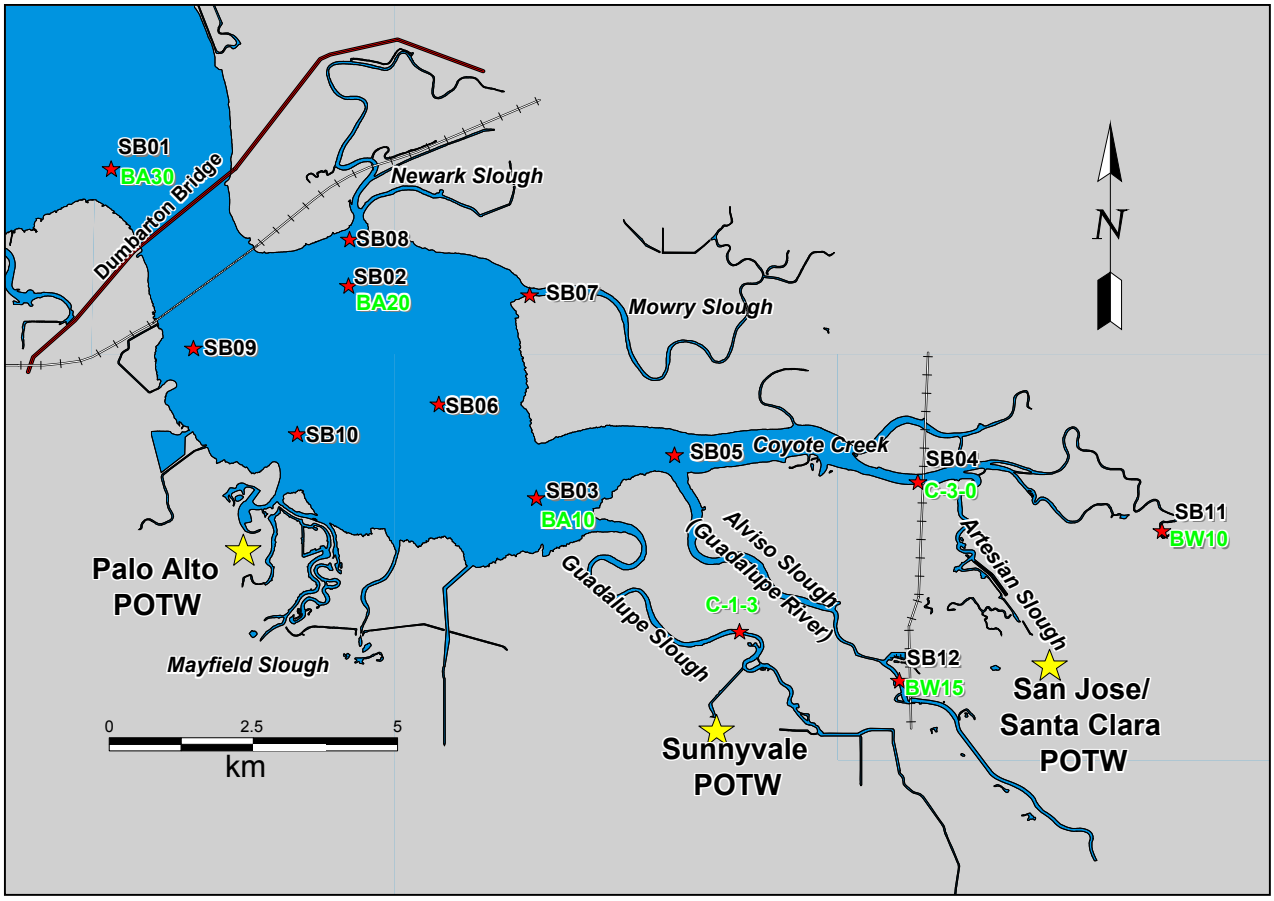
Attachment B - Discharge Facility Treatment Process Diagram

San Jose / Santa Clara WPCP



San Jose/Santa Clara WPCP **Attachment C – South Bay RMP Stations Diagram**

South Bay Sampling Stations
(San Jose and RMP)



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT

SAN JOSE
SANTA CLARA COUNTY

NPDES PERMIT NO. CA0037842

ORDER NO. R2 2003 -0085

Consists of:
Part A (not attached)
Adopted August 1993

And

Part B (Attached)
Adopted: September 17, 2003

CONTENTS:

PART B

I. DESCRIPTION OF SAMPLING AND OBSERVATION STATIONS

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

Station	Description
A. INFLUENT	
A-001	At any point in the treatment facilities' headworks at which all waste tributary to the treatment system is present, and preceding any phase of treatment, and exclusive of any return flows or process side streams that would significantly impact the quantity or quality of the influent.
B. EFFLUENT	
E-001	At any point in the outfall from the treatment facilities between the point of discharge and the point at which all waste tributary to that outfall is present.
C. OVERFLOWS and BYPASSES	
OV-'n'	Bypass or overflows from manholes, pump stations, portions of the collection system under the Discharger's control.

NOTE: A map and description of each known or observed overflow or bypass location shall accompany each monthly report. A summary of these occurrences and their location shall be included with the Annual Report for each calendar year.

II. SCHEDULE OF SAMPLING, ANALYSES AND OBSERVATIONS OF INFLUENT AND EFFLUENT

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

TABLE 1. SCHEDULE of SAMPLING, ANALYSES and OBSERVATIONS [1], [13]

Sampling Station:			A-001	E-001			All OV Stations
			Influent	E-001			
Type of Sample:			C-24	G [2]	C-24	Cont	
Parameter	Units	**Notes**	[1]				
Flow Rate	MGD	[3]				Cont	
$CBOD_5 20°C$	mg/L & kg/day	[4]	W		W		
TSS	mg/L & kg/day	[4]	W		W		
Oil & Grease	mg/L & kg/day	[5]			Q		
Settleable Matter	ml/l-hr			Q			
Turbidity	NTU			D			
Enterococcus	cfu/100 ml			5/W			
Chlorine Residual and Dosage	mg/L & kg/day	[6]				Cont/H	
Ammonia Nitrogen & Unionized Ammonia	mg/L & kg/day				M		
pH	pH units			D			
Temperature	°C			D			
Dissolved Oxygen	mg/L and %Saturation			D			
Acute Toxicity	% Survival	[7]			M		
Chronic Toxicity		[8]			M		
Copper	µg/L				M		
Mercury	µg/L & kg/mo	[9]			M		
Nickel	µg/L				M		
Benzo(b)Fluoranthene	µg/L			2/Y			
Indeno(1,2,3-cd)Pyrene	µg/L			2/Y			
Aldrin	µg/L			2/Y			
4,4'-DDE	µg/L			2/Y			
Heptachlor Epoxide	µg/L			2/Y			
Dieldrin	µg/L			2/Y			
2,3,7,8-TCDD and Congeners	pg/L	[10]		2/Y			
All Applicable Standard Observations				W			E
Pretreatment Requirements (Table 2)	µg/L or ppb	[11]					

LEGEND FOR TABLE 1

Sampling Stations:

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

Types of Samples:

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

Frequency of Sampling:

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

Parameter and Unit Abbreviations:

BOD_5 20°C = Biochemical Oxygen Demand, 5-day, at 20°C
D.O.= Dissolved Oxygen
PAHs = Polynuclear Aromatic Hydrocarbons
TSS = Total Suspended Solids
Est V = Estimated Volume (gallons)
mgd = million gallons per day
mg/L = milligrams per liter
ml/L-hr = milliliters per liter, per hour
µg/L= micrograms per liter
kg/d = kilograms per day
kg/mo = kilograms per month
MPN/100 ml = Most Probable Number per 100 milliliters

FOOTNOTES FOR TABLE 1

[1] Additional details regarding sampling, analyses and observations are given in Section VI of this SMP, *Specifications for Sampling, Analyses and Observations* (SMP Section IV).

[2] Grab samples shall be taken on day(s) of composite sampling.

[3] Flow Monitoring.
Flow monitoring indicated as continuous monitoring in Table 1 shall be conducted by continuous measurement of flows, and reporting of the following measurements:
Influent (A-001), and Effluent (E-001):
a. Daily: (1) Average Daily Flow (mgd)
(2) Maximum Daily Flow (mgd)
(3) Minimum Daily Flow (mgd).
b. Monthly: The same values as given in a. above, for the calendar month.

[4] The percent removal for $CBOD_5$ and TSS shall be reported for each calendar month, in accordance with Effluent Limitation B.3

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

[6] Disinfection Process Monitoring.
During all times when chlorination is used for disinfection of the effluent, effluent chlorine residual concentrations shall be monitored continuously, or by grab samples taken hourly for a total of 24 chlorine residual readings a day. Grab samples may be taken by hand or automated means using in-line equipment such as three-way valves and chlorine residual analyzers. Chlorine residual concentrations shall be monitored and reported for sampling points both prior to and following dechlorination. Total chlorine dosage (kg/day) shall be recorded on a daily basis and dechlorination chemical dosage and/or residual (if desired to demonstrate chlorine exceedances are false positives).

[7] Acute Toxicity Monitoring.
The following parameters shall be monitored on the sample stream used for the acute toxicity bioassays, at the start of the bioassay test and daily for the duration of the bioassay test, and the results reported: flow rate, water hardness, alkalinity, pH, temperature, and dissolved oxygen. If the fish survival rate in the effluent is less than 70% or the control fish survival rate is less than 90%, bioassay test shall be restarted with new batches of fish and continue back to back until compliance is demonstrated.

[8] Chronic Toxicity Monitoring: See also Attachment A of this SMP.

1. *Chronic Toxicity Monitoring Requirements*

a. Sampling. The Discharger shall collect 24-hour composite samples of treatment plant effluent at Sampling Station E-001, for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.

a. Test Species: Chronic toxicity shall be monitored by using critical life stage test(s) and the most sensitive test specie(s) identified by screening phase testing or previous testing conducted under the ETCP. Test specie(s) shall be approved by the Executive Officer. Two test species may be required if test data indicate that there is alternating sensitivity between the two species.

c. Frequency:
(1) Routine Monitoring: Monthly
(2) Accelerated Monitoring: Twice per Month, or as otherwise specified by the Executive Officer.

d. Conditions for Accelerated Monitoring: The Discharger shall conduct accelerated monitoring when either of the following conditions are exceeded:
(1) Three sample median value of 1 TUc, or
(2) Single sample maximum value of 2 TUc.

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

f. Dilution Series: The Discharger shall conduct tests with a control and five effluent concentrations (including 100% effluent) and using a dilution factor ≥ 0.5.

2. *Chronic Toxicity Reporting Requirements*

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

1. Sample date(s)
2. Test initiation date
3. Test species
4. End point values for each dilution (e.g. number of young, growth rate, percent survival)
5. NOEC value(s) in percent effluent
6. IC_{25} in percent effluent
7. TUc values (100/ IC_{25}, 100/EC_{25}, or 100/NOEC) as defined in I.A. of Attachment A (A TUc is calculated as 100/IC_{25}. If IC_{25} is not calculable, the TUc shall be 100/NOEC).
8. Mean percent mortality (±s.d.) after 96 hours in 100% effluent (if applicable)
9. NOEC and LOEC values for reference toxicant test(s)
10. IC_{50} or EC_{50} value(s) for reference toxicant test(s)
11. Available water quality measurements for each test (e.g., 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 three of the most recent samples. The information in the table shall include the items listed above.

[9] 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 USEPA 245), if that alternate method has a Minimum Level of 2 ng/L or less.

[10] Chlorinated Dibenzodioxins and Chlorinated Dibenzofurans shall be analyzed using the latest version of USEPA Method 1613; the analysis shall be capable of achieving one half the USEPA MLs and the Discharger shall collect 4 liter samples to lower the detection limits to the greatest extent 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.

[11] Pretreatment Program Requirements are listed in Table 2 below. Influent and effluent monitoring conducted pursuant to Table 1 above may fulfill the respective Table 2 requirements provided 1) results are submitted in the requisite pretreatment program reports, or 2) results have been submitted electronically in the Electronic Reporting System (ERS).

TABLE 2. PRETREATMENT MONITORING REQUIREMENTS

Constituents / USEPA Method	Influent	Effluent	Sludge
VOC / 624 [1,2]	2/Y	2/Y	2/Y
BNA / 625 [1,2]	2/Y	2/Y	2/Y
Metals [3]	M	M	2/Y

LEGEND FOR TABLE 2

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

FOOTNOTES FOR TABLE 2

[1] VOC and BNA samples shall be 24-hour composite samples. Individual grab samples shall be collected every three hours during the 24-hour sampling event, and the grab samples shall be composited in the lab just prior to analysis.
[2] USEPA approved methods.
[3] Same USEPA method used to determine compliance with the respective NPDES permit. The parameters are arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, zinc, selenium and cyanide.

III. MONITORING METHODS AND MINIMUM DETECTION LEVELS

For compliance monitoring, analysis shall be conducted using the lowest commercially available and reasonably achievable detection levels. The intent is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to the minimum levels given below.

The Discharger may use the methods listed in the Table 3 below or alternate test procedures that have been approved by the U.S. EPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5 (revised as of May 14, 1999).

TABLE 3. SELECTED CONSTITUENTS MONITORING – MINIMUM LEVELS FOR TOXIC POLLUTANTS

CTR #	Constituent (a)	Minimum Level (µg/L) (b)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
6.	Copper (c)					25	5	10	0.5	2			1000
8.	Mercury (d)												
9.	Nickel					50	5	20	1	5			1000
62.	Benzo(b)Fluoranthene [e]		10	10									
92.	Indeno(1,2,3-cd)Pyrene		10	0.05									
109.	4,4'-DDE	0.05											
111.	Dieldrin	0.01											
118.	Heptachlor Epoxide	0.01											

Notes:

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

b.) Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e. USEPA 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 and analytical methods for mercury monitoring per 13267 letter issued to Discharger. ML for mercury is 0.002 ug/L, or lower.

e.) The equivalent name of this constituent in the SIP is 3,4 Benzofluoranthene

IV. SPECIFICATIONS FOR SAMPLING, ANALYSES AND OBSERVATIONS

Sampling, analyses and observations, and recording and reporting of results shall be conducted in accordance with the schedule given in Table 1 of this SMP, and in accordance with the following specifications, as well as all other applicable requirements given in this SMP. All analyses shall be conducted using analytical methods that are commercially and reasonably available, and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits.

A. Influent Monitoring.

Influent monitoring identified in Table 1 of this SMP is the minimum required monitoring. Additional sampling and analyses may be required in accordance with Pretreatment Program or Pollution Prevention/Source Control Program requirements.

B. Effluent Monitoring.

Composite samples of effluent shall be collected on varying days selected at random coincident with influent composite sampling unless otherwise stipulated. The Executive Officer may approve an alternative sampling plan if it is demonstrated to the Executive Officer's satisfaction that expected operating conditions for the facility warrant a deviation from the standard sampling plan.

Grab samples of effluent shall be collected during periods of maximum peak flows and shall coincide with effluent composite sample days.

Fish bioassay samples shall be collected on days coincident with effluent composite sampling.

Bioassay tests should be performed on effluent samples after chlorination-dechlorination.

Total ammonia nitrogen shall be analyzed and un-ionized ammonia calculated whenever fish bioassay test results fail to meet the specified percent survival.

If any maximum daily limit is exceeded, the sampling frequency shall be increased to daily until two samples collected on consecutive days show compliance with the maximum daily limit.

If the final or intermediate results of any single bioassay test indicate a threatened violation (i.e. the percentage of surviving test organisms is less than the required survival percentage), a new test will begin and the Discharger shall investigate the cause of the mortalities and report the finding in the next self-monitoring report.

Chlorine residual analyzers shall be calibrated against grab samples as frequently as is necessary to maintain accurate control and reliable operation. For samples obtained hourly, in the advent of a detected effluent violation- grab samples shall be collected at least every 30 minutes until compliance is achieved.

V. REPORTING REQUIREMENTS

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

B. Modifications to Self-Monitoring Program, Part A:

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

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

   Composite samples of effluent as required in Table 1 of Part B shall be collected on days coincident with influent composite sampling as required in Table 1 of Part B unless otherwise stipulated. 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.

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

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

4. The first sentence of Section C.2.c of Part A shall be replaced with:

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

5. Section C.2.c(1) of Part A shall be replaced to read as follows (C.2.c(2) is unchanged):

   Bioassay tests should be performed on effluent samples after chlorination-dechlorination. If biological growth in the dechlorinated effluent sample line is a potential problem, chlorinated effluent that is dechlorinated separately from the plant dechlorination process may be used for the bioassay test.

6. Section C.3 of Part A, insert the following:
   The requirements of this section only apply to facilities where storm water is not directed to the headworks during wet weather. At the Water Pollution Control Plant, all stormwater is directed to the headworks at all times so the requirements of this section do not apply.

7. Section C.4 of Part A, insert the following:

   The requirements of this section only apply when receiving water sampling is required by Table 1 of Part B. Receiving water sampling is not specified in Table 1 of Part B of this permit. Therefore, the requirements of this section do not apply. The requirements of Section C.4. are satisfied by participation in the Regional Monitoring Program and the South Bay Monitoring Program.

8. Section C.5 of Part A, insert the following:

   The requirements of this section only apply when collection of bottom sediment samples is specified in Table 1 of Part B. Collection of bottom sediment samples is not specified in Table 1 of Part B of this permit so the requirements of this section do not apply.

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

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

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

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

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

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

12. Section E.1 of Part A shall be modified as follows:

a. Written reports, electronic records, strip charts, equipment calibration and maintenance records, and other records pertinent to demonstrating compliance with waste discharge requirements including self-monitoring program requirements, shall be maintained by the Discharger in a manner and at a location (e.g., wastewater treatment plant or Discharger offices) such that the records are accessible to Board staff. These records shall be retained by the Discharger for a minimum of three years. The minimum period of retention shall be extended during the course of any unresolved litigation regarding the subject discharges, or when requested by the Board or by the Regional Administrator of the U.S. EPA, Region IX. Records to be maintained shall include the following:

(1) Parameter Sampling and Analyses, and Observations.
For each sample, analysis or observation conducted, records shall include the following:

(i) Parameter

(ii) Identity of sampling or observation station, consistent with the station descriptions given in this SMP.

(iii) Date and time of sampling or observation.

(iv) Method of sampling (grab, composite, other method)

(v) Date and time analysis started and completed, and name of personnel or contract laboratory performing the analysis.

(vi) Reference or description of procedure(s) used for sample preservation and handling, and analytical method(s) used.

(vii) Calculations of results.

(viii) Analytical method detection limits and related quantitation parameters.

(ix) Results of analyses or observations.

(2) Flow Monitoring Data.
For all required flow monitoring (e.g., influent and effluent flows), records shall include the following:

(i) Total flow or volume, for each day.

(ii) Maximum, minimum and average daily flows for each calendar month.

(3) Wastewater Treatment Process Solids.

(i) For each treatment process unit which involves solid removal from the wastewater stream, records shall include the following:
1. Total volume and/or mass quantification of solids removed from each unit (e.g., grit, skimmings, undigested sludge), for each calendar month; and
2. Final disposition of such solids (e.g., landfill, other subsequent treatment unit).

(ii) For final dewatered sludge from the treatment plant as whole, records shall include the following:
1. Total volume and/or mass quantification of dewatered sludge, for each calendar month;
2. Solids content of the dewatered sludge; and
3. Final disposition of dewatered sludge (point of disposal location and disposal method).

(4) Disinfection Process

For the disinfection process, records shall be maintained documenting process operation and performance, including the following:

i. For bacteriological analyses:
1. Date and time of each sample collected
2. Wastewater flow rate at the time of sample collection
3. Results of sample analyses (bacteriological count)
4. Required statistical parameters of cumulative bacteriological values (e.g., moving median or log mean for number of samples or sampling period identified in waste discharge requirements).

ii. For chlorination process, at least daily average values for the following:
1. Chlorine residual in contact basin (mg/L)
2. Chlorine dosage (kg/day)

13. Section F.1 of Part A shall be modified as follows:

a. A report shall be made of any spill of oil or other hazardous material to waters of the U.S.

b. The spill shall be reported by telephone as soon as possible and no later than 24 hours following occurrence or Discharger's knowledge of occurrence. Spills shall be reported by telephone as follows:

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

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

c. A written report shall be submitted to the Regional Board within five (5) working days following telephone notification, unless directed otherwise by Board staff. A report submitted by facsimile transmission is acceptable for this reporting. The written report shall include the following:

(1) Date and time of spill, and duration if known.
(2) Location of spill (street address or description of location).

(3) Nature of material spilled.
(4) Quantity of material involved.
(5) Receiving water body affected.
(6) Cause of spill if determined. If not yet determined, then a statement of potential cause(s) and action(s) taken to determine ultimate cause. Include date when final report will be submitted on this issue.
(7) Observed impacts to receiving waters (e.g., discoloration, oil sheen, fish kill).
(8) Corrective actions that were taken to contain, minimize or cleanup the spill.
(9) Future corrective actions planned to be taken in order to prevent recurrence, and time schedule of implementation.
(10) Persons or agencies contacted.

14. Section F.4 of Part A shall be modified as follows:

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

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

b. *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."

c. *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.

d. *Results of Analyses and Observations.*

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

(2) 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.

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

e. *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 SMR due after results are available.

f. *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

15. Section F.4 of Part A shall be modified as follows:

a. 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:

b. A comprehensive discussion of treatment plant performance and compliance with waste discharge requirements. Include both tabular and graphical summaries of monitoring data collected during the calendar year.

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

a. *Grab Sample.* A grab sample is defined as an individual sample collected in a short period of time not exceeding fifteen minutes. A grab sample represents only the conditions that exist at the time the sample is collected. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may not necessarily correspond with

periods of peak hydraulic conditions. Grab samples are used primarily in determining compliance with daily and instantaneous maximum or minimum limits.

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

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

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:
         (i) Identification of all violations of effluent limits or other discharge requirements found during the monitoring period;
         (ii) Details of the violations: parameters, magnitude, test results, frequency, and dates;
         (iii) The cause of the violations;

(iv) 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.

(v) 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."

(vi) 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.

(vii) Results of Analyses and Observations.

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

(ix) 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.

(x) 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.

VI. 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. RB2-2003-0085.

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. BARSAMIAN
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 USEPA's Bootstrap Procedure.

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

II. Chronic Toxicity Screening Phase Requirements

A. The Discharger shall perform screening phase monitoring:

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

2. Prior to Permit reissuance. Screening phase monitoring data shall be included in the NPDES Permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.

B. Design of the screening phase shall, at a minimum, consist of the following elements:

1. Use of test species specified in Tables 1 and 2 (attached), and use of the protocols referenced in those tables, or as approved by the Executive Officer;

2. Two stages:

a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Table 3 (attached); and

b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.

3. Appropriate controls; and

4. Concurrent reference toxicant tests.

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

TABLE C 1
CRITICAL LIFE STAGE TOXICITY TESTS FOR ESTUARINE WATERS

SPECIES	(Scientific name)	EFFECT	TEST DURATION	REFER-ENCE
alga	(Skeletonema costatum) (Thalassiosira pseudonana)	growth rate	4 days	1
red alga	(Champia parvula)	number of cystocarps	7-9 days	5
Giant kelp	(Macrocystis pyrifera)	percent germination; germ tube length	48 hours	3
abalone	(Haliotis rufescens)	abnormal shell development	48 hours	3
oyster mussel	(Crassostrea gigas) (Mytilus edulis)	{abnormal shell development; {percent survival	48 hours	2
Echinoderms (urchins - Strongylocentrotus purpuratus, S. franciscanus); (sand dollar - Dendraster excentricus)		percent fertilization	1 hour	4
shrimp	(Mysidopsis bahia)	percent survival; growth; fecundity	7 days	5
silversides	(Menidia beryllina)	larval growth rate; percent survival	7 days	5

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for conducting static 96-hour toxicity tests with microalgae. Procedure E 1218-90. ASTM Philadelphia, PA.

2. American Society for Testing Materials (ASTM). 1989. Standard Practice for conducting static acute toxicity tests with larvae of four species of bivalve molluscs. Procedure E 724-89. ASTM, Philadelphia, PA.

3. Anderson, B.B. J.W. Hunt, S.L. Turpen, A.R. Coulon, M. Martin, D.L. McKeown, and F.H. Palmer. 1990. Procedures manual for conducting toxicity tests developed by the marine bioassay project. California State Water Resources Control Board, Sacramento.

4. Dinnel, P.J., J. Link, and Q. Stober. 1987. Improved methodology for sea urchin sperm cell bioassay for marine waters. Archives of Environmental Contamination and Toxicology 16:23-32. and S.L. Anderson. Sept. 1, 1989. Technical Memo. San Francisco Bay Regional Water Quality Control Board, Oakland, CA.

5. Weber, C.I., W.B. Horning, II, D.J. Klem, T.W. Neiheisel, P.A. Lewis, E.L. Robinson, J. Menkedick, and F. Kessler (eds.). 1988. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to marine and estuarine organisms. USEPA-600/4-87/028. National Technical Information Service, Springfield, VA.

TABLE C 2
CRITICAL LIFE STAGE TOXICITY TESTS FOR FRESH WATERS

SPECIES	(Scientific name)	EFFECT	TEST DURATION	REFERENCE
fathead minnow	(Pimephales promelas)	survival; growth rate	7 days	6
water flea	(Ceriodaphnia dubia)	survival; number of young	7 days	6
alga	(Selenastrum capricornutum)	cell division rate	4 days	6

Toxicity Test Reference:

6. Horning, W.B. and C.I. Weber (eds.). 1989. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms. Second edition. USEPA Environmental Monitoring Systems Laboratory, Cincinnati, Ohio. USEPA/600/4-89/001.

TABLE C 3

TOXICITY TEST REQUIREMENTS FOR STAGE ONE SCREENING PHASE

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

† The fresh water species may be substituted with marine species if:
1) The salinity of the effluent is above 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 refers to receiving water salinities greater than 10 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.[Changed to CTR salinity values]

Attachment E – Nickel- Copper: Tables of Baseline Control Actions, Phase I, and Phase II

Copper and Nickel Action Plans: Appendix E. extracted from "STAFF REPORT ON PROPOSED SITE-SPECIFIC WATER QUALITY OBJECTIVES AND WATER QUALITY ATTAINMENT STRATEGY FOR COPPER AND NICKEL FOR SAN FRANCISCO BAY SOUTH OF THE DUMBARTON BRIDGE." SF RWQCB Staff Report, May 15, 2002

Appendix E: Tables of all Baseline, Phase I, and Phase II Actions of the Implementation Plan

The columns of the following tables of actions are defined as follows:

Description of the Action to be Performed by the Lead Party	**This is a brief description of the action to be implemented.**
Lead Party	This is a list of the parties responsible for carrying out the action. See below for more information on various parties that are named as lead party. Where the lead party is a permitted entity (POTWs or SCVURPPP and Co-Permittees), the RWQCB can compel the actions through the permits. Where the lead party is not under a permit, the RWQCB cannot compel the action through a permit.
Implementation Time Frame	This column only applies to the baseline actions. This is an indication as to whether the action should be ongoing or is satisfied by the submittal of a single report or series of reports.
Implementation Mechanism	This column provides information on how the Regional Board will track the status of the action. This is often a report that is submitted by the Lead Party.

Term or Acronym	Definition
Annual Report (Urban Runoff Program)	Report submitted by the Urban Runoff Program each September. This report details the actions, including status, that took place the previous year. Status of all baseline actions should be reported either in the Annual Report or Annual Workplan. There should be sufficient detail in the description and status of actions to assess permit compliance.
Annual SMR (POTWs)	Annual Self-Monitoring Report submitted each year to provide data for compliance checking
Annual Workplan (Urban Runoff Program)	Report submitted by the Urban Runoff Program each March. This report details the actions that will be taken in the year following.
BASMAA	Bay Area Stormwater Management Agencies Association which includes the SCVURPPP and the other urban runoff programs in the San Francisco Bay region
BMP	Best Management Practice
Brake Pad Partnership (BPP)	A diverse stakeholder group addressing the connection of brake pad wear debris and environmental problems
CAP/NAP	Copper Action Plan/ Nickel Action Plan, June 2000
CMR	Conceptual Model Report, December 1999
Continuous Improvement Process	Continuous Improvement activities identified by the Urban Runoff

	Permit Re-issuance Work Group as part of the SCVURPPP permit re-issuance are contained in Table 3 "Urban Runoff Permit Re-issuance Work Group --Box 3: Summary of Continuous Improvement Items" (dated June 23, 2000).
Cu-L1, Cu-L2 complexes	Strong (L1) and weak (L2) copper complexes formed in the aquatic environment
CWC	California Water Code (Porter-Cologne)
IAR	Impairment Assessment Report by TetraTech, June 2000
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
POTW	Publicly-Owned Treatment Works. These are wastewater treatment plants.
RMP	Regional Monitoring Program for Trace Substances
SCBWMI (Core Group)	Santa Clara Basin Watershed Management Initiative (Core Group is the lead stakeholder body for this initiative, there are subgroups as well)
SCVURPPP & Co-permittees	Santa Clara Valley Urban Runoff Pollution Prevention Program. The Co-Permittees include the SCVWD, Santa Clara County and the 13 cities in the Santa Clara Valley
SCVWD	Santa Clara Valley Water District
SEIDP	The Stormwater Environmental Indicators Demonstration Project (SEIDP) is part of USEPA's Environmental Indicators/Measures of success project. The SEIDP is the third phase of EPA's program that focuses on local demonstration projects and the testing of indicators in the Walsh Ave. catchment, water quality indicators, programmatic indicators, social indicators, and site indicators are being evaluated to gauge Program implementation. Twenty different indicators are under review.
SFEI	San Francisco Estuary Institute
SWQTF	Storm Water Quality Task Force
URMP	Urban Runoff Management Plan, describes goals, program elements, including monitoring and watershed management measures, and model performance standards
USGS	United States Geological Survey
VMT	Vehicle Miles Traveled

Appendix E Baseline Copper Control Actions			
Baseline Number	**Description**	**Lead Party**	**Implementation Mechanism**
CB-1	*Measures to reduce copper discharges from vehicle washing operations.* These shall include outreach and education activities targeted towards residential car washing, washing of vehicles at commercial and industrial facilities; and vehicle washing by mobile cleaners; implementation of BMPs by mobile cleaners; and inspections or other mechanisms to evaluate effectiveness of these measures.	SCVURPPP & Co-permittees	Urban Runoff and Industrial Stormwater Permits Reporting conducted as part of SCVURPPP and Co-permittees Annual Reports
CB-3	*Measures to control copper in discharges of stormwater from targeted industrial sources.* These shall include identification and implementation of appropriate and cost-effective controls. The targeted industries include older printed circuit board manufacturers and metal plating facilities using copper. Clarify linkage with POTW Pretreatment Programs	SCVURPPP & Co-permittees & industry Possibly POTW permits (clarify need by March 2001 as part of SCVURPPP Work Plan)	Urban Runoff and Industrial Storm Water Permits Reporting conducted as part of SCVURPPP and Co-permittees Annual Report. Future Work Plans will contain description of additional tasks. Develop approach to implement Area-Wide as part of March 2001 Work Plan.
CB-10	*Measures associated with utilizing the Sediment Characteristics and Contamination Environmental Indicator.* These shall include utilizing results of SEIDP Indicator #5 (Sediment Characteristics and Contamination) to investigate development of an environmental indicator and investigate the linkage with SFEI sources and loading work effort.	SCVURPPP & Co-permittees	SCVURPPP & Co-permittees as part of Permit Annual Work Plan and Annual Report
CB-11	*Measures to improve street sweeping controls and storm water system operation and maintenance controls to reduce copper in stormwater discharges.* These shall include consideration of need for improvements to existing street sweeping controls and storm water system operation and maintenance controls and standard operating procedures for disposal of collected materials.	SCVURPPP	Consider need for improvements as part of SCVURPPP Continuous Improvement Process

Appendix E
Baseline Copper Control Actions

Baseline Number	Description	Lead Party	Implementation Mechanism
CB-12	*Measures to control copper discharges from pools and spas.* These shall include maintaining existing education and outreach programs for pools and spas.	SCVURPPP & Co-permittees	SCVURPPP & Co-permittees implementation via URMP Performance Standards and modification via Continuous Improvement Process
CB-15	*Measures to evaluate effectiveness of Performance Standards and identify cost-effective modifications to reduce discharges of copper.* These shall include utilizing results of SEIDP to evaluate effectiveness of related SCVURPPP Performance Standards and identify cost-effective modifications	SCVURPPP & Co-permittees	SCVURPPP & Co-permittees Continuous Improvement Process
CB-13	*Track POTW Pretreatment Program efforts and POTW Loadings*	POTWs	POTW NPDES Permits (reporting part of Annual SMR and Pretreatment Program reports)
CB-14	*Track and encourage water recycling efforts*	POTWs	Reporting through POTWs Annual Water Recycling report and/ or Annual SMR
CB-19	*Continue to promote industrial water use and reuse efficiency.* These programs may include workshops, outreach, incentives, or audits.	POTWs	POTW permits
CB-2	*Measures to track copper sulphate use by water suppliers.* The District shall continue to track and report use of copper sulphate by water suppliers in the Santa Clara Valley (includes State & Federal Water Project).	SCVWD	Urban Runoff Permit Report tracking results as part of SCVWD Co-permittee Annual Report
CB-9	*Continue current efforts and track corrosion control opportunities:* •Continue educational outreach, within the City of Palo Alto, to plumbers and designers to reduce corrosion of copper pipes via better design and installation •Track developments in (a) alternatives to copper piping (b) corrosion inhibitors, and (c) other methods of reducing copper corrosion	City of Palo Alto Environmental Compliance Unit (track and report developments to the SCBWMI)	POTW permit Reporting conducted as part of annual Pretreatment Program report.

Appendix E
Baseline Copper Control Actions

Baseline Number	Description	Lead Party	Implementation Mechanism
CB-4	*Measures to quantify copper control/pollution prevention measures and source loadings.* These shall include investigating and/or tracking agreed upon quantification studies concerning copper in vehicle brake pads and field investigations to monitor long-term trends to determine the possible linkage between copper from brake pads and copper concentrations in water. 1-Provide appropriate level of local support for agreed upon quantification studies 2 Investigate and/or track quantification studies for a wide range of existing copper control/pollution prevention measures and sources loadings 3-Collect data and prepare annual reports on the following potential indicators • Copper content in new auto brake pads • Total population in basin • Auto/truck vehicle traveled in basin • Copper sulfate (e.g. algaecide, pesticide, industrial; chemicals) sales in basin (aggregate basis-scaled to basin level estimate) • Copper content in macoma tissue at San Point (Palo Alto) • Reproductivity index for macoma at Sand Point • Benthic community assemblage at Sand Point 4-Prepare issue paper on feasibility of potential field investigation to monitor long-term trends between copper from brakepads and concentration in water.	SCBWMI/SCVURPPP (lead party may change depending on quantification study identified) City of Palo Alto RWQCB/SCVURPPP	SCVURPPP Continuous Improvement Process and Annual Work Plans and/or SCBWMI Core Group / Subgroup work plan task SCVURPPP Work Plan (include as part of Multi-Year Receiving Waters Monitoring Plan) POTW permit amendment
CB-6	*Measures to reduce traffic congestion* Review appropriateness of transportation control measures, prioritize reasonable measures and identify potential efforts for further development as part of Phase I and implementation as part of Phase II	SCBWMI (SCVURPPP take lead on preparing short-term issue paper as part of LUS (land use subcommittee of WMI) that begins to investigate the role of storm water management agencies in	CORE GROUP short-term issues (SCVURPPP to consider possible early measures as part of developing FY 01-02 Work Plan)

Appendix E Baseline Copper Control Actions			
Baseline Number	**Description**	**Lead Party**	**Implementation Mechanism**
		regional congestion management planning and implementation)	
CB-7	*Measures to reduce traffic congestion* Establish transportation/impervious surface "forum" • Consider results of VMT and imperviousness load estimates and control effectiveness evaluation; identify potential control efforts for further development as part of Phase I and implementation as part of Phase II	SCBWMI (incorporate as part of short-term issue paper on CB-6)	CORE GROUP short-term issue
CB-8	*Measures to classify and assess watersheds.* These shall include assisting the SCBWMI in its continuing efforts to implement watershed classification and assessment efforts and to improve institutional arrangements for watershed protection. These efforts shall include: • Ensuring that watershed protection is considered in all applicable elements of Dischargers' General Plans land use, circulation, open space, transportation, and conservation, and consistency requirements; and seek appropriate changes in State General Plan Guidelines; and • Ensuring that watershed protection is considered in the California Environmental Quality Act process. • Continue to implement watershed classification and assessment efforts of SCBWMI.	SCBWMI (with assistance from the SCVURPPP and Co-permittees)	SCVURPPP Continuous Improvement Process and Annual Work Plans and/or SCBWMI Core Group / Subgroup work plan task
CB-16	*Measures to establish an environmental clearinghouse.* These shall include assisting the SCBWMI in establishing an information clearinghouse and tracking and disseminating new scientific research on copper toxicity, loadings, fate and transport, and impairment of aquatic ecosystems	SCBWMI – CORE Group (assistance via SCVURPPP)	Implement through watershed measures element of SCVURPPP Permit and SCBWMI Long-term Data Management Plan (connected with resources for CB-5.3) Begin reporting as part of SCVURPPP Annual Report for FY 00-01
CB-5	*Measures to support Brake Pad*		

Appendix E Baseline Copper Control Actions			
Baseline Number	**Description**	**Lead Party**	**Implementation Mechanism**
	Partnership activities. These shall include providing appropriate level of local support for agreed upon BPP activities. 1-Review/assess/provide input on Brake Manufacturing Council (BMC)/BPP brakepad wear debris research & brakepad content data. *2-Ensure that other local state and federal players are involved appropriate on brakepads issue as it is a widespread urban concern.* 3-Assist in making research data that are in the public domain accessible	1-SCVURPPP currently tracking with funds designated in FY 00-01 Work Plans 2-BASMAA & SWQTF involvement on BPP may be needed as a Task of Regional Benefit 3- SCBWMI data management system	1-SCVURPPP Continuous Improvement Process and Annual Work Plans (will utilize conference results to lay out potential future direction/needs) BASMAA Task of Regional Benefit (TRB) (SCVURPPP recommend BASMAA consider funding TRB to support Regional involvement with BPP including investigation of fate and transport) 2- BASMAA Task of Regional Benefit (SCVURPPP recommend BASMAA & SWQTF consider funding to support State and Regional involvement with BPP including investigation of fate and transport) 3-SCVURPPP via data management efforts and in conjunction with WMI efforts incorporate BPP and other related and readily available into metadata database
CB-17	*Measures to reduce uncertainty associated with the Lower South San Francisco Bay Impairment Decision.* These shall include assisting the SCBWMI in tracking and encouraging the investigation of several important topics that influence uncertainty with Lower South San Francisco Bay Impairment Decision • Phytoplankton toxicity and movement (Impairment Assessment Report Section 5.3.1) • Sediment cycling • Loading uncertainty Encourage incorporation of appropriate bioassessment tools into ongoing monitoring programs to track presence of copper-sensitive taxa in Lower	SCBWMI – Core Group (assistance via POTW and SCVURPPP and Co-permittees)	Track and encourage RMP, NOAA, USGS, etc.

Appendix E Baseline Copper Control Actions			
Baseline Number	**Description**	**Lead Party**	**Implementation Mechanism**
	South SF Bay.		
CB-18	*Measures to investigate important factors that influence copper fate and transport.* These shall include assisting the SCBWMI in tracking and encouraging the investigation of important factors that influence copper and fate and transport. • Investigate flushing time estimates for different wet weather conditions • Investigate location of northern boundary condition • Determine Cu-L1 and L2 complex concentrations • Investigate algal uptake/toxicity with competing metals	SCBWMI – Core Group (assistance via POTW and SCVURPPP and Co-permittees)	Track and encourage RMP, NOAA, USGS, etc.
CB-20	*Measures to revise the Copper Conceptual Model Report findings.* These shall include assisting the SCBWMI and the POTWs that discharge to Lower South SF Bay in revising the Copper Conceptual Model Report uncertainty table based on newly-available information and producing a status report. In particular, these activities will include revising the conceptual model uncertainty table based on newly-available information as part of the Dischargers' and POTWs' next NPDES permit applications.	SCBWMI (with assistance from POTWs and SCVURPPP & Co-permittees)	CORE GROUP short-term issue Update as part of NPDES Permit application process Possible linkage and assistance from North Bay effort as well as RMP and RWQCB TMDL efforts
CB-21	*Measures to discourage architectural use of copper.* These shall include assistance to the SCBWMI in the following areas: 1-SCVURPPP & Co-permittees evaluate feasibility of discouraging architectural use of copper & explore feasibility of related policy 2-Promote Green Building principles and identify measures to investigate as part of Phase I	Palo Alto (Lead) SCBWMI (with assistance from the SCVURPPP and Co-permittees)	CORE GROUP short-term issues (use SCVURPPP Continuous Improvement Process for agreed upon assistance) SCVURPPP & Co-permittees Continuous Improvement Process

Appendix E (continued)
Phase I Copper Control Actions

Phase I Number	Description	Lead Party	Implementation Mechanism
CI-5	*Evaluate street sweeping and other design, operation and maintenance practices to identify potential improvements.* Prepare an implementation plan reflecting the priorities and implement agreed upon Phase I control actions.	SCVURPPP & Co-permittees	SCVURPPP & Co-permittee Continuous Improvement Process
CI-6	*Follow-up on relevance of copper in diesel exhaust*	SCVURPPP & Co-permittees	SCVURPPP & Co-permittee Continuous Improvement Process
CI-7	*Develop Phase II Implementation Plan for POTW expansion of water Recycling*	POTWs	POTW permits
CI-10	*Evaluate results of tracking industrial virtual closed- loop wastewater efficiency measures and develop potential actions.* Prepare an implementation plan reflecting the priorities and implement agreed upon Phase I control actions.	POTWs	POTW permits
CI-11	*Develop Phase II Implementation Plan for POTW process optimization*	POTWs	POTW permits
CI-4	*Prepare and implement a Phase I plan for improved corrosion control based on evaluation of results of Baseline measures.*	POTWs/ SCVWD and other suppliers	POTW permits and other CWC regulatory Mechanisms
CI-9	*Evaluate and investigate important Factors that Influence Copper Fate* (Potential Reduction in Uncertainty is Moderate to High)[1] • Investigate flushing time estimates for different wet weather conditions • Investigate location of northern boundary condition • Determine Cu-L1 and L2 complex concentrations Investigate algal uptake/toxicity with competing metals	SCBWMI – Core Group (Assistance via POTW and / SCVURPPP and Co-permittees)	Encourage and identify resources (coordinate with other efforts/investigations such as those of SF Estuary Regional Monitoring Program, NOAA, USGS, etc)
CI-8	*Evaluate and investigate important topics that influence uncertainty with Lower South SF Bay Impairment Decision* • Phytoplankton toxicity and movement (IAR Section 5.3.1) • Sediment cycling • Loading uncertainty	SCBWMI – Core Group (Assistance via POTW and / SCVURPPP and Co-permittees)	Encourage and identify resources (coordinate with other efforts/investigations such as those of RMP, NOAA, USGS, etc)
CI-12	*Develop a Phase II Plan including a re-evaluation of Phase I actions*	RWQCB – convene powers that be	CWC regulatory mechanisms

Appendix E (continued) Phase I Copper Control Actions			
Phase I Number	**Description**	**Lead Party**	**Implementation Mechanism**
CI-1	*Update findings and recommendations of BPP efforts and implement agreed upon Phase I measures and develop Phase II Work Plan*	RWQCB – convene powers that be	NPDES permits and other CWC regulatory mechanisms
CI-2	*Update findings and recommendations of transportation/ impervious surface "forum" and implement agreed upon Phase I measures and develop Phase II Work Plan*	RWQCB – convene powers that be	NPDES permits and other CWC regulatory mechanisms
CI-3	*Update and re- evaluate source identification and prioritize sources based on effectiveness evaluation of future potential control actions.* Prepare an implementation plan reflecting the priorities and implement agreed upon Phase I control actions.	RWQCB – convene powers that be	NPDES permits and other CWC regulatory mechanisms

Appendix E (continued) Phase II Copper Control Actions			
Phase II Number	**Description**	**Lead Party**	**Implementation Mechanism**
CII-4	*Discourage use of copper-based pesticides*	SCVURPPP & Co-permittees	SCVURPPP & Co-permittee Continuous Improvement Process
CII-1	*Reconsider usefulness of managing storm water through POTWs*	POTWs (with assistance from SCVURPPP and Co-permittees)	CWC regulatory mechanisms
CII-3	*Implement plan for additional corrosion control measures*	POTWs/ SCVWD and other suppliers	POTW permits and other CWC regulatory mechanisms
CII-5	*Implement control actions identified for copper in diesel exhaust*	RWQCB – convene powers that be	Possible Regulatory and Legislative mechanisms
CII-6	*Implement Phase II POTW process optimization measures*	RWQCB – convene powers that be	POTW permits
CII-7	*Implement agreed upon Phase II expansion of water recycling programs*	RWQCB – convene powers that be	POTW permits
CII-8	*Re-evaluate Phase II Plan (developed as part of I-2) and finalize for implementation*	RWQCB – convene powers that be	CWC regulatory mechanisms
CII-2	*Implement agreed upon Phase II surface control measures (transportation/impervious/-brakepad)*	RWQCB – convene powers that be	CWC regulatory mechanisms and possibly other regulatory agency mechanisms

Appendix E (continued) Baseline Nickel Control Actions				
Baseline Number	**Description**	**Lead Party**	**Implementation Time-Frame**	**Implementation Mechanism**
NB-1	Co-permittees and SCVURPPP continue to implement Performance Standards Continue to implement URMP (Metals Control Measures Plan): EROSION-1 *Implement performance standards for construction inspection.* EROSION-2 *Participate in development of region-wide training and certification program for construction site inspectors.*	SCVURPPP & Co-permittees	Ongoing/Action Implemented Every Year Workshop for municipal staff on post-construction controls for new development and re-development. Support RWQCB's Annual Workshops for contractors and municipal staff on construction site management and erosion/sediment controls.	Urban Runoff Permit Reporting conducted as part of SCVURPPP and Co-permittees Annual Reports Improve Performance Standards and reporting via SCVURPPP Continuous Improvement process
NB-2	Utilize results of SEIDP Indicator #5 (Sediment Characteristics and Contamination) to investigate development of an environmental indicator and investigate the linkage with SFEI sources and loading work effort.	SCVURPPP & Co-permittees	SCVURPPP FY 01-02 Work Plan and multi-year receiving water monitoring plan	SCVURPPP & Co-permittees as part of Permit Annual Work Plan and Annual Report
NB-5	Utilize results of SEIDP to evaluate effectiveness of related SCVURPPP Performance Standards and identify cost-effective modifications	SCVURPPP & Co-permittees	SCVURPPP FY 01-02 Work Plan and multi-year receiving water monitoring plan	SCVURPPP & Co-permittees Continuous Improvement Process
NB-3	*Track POTW Pretreatment Program efforts and POTW loadings*	POTWs	Ongoing / Action implemented every year	POTW NPDES Permits (reporting part of Annual SMR and Pretreatment Program reports)
NB-4	*Track and encourage water recycling efforts*	POTWs	Ongoing / Action implemented every year	Reporting through POTWs Annual Water Recycling report and/ or Annual SMR
NB-6	*Continue to promote industrial water use and reuse efficiency.*	POTWs	Ongoing / Action implemented every year	POTW permits

Appendix E (continued) Baseline Nickel Control Actions				
Baseline Number	**Description**	**Lead Party**	**Implementation Time-Frame**	**Implementation Mechanism**
	These programs may include workshops, outreach, incentives, or audits.			
NB-7	*Track and encourage a watershed model linked to a process oriented Bay model*	POTWs/SCVURPPP	Ongoing/Action Implemented Every Year	POTW & SCVURPPP Permits

San Jose/Santa Clara WPCP

Attachment F: 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

REISSUANCE OF
NPDES PERMIT and WASTE DISCHARGE REQUIREMENTS for

CITIES OF SAN JOSE AND SANTA CLARA WATER POLLUTION CONTROL PLANT

SAN JOSE, SANTA CLARA COUNTY
NPDES Permit No. CA0037842
ORDER NO. R2-2003-0085

PUBLIC NOTICE:

Written Comments

- Interested persons are invited to submit written comments concerning this draft permit.
- Comments must be submitted to the Regional Board no later than 5:00 p.m. on July 24, 2003.
- Send comments to the Attention of Linda Rao.

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: September 17, 2003, starting at 9:00 am.

Additional Information

- For additional information about this matter, interested persons should contact Regional Board staff member: Ms. Linda Rao, email: lcr@rb2.swrcb.ca.gov, Phone: (510) 622-2445

This Fact Sheet contains information regarding an amendment of waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permit for the Cities of San Jose and Santa Clara for municipal wastewater discharges. The Fact Sheet describes the factual, legal, and methodological basis for the sections addressed in the amended permit and provides supporting documentation to explain the rationale and assumptions used in revising the effluent limitations.

I. INTRODUCTION

The Discharger applied to the Board for reissuance of waste discharge requirements and a permit to discharge municipal wastewater to waters of the State and the United States under the NPDES. The application and Report of Waste Discharge is dated December 14, 2002.

The Discharger owns and operates the San Jose/Santa Clara Water Pollution Control Plant (the Plant), located at 700 Los Esteros Road, San Jose, Santa Clara County, California. The Plant provides tertiary treatment of wastewater from domestic, commercial and industrial sources from the cities of San Jose, Santa Clara, and Milpitas; County Sanitation District 2-3; the West Valley

Sanitation District including Campbell, Los Gatos, Monte Sereno and Saratoga, and the Cupertino, Burbank, and Sunol Sanitary Districts (hereafter called Satellite Agencies). The Discharger's service area has a present population of about 1.3 million. In 2002, the Plant discharged an annual average daily flow of 110 MGD. The treatment plant has an average dry weather effluent flow design capacity of 167 million gallons per day (MGD), and a 271 MGD peak hourly flow capacity. The USEPA and the Board have classified this Discharger as a major discharger. The receiving waters for the subject discharge are the waters of Artesian Slough, tributary to Coyote Creek and South San Francisco Bay. The beneficial uses for Coyote Creek and South San Francisco Bay, as identified in the Basin Plan and based on known uses of the receiving waters near the discharge, are:

a. Industrial Service Supply*
b. Navigation*
c. Water Contact Recreation
d. Non-contact Water Recreation
e. Ocean Commercial and Sport Fishing*
f. Wildlife Habitat
g. Preservation of Rare and Endangered Species
h. Fish Migration
i. Fish Spawning (potential for San Francisco Bay)
j. Estuarine Habitat
k. Shellfish Harvesting*
*These uses only apply South Francisco Bay not Coyote Creek

Beneficial uses specific to Artesian Slough have not been assessed to determine which uses exist or potentially could exist. Board policy is to use the tributary rule to interpret which beneficial uses are currently or potentially supported where beneficial uses have not been specifically designated. The beneficial uses of Coyote Creek, therefore, are assumed to apply to Artesian Slough.

Each of the receiving waters is estuarine in character and tidally influenced. Therefore, the reasonable potential analysis (RPA) and effluent limitations specified in this Order for discharges to the receiving waters are based on the lower of marine and freshwater California Toxic Rule (CTR) and National Toxics Rule (NTR) water quality criteria (WQC).

II. DESCRIPTION OF EFFLUENT

The table below presents the quality of the discharge, as indicated in the Discharger's self-monitoring reports submitted for the period from January 1999 through December 2002. Average values represent the average of actual detected values only.

Table A. Summary of Discharge Data

Parameter	Average	Daily Maximum
CBOD (mg/L)	1.62	2.45
TSS (mg/L)	1.49	2.24
Total Settleable Solids (ml/l-hr)	0.1	0.1
Residual Chlorine	0.045	0.48
Turbidity (NTU)	0.84	1.31
pH (standard units)	6.5 (min)	6.8 (max)
Ammonia (as N) (mg/L)	0.38	2.57
Nitrite (mg/L)	0.02	0.44
Nitrate (mg/L)	17.4	20.4
Organic-N (mg/L)	0.25	0.42

Parameter	Average	Daily Maximum
Phosphorous (mg/L)	10.3	13
Total Coliform (mpn/100 ml)	12.08	52
Arsenic (µg/L)	1.0	1.9
Total Chromium (µg/L)	0.78	1.7
Copper (µg/L)	3.79	8.3
Lead (µg/L)	1[1]	1
Mercury (µg/L)	0.003	0.008
Nickel (µg/L)	6.97	12
Selenium (µg/L)	0.59	0.98
Zinc (µg/L)	57.5	102
Chlordibromomethane (µg/L)	7.9	19.3
Chloroform (µg/L)	7.49	18.3
Dichlorobromomethane (µg/L)	9.95	24.3
2,4,6-Trichlorophenol (µg/L)	0.46 [1]	0.46
Acenaphthylene (µg/L)	0.87 [1]	0.87
Bis(2-Ethylhexyl)Phthalate (µg/L)	1.5 [1]	1.5
Butylbenzyl Phthalate (µg/L)	14 [1]	14
1,4 Dichlorobenzene (µg/L)	0.34 [1]	0.34
Diethyl Phthalate (µg/L)	0.49 [1]	0.49
Dimethyl Phthalate (µg/L)	0.19 [1]	0.19
Di-n-Butyl Phthalate (µg/L)	3.25	3.6
Di-n-Octyl Phthalate (µg/L)	0.48 [1]	0.48
Aldrin (µg/L)	0.032 [1,2]	0.032
Tributyltin (µg/L)	0.003	0.004

[1] Only one detected value, therefore the average value is also the maximum value.
[2] This detected value of aldrin has been shown to be potentially invalid because of analytical problems and because aldrin was not observed in corresponding plant influent sample.

III. GENERAL RATIONALE

The following documents are the bases for the requirements contained in the proposed 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 water quality objectives (WQOs) for most waters of the State. However, the numeric WQOs for priority pollutants in the Basin Plan do not apply to the South Bay below Dumbarton Bridge. On May 22, 2002, the Board adopted a Basin Plan Amendment that includes site-specific objectives (SSOs) for copper and nickel that apply to the South 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**).
- Ambient Water Quality Criteria for Bacteria – 1986, USEPA 440/5-84-002, January 1986.
- USEPA Technical Support Document for Water Quality-Based Toxics Control, EPA/505/2-90-001, March 1991 (hereinafter TSD).

IV. SPECIFIC RATIONALE

Several specific factors affecting the development of limitations and requirements in the proposed 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 limitations (**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 existing permit limitations whichever is more stringent (unless anti-backsliding requirements are met). In determining what constitutes "recent plant performance", best professional judgment (**BPJ**) was used. Effluent monitoring data collected from 1999 to 2002 are considered representative of recent plant performance.

2. **Impaired Water Bodies in 303(d) List**
The State Water Resources Control Board adopted the revised California 303(d) list on February 4, 2003. The list (hereinafter referred to as the 2002 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. South San Francisco Bay is listed as an impaired water body. The pollutants impairing the South San Francisco Bay include chlordane, DDT, diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, PCBs, dioxin-like PCBs, and selenium. Copper and nickel, which were previously identified as impairing South San Francisco Bay, were not included as impairing pollutants in the 2003 303(d) list and were placed on the new Monitoring List. USEPA approved the 2002 303(d) list on June 6, 2003. USEPA is currently in the process of depromulgating the CTR copper and nickel standards for the South San Francisco Bay. USEPA expects the promulgation to be complete Summer 2003.

The SIP requires final effluent limitations for all 303(d)-listed pollutants to be based on total maximum daily loads (**TMDLs**) and wasteload allocation (**WLA**) results. The SIP and federal regulations also require that final concentration limitations be included for all pollutants with reasonable potential. The SIP requires that where the Discharger has demonstrated infeasibility to meet the final limitations, interim concentration limitations be established in the permit with a compliance schedule in effect until final effluent limitations are adopted. The SIP also requires the inclusion of appropriate provisions for waste minimization and 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). Prohibitions A.2 (10:1 dilution), A.3 (dead end sloughs/confined waterbodies), and A.4 (no discharge to South San Francisco Bay below Dumbarton Bridge or its tributaries): These prohibitions are based on the Basin Plan.

c). Prohibition A.5 (no bypass or overflow): This prohibition is based on the previous Order and BPJ.

d). Prohibition A.6 (no unauthorized discharge): This prohibition is based on the Basin Plan and the Clean Water Act, which prohibit unauthorized/unpermitted discharges.

e). Prohibition A.7 (flow limitation): This prohibition is based on the reliable treatment capacity of the plant. Exceedence of the treatment plant's average dry weather flow design capacity may result in lowering the reliability of compliance with water quality requirements, unless the Discharger demonstrates otherwise through an antidegradation study. This prohibition is based on 40 CFR 122.41(l).

f). Prohibition A.8 (discharge prohibition exception): As discussed in detail in the Order, the Board has continued the Discharger's exception from Prohibitions A.2-A.4 based on an equivalent level of environmental protection.

4. Basis for Effluent Limitations

a) Effluent Limitation B.1: These limitations are technology-based limitations representative of, and intended to ensure, adequate and reliable tertiary level wastewater treatment. They are at least as stringent as the Basin Plan requirements (Chapter 4, page 4-8, and Table 4-2, at page 4-69). The limitations are unchanged from the previous permit. Compliance has been demonstrated by existing plant performance.

b) Effluent Limitation B.2 (pH): This effluent limitation is unchanged from the existing permit. The limitation 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 outside 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 (CBOD and TSS monthly average 85 percent removal): These are standard secondary treatment requirements and existing permit effluent limitations based on Basin Plan requirements (Table 4-2, page 4–69), derived from federal requirements (40 CFR

133.102; definition in 133.101). Compliance has been demonstrated by existing plant performance for ordinary flows (dry weather flows and most wet weather flows). During the past few years, the Discharger has consistently met these removal efficiency limitations.

d) Effluent Limitation B.4 (Whole Effluent Acute Toxicity): The Basin Plan specifies a narrative objective for toxicity, requiring that all waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental response on aquatic organisms. Detrimental response includes but is not limited to decreased growth rate, decreased reproductive success of resident or indicator species, and/or significant alternations in population, community ecology, or receiving water biota. These effluent toxicity limitations are necessary to ensure that this objective is protected. The whole effluent acute toxicity limitations for a three-sample median and single sample maximum are consistent with the previous Order and are based on the Basin Plan (Table 4-4, page 4-70). The limitations remain unchanged in this Order. During 1999-2001, the eleven sample median survival was 100 percent. The 90th percentile survival was between 96-100 percent.

e) Effluent Limitation B.5 (Whole Effluent Chronic Toxicity): The chronic toxicity objective/limitation is based on the Basin Plan's narrative toxicity objective on page 3-4.

f) Effluent Limitation B.6 and 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 SSO or WQC. The following section describes the RPA methodology and the results of such an analysis for the pollutants identified in the Basin Plan and the CTR.

   i. *SSOs and WQC*: The RPA involves the comparison of effluent data with appropriate SSOs for copper and nickel adopted in the Basin Plan Amendment (adopted by the Regional Board on May 22, 2002 and the approved by the State Board on October 17, 2002), applicable WQC in the CTR/NTR, and USEPA's 1986 Quality Criteria for Water. The SSOs and CTR criteria are shown in Attachment 1 of this Fact Sheet.

   In the May 22, 2002 Basin Plan Amendments, the Board also adopted metals translators specific to Lower South San Francisco Bay for copper and nickel. The translators for copper and nickel are 0.53 and 0.44, respectively. The translator development rationale and approach are discussed in the Staff Report to the May 22, 2002 SSO Basin Plan Amendments.

   ii. *Methodology*: The RPA is conducted using the method and procedures prescribed in Section 1.3 of the SIP. Board staff has analyzed the effluent and background data and the nature of facility operations to determine if the discharge has reasonable potential to cause or contribute to exceedances of applicable SSOs or WQC. Attachment 1 of this Fact Sheet shows the step-wise process described in Section 1.3 of the SIP.

iii. *Effluent and background data*: The receiving waters for the discharges are estuarine and subject to complex *tidal conditions of the Lower South San Francisco Bay.* Therefore, the most representative location of ambient background data *in the Lower South San Francisco Bay* for this facility is the Dumbarton Bridge RMP station (B-A-30). The RPA was completed using RMP data from 1993 through 2000 for the Dumbarton RMP station.

iv. *RPA determination*: The RPA results are shown below in Table B and Attachment 1 of this Fact Sheet. The pollutants that exhibit RP are copper, nickel, mercury, 4,4'-DDE, dieldrin, indeno(1,2,3-cd)pyrene, benzo(b)fluoranthene, heptachlor epoxide, and dioxin.

Table B. Summary of Reasonable Potential Results

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum DL[1] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background (µg/L)	RPA Results[2]
2	Arsenic	1.8	36	4.59	N
4	Cadmium	0.5	7.31	0.1707	N
5b	Chromium (VI)	1.7	200	14.74	N[3]
6	Copper	8.3	13.02	7.19	Y[3]
7	Lead	1	8.52	3.78	N
8	Mercury	0.008	0.051	0.0682	Y
9	Nickel	12	27.05	13.03	Y[4]
10	Selenium	0.998	5	0.63	N
11	Silver	0.2	2.24	0.1193	N
13	Zinc	102	170	14.85	N[3]
14	Cyanide	5	1	NA	N
16	2,3,7,8-TCDD (Dioxin)	0.43	1.4E-08	NA	Y[5]
17	Acrolein	NA	780	NA	Ud
18	Acrylonitrile	NA	0.66	NA	Ud
19	Benzene	1	71	NA	N
20	Bromoform	1	360	NA	N
21	Carbon Tetrachloride	1	4.4	NA	N
22	Chlorobenzene	1	21000	NA	N
23	Chlorodibromomethane	19.3	34	NA	N
24	Chloroethane	1	NA	NA	Uo
25	2-Chloroethylvinyl Ether	1	NA	NA	Uo
26	Chloroform	18.3	NA	NA	Uo
27	Dichlorobromomethane	24.3	46	NA	N
28	1,1-Dichloroethane	1	NA	NA	Uo
29	1,2-Dichloroethane	1	99	NA	N
30	1,1-Dichloroethylene	1	3.2	NA	N
31	1,2-Dichloropropane	1	39	NA	N
32	1,3-Dichloropropylene	1	1700	NA	N
33	Ethylbenzene	1	29000	NA	N
34	Methyl Bromide	1	4000	NA	N
35	Methyl Chloride	1	NA	NA	Uo
36	Methylene Chloride	1	1600	NA	N
37	1,1,2,2-Tetrachloroethane	1	11	NA	N
38	Tetrachloroethylene	1	8.85	NA	N

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum DL[1] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background (µg/L)	RPA Results[2]
39	Toluene	1	200000	NA	N
40	1,2-Trans-Dichloroethylene	1	140000	NA	N
41	1,1,1-Trichloroethane	1	NA	NA	Uo
42	1,1,2-Trichloroethane	1	42	NA	N
43	Trichloroethylene	1	81	NA	N
44	Vinyl Chloride	1	525	NA	N
45	Chlorophenol	1	400	NA	N
46	2,4-Dichlorophenol	0.1	790	NA	N
47	2,4-Dimethylphenol	1	2300	NA	N
48	2-Methyl-4,6-Dinitrophenol	0.5	765	NA	N
49	2,4-Dinitrophenol	0.5	14000	NA	N
50	2-Nitrophenol	0.2	NA	NA	Uo
51	4-Nitrophenol	0.5	NA	NA	Uo
52	3-Methyl-4-Chlorophenol	0.1	NA	NA	Uo
53	Pentachlorophenol	0.5	7.9	NA	N
54	Phenol	1	4600000	NA	N
55	2,4,6-Trichlorophenol	0.46	6.5	NA	N
56	Acenaphthene	0.1	2700	0.0026	N
57	Acenaphthylene	0.87	NA	0.00054	Uo
58	Anthracene	0.1	110000	0.0023	N
59	Benzidine	NA	0.00054	NA	Ud
60	Benzo(a)Anthracene	0.1	0.049	0.017	N
61	Benzo(a)Pyrene	0.1	0.049	0.045	N
62	Benzo(b)Fluoranthene	0.1	0.049	0.0572	Y
63	Benzo(ghi)Perylene	0.1	NA	0.015	Uo
64	Benzo(k)Fluoranthene	0.1	0.049	0.02105	N
65	Bis(2-Chloroethoxy)Methane	1	NA	NA	Uo
66	Bis(2-Chloroethyl)Ether	1	1.4	NA	N
67	Bis(2-Chloroisopropyl)Ether	0.2	170000	NA	N
68	Bis(2-Ethylhexyl)Phthalate	1.5	5.9	NA	N
69	4-Bromophenyl Phenyl Ether	0.1	NA	NA	Uo
70	Butylbenzyl Phthalate	14	5200	NA	N
71	2-Chloronaphthalene	0.1	4300	NA	N
72	4-Chlorophenyl Phenyl Ether	0.1	NA	NA	Uo
73	Chrysene	0.1	0.049	0.02206	N
74	Dibenzo(a,h)Anthracene	0.1	0.049	0.0088	N
75	1,2 Dichlorobenzene	0.1	17000	NA	N
76	1,3 Dichlorobenzene	0.1	2600	NA	N
77	1,4 Dichlorobenzene	0.34	2600	NA	N
78	3,3-Dichlorobenzidine	0.2	0.077	NA	N
79	Diethyl Phthalate	0.49	120000	NA	N
80	Dimethyl Phthalate	0.19	2900000	NA	N
81	Di-n-Butyl Phthalate	3.6	12000	NA	N
82	2,4-Dinitrotoluene	0.1	9.1	NA	N
83	2,6-Dinitrotoluene	0.1	NA	NA	Uo
84	Di-n-Octyl Phthalate	0.48	NA	NA	Uo
85	1,2-Diphenylhydrazine	5	0.54	NA	N

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum DL[1] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background (µg/L)	RPA Results[2]
86	Fluoranthene	0.05	370	0.03896	N
87	Fluorene	0.1	14000	0.0055	N
88	Hexachlorobenzene	0.1	0.00077	0.000164	N
89	Hexachlorobutadiene	0.2	50	NA	N
90	Hexachlorocyclopentadiene	NA	17000	NA	Ud
91	Hexachloroethane	0.2	8.9	NA	N
92	Indeno(1,2,3-cd) Pyrene	0.06	0.049	0.078	Y
93	Isophorone	0.5	600	NA	N
94	Naphthalene	0.1	NA	0.0024	Uo
95	Nitrobenzene	0.5	1900	NA	N
96	N-Nitrosodimethylamine	NA	8.1	NA	Ud
97	N-Nitrosodi-n-Propylamine	0.2	1.4	NA	N
98	N-Nitrosodiphenylamine	NA	16	NA	Ud
99	Phenanthrene	0.05	NA	0.0141	Uo
100	Pyrene	0.05	11000	0.05603	N
101	1,2,4-Trichlorobenzene	1	NA	NA	Uo
102	Aldrin	0.01[5]	0.00014	NA	N
103	Alpha-BHC	0.025	0.013	0.000662	N
104	beta-BHC	0.025	0.046	0.000607	N
105	Gamma-BHC	0.025	0.063	0.0016667	N
106	Delta-BHC	0.025	NA	0.000133	Uo
107	Chlordane	0.01	0.00059	0.000574	N
108	4,4'-DDT	0.04	0.00059	0.000202	N
109	4,4'-DDE	0.04	0.00059	0.000678	Y
110	4,4'-DDD	0.04	0.00084	0.00077	N
111	Dieldrin	0.01	0.00014	0.000292	Y
112	Alpha-Endosulfan	0.025	0.0087	0.000027	N
113	beta-Endosulfan	0.029	0.0087	0.000046	N
114	Endosulfan Sulfate	0.025	240	0.000072	N
115	Endrin	0.01	0.0023	0.00012	N
116	Endrin Aldehyde	0.025	0.81	NA	N
117	Heptachlor	0.01	0.00021	0.000022	N
118	Heptachlor Epoxide	0.001	0.00011	0.000174	Y
119-125	PCBs	0.02	0.00017	NA	N
126	Toxaphene	0.2	0.0002	NA	N
	Tributyltin	0.004	0.005	NA	N

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 not effluent 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.
RP = Ud (undetermined due to lack of effluent monitoring data).
RP = Uo (undetermined if no objective promulgated).

3) For all metals except copper and nickel-which utilize translators adopted in the May 22, 2002 Basin Plan Amendment, Board staff initially assessed reasonable potential using the conversion factors (Cfs)/translators included in the CTR. After this initial assessment, reasonable potential was suggested for chromium VI and zinc. Board staff have determined that the RMP data are representative of season and spatial variability in water body conditions; were collected and evaluated according to rigorous quality assurance and control requirements; and meet USEPA's recommended guidelines for translator development. Based on these conclusions, Board staff

followed the procedures in Section 1.4.1 of the SIP to establish chromium VI and zinc translators. Complete documentation of the data and methodology used to determine the chromium VI and zinc translators is provided in Attachment 3 to this Fact Sheet.

4) RP =Yes, based on third trigger, see the Order for detailed basis for this determination for copper and nickel.
5) RP =Yes, based on third trigger. Although additional, reliable, ambient and effluent data are required, the *San Francisco Bay Ambient Water Monitoring Interim Report* provides monitoring results from sampling events in 2002 and 2003 for the Dumbarton Bridge RMP station. While these "interim" data have not been used to evaluate RP using trigger 2, they show elevated dioxin levels at the Dumbarton Bridge RMP station. The Board has considered these data along with the listing on the 303(d) list to find RP for dioxin based on the third trigger.
6) In March 2002, the Discharger reported a detected level of aldrin (0.032 µg/L). The Discharger subsequently submitted information documenting the questionable reliability of this contract laboratory-supplied data. Split samples sent to different labs showed varied results for aldrin suggesting inter and intra-calibration problems in the analysis. In addition, aldrin was detected in the effluent but not in the influent (<0.005 µg/L) to the treatment plant and there are no known sources of aldrin in the treatment process. Therefore, Board staff did not use the March 2002 aldrin data to determine reasonable potential in this Order.

v. *Constituents with limited data*: Reasonable potential could not be determined for some of organic priority pollutants due to (i) the absence of effluent data or (ii) the absence of applicable WQC. As required by the August 6, 2001 letter from Board staff to all permittees, the Discharger is required to initiate or continue to monitor for those pollutants in this category using analytical methods that provide the best detection limits reasonably feasible. These pollutants' RP will be reevaluated in the future to determine whether there is a need to add numeric effluent limitations to the permit or to continue monitoring.

vi. *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, under the provisions of the August 6, 2001 letter. If concentrations of these constituents are 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.

vii. *Permit reopener:* The permit includes a reopener provision to allow numeric effluent limitations 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 Limitations: The final WQBELs were developed for the toxic and priority pollutants that were determined to have reasonable potential to cause or contribute to exceedances of the SSOs or WQC. Final effluent limitations were calculated based on appropriate SSOs/WQC and the appropriate procedures specified in Section 1.4 of the SIP (See Attachment 2 of this Fact Sheet). For the purpose of the Proposed Order, final WQBELs refer to all non-interim effluent limitations. The SSO or WQC used for each pollutant with reasonable potential is indicated in Table C below as well as in Attachment 2.

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

Pollutant	Chronic SSO (µg/L)	Acute SSO (µg/L)	Human Health WQC (µg/L)	Basis of Lowest SSO/WQC Used in RP

Pollutant	Chronic SSO (µg/L)	Acute SSO (µg/L)	Human Health WQC (µg/L)	Basis of Lowest SSO/WQC Used in RP
Copper	13.02	20.38		SSO
Mercury	--	--	0.051	CTR
Nickel	27.05	141.82		SSO
Benzo(b)fluoranthene	--	--	0.049	CTR
Indeno(1,2,3-cd)pyrene	--	--	0.049	CTR
4,4'-DDE	--	--	0.00059	CTR
Dieldrin	--	--	0.00014	CTR
Heptachlor Epoxide	--	--	0.00011	CTR
TCDD TEQ	--	--	1.4E-08	CTR

3. Feasibility Evaluation and Interim Limitations: The Discharger submitted infeasibility to comply reports in May 2003 for benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, 4,4'-DDE, dieldrin, heptachlor epoxide, and dioxin. It is not feasible to determine compliance with the final effluent limitations for benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, 4,4'-DDE, dieldrin, and heptachlor epoxide, because the MLs are higher than the final limitations. For these parameters, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, 4,4'-DDE, dieldrin, and heptachlor epoxide, interim limitations are established at the respective MLs. For dioxin, it is not feasible to determine compliance or develop an interim limitation because there are insufficient, reliable, low-level monitoring data. This permit requires the Discharger to conduct additional dioxin monitoring and implement analytical techniques intended to achieve lower detection limits. Interim concentration and dry weather mass effluent limitations were also derived for mercury pending completion of the mercury TMDL for the South San Francisco Bay. The interim limitations are discussed in more detail below.

4. Compliance Schedules: This permit establishes compliance schedules until October 31, 2008 for benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, 4,4'-DDE, dieldrin, and heptachlor epoxide. The Board may take appropriate enforcement actions if interim limitations and requirements are not met.

g) Mercury – Further Discussion and Rationale for Interim Effluent Limitations: This Order establishes interim effluent concentration limitations of 12 ng/L and 2.1 µg/L, which are the existing monthly average and daily average permit limitations. Because this pollutant is monitored monthly, these limitations are more stringent than the statistically calculated performance-based limitation of 23 ng/L 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*). This Order will be re-opened, as appropriate, to incorporate the requirements of the mercury TMDL and WLA upon their completion. The Clean Water Act's anti-backsliding rule, Section 402(o), indicates that this Order may be modified to include less stringent requirements following completion of the TMDL and WLA, if the requirements for an exception to the rule are met.

In other Orders, the Board has established interim mercury mass-based effluent limitations based on actual treatment plant performance to maintain current loadings until a TMDL is established. This Order establishes an interim, dry weather, mercury mass-based effluent limitation of 0.231

kg/month. This limitation is calculated based on the average monthly concentration-based effluent limitation (12 ng/L) and the dry weather design capacity of the treatment plant (167 mgd). The Board has determined that this approach to calculating a mass-based limitation for this Discharger is appropriate for the following reasons: (1) recent monitoring data show very low levels of mercury in the discharge, well below the applicable WQC, (2) the interim concentration limitations, which are more stringent than the WQBELs calculated according to the SIP methodology, will ensure that mercury levels remain low in the discharge, (3) the Discharger will continue to identify and, to the extent feasible, address mercury sources under its pollution prevention program, and (4) the interim mass limitation based on the design flow will be preclude any significant increases in mass loadings from the plant. Overall, the Discharger already has minimized mercury influent loadings to the treatment plant and provided for a high level of mercury removal in the treatment process. The Board anticipates that is unlikely that the TMDL will require additional reductions in mercury loadings beyond current treatment levels. Further, to complement the interim, dry weather, mercury mass limitation, the South Bay dischargers have proposed to complete scientific studies designed to further the Board's understanding of mercury fate and transport in the South Bay and identify specific sources and potential advanced control opportunities. As part of this effort, Provision E.4 of this Order requires a study of total and methyl mercury fate and transport at the wastewater treatment plant. This study, along with the work of the other South Bay dischargers, is expected to yield valuable data to support completion of the TMDL. This Order will be re-opened, as appropriate, to incorporate the requirements of the mercury TMDL and WLA upon their completion. The Clean Water Act's anti-backsliding rule, Section 402(o), indicates that this Order may be modified to include less stringent requirements following completion of the TMDL and WLA, if the requirements for an exception to the rule are met.

h) Benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, 4,4'-DDE, dieldrin, and heptachlor epoxide – Further Discussion and Rationale for Interim Effluent Limitations: Interim effluent limitations are required for these pollutants because compliance with the final WQBELs cannot be determined at this time as the MLs are higher than the final calculated WQBELs as shown in Table D. Therefore, interim limitations are established at the respective minimum levels.

Table D. Final WQBELs and MLs

Pollutant	AMEL (µg/L)	MDEL (µg/L)	ML (µg/L)	Interim Daily Maximum Limit (µg/L)
Benzo(b)fluoranthene	0.049	0.098	10.0	10.0
Indeno(1,2,3-cd)pyrene	0.049	0.098	0.05	0.05
4,4'-DDE	0.00059	0.00118	0.05	0.05
Dieldrin	0.00014	0.00028	0.01	0.01
Heptachlor Epoxide	0.00011	0.00022	0.01	0.01

i) Effluent Limitation B.8 (Bacteria): The previous Order included total coliform limitations. EPA's draft implementation guidance for bacteriological WQC (May, 2002) recommended either enterococcus or *E. coli*, or both together, as superior bacteriological indicators of human health pathogenic risk as compared to total or fecal coliform. This recommendation was based on the fact that coliforms originate from many sources, including humans, and research has shown that many of these forms are unrelated to human pathogens or risk potential. A growing number of studies (including several alluded to in the City's report, such as the Santa Monica Bay study, Haile and others, 1999) have indicated that enterococcus and/or *E. coli* counts are more

significantly correlated with human health problems than coliform counts. Thus, enterococcus is recognized by EPA and others as a fairly accurate indicator of human health risk potential from water contact.

In 2000, the Discharger submitted a work plan that was approved by the Executive Officer for a study to develop alternative bacteriological limitations. On March 18, 2003, the Discharger submitted *Alternative Effluent Bacteriological Standards, Pilot Study Report* to the Board. This study showed that the receiving waters support "lightly used" contact recreational use. Based on this use, the Discharger proposed and the Board has incorporated into this Order the following enterococcus limitations, which are consistent with EPA guidance:

a. 30-day geometric mean of less than 35 enterococcus colonies per 100mL; and,
b. No single effluent sample exceeding 276 colonies per 100mL, as verified by a follow-up sample taken within 24 hours.

Compliance with these limitations, which are protective of the designated use, will reduce the required level of chlorination at the plant.

5. Basis for Receiving Water Limitations

a. Receiving water limitations C.1 and C.2 (conditions to be avoided): These limitations are based on the previous Order and the narrative/numerical objectives contained in Chapter 3 of the Basin Plan, pages 3-2 – 3-5.

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

These requirements are based on Table 4.1 of the Basin Plan and 40 CFR 503.

7. Basis for Self-Monitoring Requirements

The Self Monitoring Program includes monitoring at the outfall for conventional, non-conventional, and toxic pollutants, and acute and chronic toxicity that is generally the same as in the previous Order. To ensure Plant reliability, the Discharger is required to monitor its effluent on a daily basis. This will be accomplished through daily turbidity monitoring. Turbidity is a good performance indicator for a tertiary treatment plant. Turbidity is typically monitored with an online probe, so the incremental costs if any, justify the incremental benefit. Because of this requirement, the Board has retained the weekly monitoring frequencies for CBOD and TSS. Settleable matter monitoring is added to the SMP because there is an effluent limitation. The Discharger has consistently been well below the effluent limitations for these parameters. The monitoring frequency for bacteria has been increased to five times per week. This will provide for assessment of compliance with the new bacteria limitations, while the Discharger reduces chlorine usage at the Plant. The oil and grease monitoring frequency has also been reduced from monthly to quarterly since it has been consistently below the effluent limitations. This Order requires monthly monitoring for copper, mercury, and nickel to demonstrate compliance with effluent limitations. Because they were not detected in the effluent during 1999-2002, this Order requires twice yearly monitoring for benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, 4,4'-DDE, dieldrin, and heptachlor epoxide to demonstrate compliance with the interim limitations. Until analytical methods improve and MLs are lowered, more frequent

monitoring will not generate more useful data. Twice yearly monitoring for aldrin is also required to verify no reasonable potential. For dioxins and furans, this Order also requires twice yearly monitoring using methods with low detection limits.

8. 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 Order is 40 CFR 122.46.

b) Provision E.2 (Avian Botulism Control Program): Consistent with the specific requirements of Order WQ 90-5, compliance with this provision is a condition of the Board continuing to allow the exception from Discharge Prohibitions A.2-A.4.

c) Provision E.3 (Aldrin Lab Reliability Study): Consistent with the SIP, the Discharger is required to submit reliable data for toxic pollutants. Aldrin (and several other pesticides) have recently been detected in the effluent. The data have been of questionable validity (non-detect in the influent, differences among split samples, etc.) and, based on Section 1.2 of the SIP, the Board has determined that they cannot be used in the RPA. This study will ensure that future aldrin and other pesticide sampling and analysis will yield reliable data. This provision is being required in lieu of establishing WQBELs for aldrin.

d) Provision E.4 (Mercury Special Study): This provision, under which the Discharger will complete a study of mercury fate and transport in the POTW, is required to complement the interim, dry weather, effluent mass limitation for mercury. The study results will provide useful data to support development and implementation of the mercury TMDL.

e) Provision E.5 (Pretreatment Program): The requirements to implement an approved pretreatment program are based on 40 CFR Part 403.

f) Provision E.6 (Effluent Monitoring): This provision, which requires the Discharger to conduct effluent water monitoring as provided for in the August 6, 2001 letter, is based on the Basin Plan and the SIP.

g) Provision E.7 (Pollutant Prevention and Minimization Program): This provision is based on the Basin Plan, pages 4-25 – 4-28, and the SIP, Section 2.1.

h) Provision E.8 (Whole Effluent Acute Toxicity): This provision establishes conditions by which compliance with permit effluent limitations for acute toxicity will be demonstrated. Conditions initially include the use of 96-hour bioassays, the use of sensitive species, and the use of approved test methods as specified. No later than November 1, 2004, the Discharger shall switch from the 3rd to the 5th Edition USEPA protocol with flow through bioassays. Static renewal bioassays may be allowed if the Discharger demonstrates that flow through tests are not feasible.

i) Provision E.9 (Copper and Nickel Action Plans and Water Quality Attainment Strategy): This provision incorporates the specific requirements of the May 22, 2002 Basin Plan Amendment, to implement the Water Quality Attainment Strategy, including the Copper and Nickel Action Plans. Order No. 00-109, which is superseded by this Order, previously required the Discharger to implement the Copper and Nickel Action Plans.

As documented in the Staff Report for the May 22, 2002 Basin Plan Amendment, the four elements of the WQAS are:

1. Current control measures/actions to minimize copper and nickel releases from municipal wastewater treatment plants and urban runoff programs to the Lower South San Francisco Bay;
2. Statistically-based water quality "triggers" and a receiving water monitoring program that would initiate additional control measures/actions if the "triggers" are met;
3. A proactive framework for addressing increases to future copper and nickel concentrations in the Lower South San Francisco Bay, if they occur; and
4. Metal translators that will be used to compute copper and nickel effluent limitations for the municipal wastewater treatment plants discharging to the Lower South San Francisco Bay.

j) Provision E.10 (Santa Clara Basin Watershed Management Initiative): This provision is unchanged from the previous Order and is based on BPJ.

k) Provision E.11 (South Bay Action Plan): Board Resolution 91-152 accepted the Discharger's South Bay Action Plan as an alternative to a flow limitation as a condition of the granted exception from Discharge Prohibitions A.2-A.4. Under the authority of this resolution and the need to maintain an equivalent level of environmental protection to continue grant the exception, this provision requires the Discharger to update and implement the Action Plan.

l) Provision E.12 (Wetlands Mitigation): This provision requires the Discharger to fulfill its remaining wetland mitigation responsibilities as required by Order Nos. 90-5 and Board Resolution 96-137.

m) ProvisionsE.13 and E.14 (Salt Marsh Vegetative Assessments and Species Surveys). The requirements to conduct salt marsh vegetative assessments and California Clapper Rail and Saltmarsh Harvest Mouse surveys are based on the Board's BPJ that such data/information are necessary to measure the progress of the South Bay Action Plan and determine whether equivalent environmental protection is being maintained.

n) Provision E.15 (Regional Monitoring Program): This provision, which requires the Discharger to continue to conduct receiving water monitoring through the RMP, is based on the Basin Plan and the SIP.

o) Provision E.16 (Optional Mass Offset): This option is provided to encourage the Discharger to further implement aggressive reduction of mass loads to the South San Francisco Bay.

p) Provisions E.17 (Operations and Maintenance Manual and Reliability Report), E.18 (Contingency Plan Update), and E.19 (Annual Status Reports): These provisions are based on the Basin Plan, the requirements of 40 CFR 122, and the previous permit.

q) Provision E.20 (303(d)-listed Pollutants Site-Specific Objective and TMDL Status Review): Consistent with the SIP, the Discharger shall participate in the development of a TMDL or SSO for mercury, selenium, 4,4'-DDE, dieldrin, dioxin, and PCBs. Active participation by the Discharger in the Clean Estuary Partnership (CEP) shall fulfill the requirements of this provision.

r) Provision E.21 (Self-Monitoring Program): The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring

requirements are contained 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 issued by the Board, including this Order. It contains definitions of terms, specifies general sampling and analytical protocols, and sets out requirements for 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 a sampling program specific for the facility. It defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs for them.

s) 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* (the Standard Provisions), or any amendments thereafter. That document is incorporated in the permit as an attachment to it. Where provisions or reporting requirements specified in the permit are different from equivalent or related provisions or reporting requirements given in the Standard Provisions, the permit specifications 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.

t) Provision E.23 (Change in Control or Ownership): This provision is based on 40 CFR 122.61.

u) Provision E.24 (Permit Reopener): This provision is based on 40 CFR 123.

v) Provision E.25 (NPDES Permit /USEPA concurrence): This provision is based on 40 CFR 123.

w) Provision E.26 (Permit Expiration and Reapplication): This provision is based on 40 CFR 122.46(a).

V. 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.

VI. ATTACHMENTS

Attachment 1: RPA Results for Priority Pollutants
Attachment 2: Calculation of Final WQBELs
Attachment 3: Documentation of Chromium VI and Zinc Translator Development

ATTACHMENT 1

RPA RESULTS FOR PRIORITY POLLUTANTS

Attachment 1
Reasonable Potential Analysis Results for Priority Pollutants
City of San Jose

Beginning			Step 2	Step 3				Step 4		Step 5	Step 6		Steps 7 & 8	Final Result	
	Constituent name	C (µg/L) Lowest (most stringent) Criteria (Enter "No Criteria" for no criteria)	Effluent Data Available (Y/N)?	Are all data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL)	Enter the pollutant effluent detected max conc (ug/L)	If all data points are ND and MinDL>C, interim monitoring is required	Pollutant Concentration (MEC= detected max value; if all ND & MDL<C then MEC = MDL)	MEC vs. C 1. If MEC> or =C, effluent limitation is required; 2. If MEC<C, go to Step 5	B (µg/L) Enter the Maximum Background Conc	B vs. C If B>C, effluent limitation is required	7) Review other information in the SIP page 4. If information is unavailable or	RPA Result	Reason
1	Antimony	4,300	N				No effluent data				No RMP Data	No ambient data, to Step 7		Ud	No effluent data & no B
2	Arsenic	36	Y	N		1.8		1.8	MEC<C, go to Step 5	4.59	B<C, Step 7			No	MEC<C & B<C
3	Beryllium	No Criteria	N				No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria		Uo	No Criteria
4	Cadmium	7.31	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	0.1707	B<C, Step 7			No	MEC<C & B<C
5a	Chromium (III)	644.20	N				No effluent data			No RMP Data	No ambient data, to Step 7			Ud	No effluent data & no B
5b	Chromium (VI)	200.00	Y	N		1.7		1.7	MEC<C, go to Step 5	14.74	B<C, Step 7			No	MEC<C & B<C
6	Copper (303d listed) [a]	13.02	Y	N		8.3		8.3	MEC<C, go to Step 5	7.19	B<C, Step 7	Yes	Yes	RP based on Board BPJ	
7	Lead	8.52	Y	N		1		1	MEC<C, go to Step 5	3.78	B<C, Step 7			No	MEC<C & B<C
8	Mercury (303d listed)	0.051	Y	N		0.006		0.006	MEC<C, go to Step 5	0.0582	B>C, Effluent Limit Require			Yes	B>C
9	Nickel [a]	27.05	Y	N		12		12	MEC<C, go to Step 5	13.03	B<C, Step 7	Yes	Yes	RP based on Board BPJ	
10	Selenium (303d listed)	5.00	Y	N		0.998		0.998	MEC<C, go to Step 5	0.03	B<C, Step 7			No	MEC<C & B<C
11	Silver	2.24	Y	Y	0.2		All ND, MDL<C, MEC=MDL	0.2	MEC<C, go to Step 5	0.1193	B<C, Step 7			No	MEC<C & B<C
12	Thallium	6.30	N				No effluent data			No RMP Data	No ambient data, to Step 7			Ud	No effluent data & no B
13	Zinc	170	Y	N		102		102	MEC<C, go to Step 5	14.65	B<C, Step 7			No	MEC<C & B<C
14	Cyanide	1.00	Y	Y	5		All ND, MinDL>C, Go to Step 5, & IM			No RMP Data	No ambient data, to Step 7			No	all ND; MDL>C & no B
15	Asbestos	No Criteria	N				No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria		Uo	No Criteria
16	2,3,7,8 TCDD (303d listed	0.000000014	Y	Y	0.43		All ND, MinDL>C, Go to Step 5, & IM			No RMP Data	No ambient data, to Step 7			Yes	RP based on Board BPJ
17	Acrolein	780	N				No effluent data			No RMP Data	No ambient data, to Step 7			Ud	No effluent data & no B
18	Acrylonitrile	0.66	N				No effluent data			No RMP Data	No ambient data, to Step 7			Ud	No effluent data & no B
19	Benzene	71	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
20	Bromoform	360	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
21	Carbon Tetrachloride	4.4	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
22	Chlorobenzene	21,000	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
23	Chlorodibromomethane	34	Y	N		19.3		19.3	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
24	Chloroethane	No Criteria	Y	Y	1		No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria		Uo	No Criteria
26	2-Chloroethylvinyl ether	No Criteria	Y	Y	1		No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria		Uo	No Criteria
28	Chloroform	No Criteria	Y	N		18.3	No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria		Uo	No Criteria
27	Dichlorobromomethane	46	Y	N		24.3		24.3	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
26	1,1-Dichloroethane	No Criteria	Y	Y	1		No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria		Uo	No Criteria
29	1,2-Dichloroethane	99	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
30	1,1-Dichloroethylene	3.20	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
31	1,2-Dichloropropane	39	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
32	1,3-Dichloropropylene	1,700	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
33	Ethylbenzene	29,000	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
34	Methyl Bromide	4,000	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
35	Methyl Chloride	No Criteria	Y	Y	1		No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria		Uo	No Criteria
36	Methylene Chloride	1,600	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
37	1,1,2,2-Tetrachloroethane	11	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
38	Tetrachloroethylene	8.85	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
39	Toluene	200,000	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
40	1,2-Trans-Dichloroethylen	140,000	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
41	1,1,1-Trichloroethane	No Criteria	Y	Y	1		No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria		Uo	No Criteria
42	1,1,2-Trichloroethane	42	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
43	Trichloroethylene	81	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
44	Vinyl Chloride	525	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
45	2-Chlorophenol	400	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
46	2,4-Dichlorophenol	790	Y	Y	0.1		All ND, MDL<C, MEC=MDL	0.1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
47	2,4-Dimethylphenol	2,300	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
48	2-Methyl- 4,6-Dinitrophen	765	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
49	2,4-Dinitrophenol	14,000	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
50	2-Nitrophenol	No Criteria	Y	Y	0.2		No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria		Uo	No Criteria
51	4-Nitrophenol	No Criteria	Y	Y	0.5		No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria		Uo	No Criteria
52	3-Methyl 4-Chlorophenol	No Criteria	Y	Y	0.1		No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria		Uo	No Criteria
53	Pentachlorophenol	7.90	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
54	Phenol	4,600,000	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
55	2,4,6-Trichlorophenol	6.50	Y	N		0.46		0.46	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
56	Acenaphthene	2,700	Y	Y	0.1		All ND, MDL<C, MEC=MDL	0.1	MEC<C, go to Step 5	0.0026	B<C, Step 7			No	MEC<C & B<C
57	Acenaphthylene	No Criteria	Y	N		0.87	No Criteria	No Criteria	No Criteria	0.00054	No Criteria	No Criteria		Uo	No Criteria
58	Anthracene	110,000	Y	Y	0.1		All ND, MDL<C, MEC=MDL	0.1	MEC<C, go to Step 5	0.0023	B<C, Step 7			No	MEC<C & B<C
59	Benzidine	0.00054	N				No effluent data			No RMP Data	No ambient data, to Step 7			Ud	No effluent data & no B
60	Benzo(a)Anthracene	0.049	Y	Y	0.1		All ND, MinDL>C, Go to Step 5, & IM			0.017	B<C, Step 7			No	all ND, MDL>C & B<C
61	Benzo(a)Pyrene	0.049	Y	Y	0.1		All ND, MinDL>C, Go to Step 5, & IM			0.045	B<C, Step 7			No	all ND, MDL>C & B<C
62	Benzo(b)Fluoranthene	0.049	Y	Y	0.1		All ND, MinDL>C, Go to Step 5, & IM			0.0572	B>C, Effluent Limit Require			Yes	B>C
63	Benzo(ghi)Perylene	No Criteria	Y	Y	0.1		No Criteria	No Criteria	No Criteria	0.015	No Criteria	No Criteria		Uo	No Criteria
64	Benzo(k)Fluoranthene	0.049	Y	Y	0.1		All ND, MinDL>C, Go to Step 5, & IM			0.02105	B<C, Step 7			No	all ND, MDL>C & B<C
65	Bis(2-Chloroethoxy)Methe	No Criteria	Y	Y	1		No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria		Uo	No Criteria
66	Bis(2-Chloroethyl)Ether	1.40	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 6	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
67	Bis(2-Chloroisopropyl)Eth	170,000	Y	Y	0.2		All ND, MDL<C, MEC=MDL	0.2	MEC<C, go to Step 6	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
68	Bis(2-Ethylhexyl)Phthalate	5.90	Y	N		1.5		1.5	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B
69	4-Bromophenyl Phenyl Et	No Criteria	Y	Y	0.1		No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria		Uo	No Criteria
70	Butylbenzyl Phthalate	5,200	Y	N		14		14	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7			No	MEC<C & no B

Attachment 1
Reasonable Potential Analysis Results for Priority Pollutants
City of San Jose

Beginning			Step 2:	Step 3				Step 4	Step 5	Step 6	Steps 7 & 8	Final Result	
	Constituent name	C (µg/L) Lowest (most stringent) Criteria (Enter "No Criteria" for no criteria)	Effluent Data Available (Y/N)?	Are all data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL)	Enter the pollutant effluent detected max conc (ug/L)	If all data points are ND and MinDL>C, interim monitoring is required	Pollutant Concentration (MEC= detected max value; if all ND & MDL<C then MEC = MDL)	MEC vs. C 1. If MEC> or =C, effluent limitation is required; 2. If MEC<C, go to Step 5	B (µg/L) Enter the Maximum Background Conc	B vs. C If B>C, effluent limitation is required	7) Review other information in the SIP page 4. If information is unavailable or	RPA Result	Reason
71	2-Chloronaphthalene	4,300	Y	Y	0.1		All ND, MDL<C, MEC=MDL	0.1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		No	MEC<C & no B
72	4-Chlorophenyl Phenyl Et	No Criteria	Y	Y	0.1		No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria	Uo	No Criteria
73	Chrysene	0.049	Y	Y	0.1		All ND, MinDL>C, Go to Step 5, & IM			0.02206	B<C, Step 7		No	all ND, MDL>C & B<C
74	Dibenzo(a,h)Anthracene	0.049	Y	Y	0.1		All ND, MinDL>C, Go to Step 5, & IM			0.0088	B<C, Step 7		No	all ND, MDL>C & B<C
75	1,2-Dichlorobenzene	17,000	Y	Y	0.1		All ND, MDL<C, MEC=MDL	0.1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		No	MEC<C & no B
76	1,3-Dichlorobenzene	2,600	Y	Y	0.1		All ND, MDL<C, MEC=MDL	0.1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		No	MEC<C & no B
77	1,4-Dichlorobenzene	2,600	Y	N		0.34		0.34	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		No	MEC<C & no B
78	3,3 Dichlorobenzidine	0.077	Y	Y	0.2		All ND, MinDL>C, Go to Step 5, & IM			No RMP Data	No ambient data, to Step 7		No	all ND; MDL>C & no B
79	Diethyl Phthalate	120,000	Y	N		0.49		0.49	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		No	MEC<C & no B
80	Dimethyl Phthalate	2,900,000	Y	N		0.19		0.19	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		No	MEC<C & no B
81	Di-n-Butyl Phthalate	12,000	Y	N		3.6		3.6	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		No	MEC<C & no B
82	2,4-Dinitrotoluene	9.10	Y	Y	0.1		All ND, MDL<C, MEC=MDL	0.1	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		No	MEC<C & no B
83	2,6-Dinitrotoluene	No Criteria	Y	Y	0.1		No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria	Uo	No Criteria
84	Di-n-Octyl Phthalate	No Criteria	Y	N		0.48	No Criteria	No Criteria	No Criteria	No RMP Data	No ambient data, to Step 7		No	MEC<C & no B
85	1,2-Diphenylhydrazine	0.54	Y	Y	5		All ND, MinDL>C, Go to Step 5, & IM			No RMP Data	No Criteria	No Criteria	Uo	No Criteria
86	Fluoranthene	370	Y	Y	0.05		All ND, MDL<C, MEC=MDL	0.05	MEC<C, go to Step 5	0.03590	B<C, Step 7		No	all ND; MDL>C & no B
87	Fluorene	14,000	Y	Y	0.1		All ND, MDL<C, MEC=MDL	0.1	MEC<C, go to Step 5	0.0055	B<C, Step 7		No	MEC<C & B<C
88	Hexachlorobenzene	0.00077	Y	Y	0.1		All ND, MinDL>C, Go to Step 5, & IM			0.000164	B<C, Step 7		No	MEC<C & B<C
89	Hexachlorobutadiene	50	Y	Y	0.2		All ND, MDL<C, MEC=MDL	0.2	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		No	all ND, MDL>C & B<C
90	Hexachlorocyclopentadien	17,000	N				No effluent data			No RMP Data	No ambient data, to Step 7		No	MEC<C & no B
91	Hexachloroethane	8.90	Y	Y	0.2		All ND, MDL<C, MEC=MDL	0.2	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		Ud	No effluent data & no B
92	Indeno(1,2,3-cd)Pyrene	0.049	Y	Y	0.05		All ND, MinDL>C, Go to Step 5, & IM			0.078	B>C, Effluent Limit Require		No	MEC<C & no B
93	Isophorone	600	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		Yes	B>C
94	Naphthalene	No Criteria	Y	Y	0.1		No Criteria	No Criteria	No Criteria	0.0024	No Criteria	No Criteria	No	MEC<C & no B
95	Nitrobenzene	1,900	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		Uo	No Criteria
96	N-Nitrosodimethylamine	8.10	N				No effluent data			No RMP Data	No ambient data, to Step 7		No	MEC<C & no B
97	N-Nitrosodi-n-Propylamin	1.40	Y	Y	0.2		All ND, MDL<C, MEC=MDL	0.2	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		Ud	No effluent data & no B
98	N-Nitrosodiphenylamine	16	N				No effluent data			No RMP Data	No ambient data, to Step 7		No	MEC<C & no B
99	Phenanthrene	No Criteria	Y	Y	0.05		No Criteria	No Criteria	No Criteria	0.0141	No Criteria	No Criteria	Ud	No effluent data & no B
100	Pyrene	11,000	Y	Y	0.05		All ND, MDL<C, MEC=MDL	0.05	MEC<C, go to Step 5	0.05603	B<C, Step 7		Uo	No Criteria
101	1,2,4-Trichlorobenzene	No Criteria	Y	Y	1		No Criteria	No Criteria	No Criteria	No RMP Data	No Criteria	No Criteria	No	MEC<C & B<C
102	Aldrin	0.00014	Y	Y	0.01		All ND, MinDL>C, Go to Step 5, & IM			No RMP Data	No Criteria	No Criteria	Uo	No Criteria
103	alpha-BHC	0.013	Y	Y	0.025		All ND, MinDL>C, Go to Step 5, & IM			No RMP Data	No ambient data, to Step 7		No	all ND; MDL>C & no B
104	beta-BHC	0.046	Y	Y	0.025		All ND, MDL<C, MEC=MDL	0.025	MEC<C, go to Step 5	0.000662	B<C, Step 7		No	all ND, MDL>C & B<C
105	gamma-BHC	0.063	Y	Y	0.025		All ND, MDL<C, MEC=MDL	0.025	MEC<C, go to Step 5	0.000007	B<C, Step 7		No	MEC<C & B<C
106	delta-BHC	No Criteria	Y	Y	0.025		No Criteria	No Criteria	No Criteria	0.0010587	B<C, Step 7		No	MEC<C & B<C
107	Chlordane (303d listed)	0.00059	Y	Y	0.01		All ND, MinDL>C, Go to Step 5, & IM			0.000133	No Criteria	No Criteria	Uo	No Criteria
108	4,4'-DDT (303d listed)	0.00059	Y	Y	0.04		All ND, MinDL>C, Go to Step 5, & IM			0.000574	B<C, Step 7		No	all ND, MDL>C & B<C
109	4,4'-DDE (linked to DDT)	0.00059	Y	Y	0.04		All ND, MinDL>C, Go to Step 5, & IM			0.000202	B<C, Step 7		No	all ND, MDL>C & B<C
110	4,4'-DDD	0.00084	Y	Y	0.04		All ND, MinDL>C, Go to Step 5, & IM			0.000676	B>C, Effluent Limit Require		Yes	B>C
111	Dieldrin (303d listed)	0.00014	Y	Y	0.01		All ND, MinDL>C, Go to Step 5, & IM			0.00077	B<C, Step 7		No	all ND, MDL>C & B<C
112	alpha-Endosulfan	0.0087	Y	Y	0.025		All ND, MinDL>C, Go to Step 5, & IM			0.000292	B>C, Effluent Limit Require		Yes	B>C
113	beta-Endosulfan	0.0087	Y	Y	0.029		All ND, MinDL>C, Go to Step 5, & IM			0.000027	B<C, Step 7		No	all ND, MDL>C & B<C
114	Endosulfan Sulfate	240	Y	Y	0.025		All ND, MDL<C, MEC=MDL	0.025	MEC<C, go to Step 5	0.000046	B<C, Step 7		No	all ND, MDL>C & B<C
115	Endrin	0.0023	Y	Y	0.01		All ND, MinDL>C, Go to Step 5, & IM			0.000072	B<C, Step 7		No	MEC<C & B<C
116	Endrin Aldehyde	0.81	Y	Y	0.025		All ND, MDL<C, MEC=MDL	0.025	MEC<C, go to Step 5	0.00012	B<C, Step 7		No	all ND, MDL>C & B<C
117	Heptachlor	0.00021	Y	Y	0.01		All ND, MinDL>C, Go to Step 5, & IM			No RMP Data	No ambient data, to Step 7		No	MEC<C & no B
118	Heptachlor Epoxide	0.00011	Y	Y	0.001		All ND, MinDL>C, Go to Step 5, & IM			0.000022	B<C, Step 7		No	all ND, MDL>C & B<C
119-125	PCBs sum (2)	0.00017	Y	Y	0.02		All ND, MinDL>C, Go to Step 5, & IM			0.000174	B>C, Effluent Limit Require		Yes	B>C
120	Toxaphene	0.00020	Y	Y	0.2		All ND, MinDL>C, Go to Step 5, & IM			No RMP Data	No ambient data, to Step 7		No	all ND; MDL>C & no B
	Tributyltin	0.010	Y	N		0.004		0.004	MEC<C, go to Step 5	No RMP Data	No ambient data, to Step 7		No	all ND; MDL>C & no B
										No RMP Data	No ambient data, to Step 7		No	MEC<C & no B

a. The most stringent of salt and fresh water criteria were selected for this analysis.
b. Criteria for copper and nickel taken from Proposed Basin Plan Amendment- May 16, 2002 SF RWQCB Staff Report on Proposed SSO's for Nickel and Copper. Not yet approved by the SWRCB or EPA.
The freshwater criteria for Selenium are taken from NTR.
c. Acronyms in the "Final Result" column: CD: Cannot determine reasonable potential due to the absence of data, or because Minimum DL is greater than water quality objective or CTR criteria
IM: Interim monitoring is required
DL: Detection limit above water quality objective or CTR criteria
Y(B): Reasonable potential due to ambient data exceedances
d. Criteria for Tributyltin based on EPA criteria.

ATTACHMENT 2

CALCULATION OF FINAL WQBELs

Attachment 2
Calculation of Water Quality-Based Effluent Limitations
(Per Section 1.4 of the SIP)
City of San Jose

PRIORITY POLLUTANTS	Copper	Mercury	Nickel	Benzo(b)Fluoranthene	Indeno(1,2,3-cd)Pyrene	4,4'-DDE	Dieldrin	Heptachlor Epoxide
Basis and Criteria type	SSO	HH	SSO	HH	HH	HH	HH	HH
Lowest WQO	13.02	0.051	27.05	0.049	0.049	0.00059	0.00014	0.00011
Translators								
Dilution Factor (D) (if applicable)	0	0	0	0	0	0	0	0
No. of samples per month	4	4	4	4	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	Y	N	Y	N	N	N	Y	Y
HH criteria analysis required? (Y/N)	N	Y	N	Y	Y	Y	Y	Y
Applicable Acute WQO	20.38		141.82				0.24	0.053
Applicable Chronic WQO	13.02		27.05				0.056	0.0036
Applicable HH criteria		0.051		0.049	0.049	0.00059	0.00014	0.00011
Background (max conc for Aq Life calc)	7.19		13.03				0.000292	0.000174
Background (avg conc for HH calc)		0.01935		0.01132	0.01135	0.000206	0.00009	0.00006
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg)	N	Y	N	Y	Y	Y	Y	Y
ECA acute	20.38		141.82				0.24	0.053
ECA chronic	13.02		27.05				0.056	0.0036
ECA HH		0.051		0.049	0.049	0.00059	0.00014	0.00011
No. of data points <10 or atleast 80% of data reported non detect? (Y/N)	N	N	N	Y	Y	Y	Y	Y
avg of effluent data points	3.787	0.0029	6.974					
std dev of effluent data points	1.157	0.0014	1.421					
CV calculated	0.31	0.49	0.20	N/A	N/A	N/A	N/A	N/A
CV (Selected) - Final	0.31	0.49	0.20	0.60	0.60	0.60	0.60	0.60
ECA acute mult99	0.52		0.64				0.32	0.32
ECA chronic mult99	0.71		0.79				0.53	0.53
LTA acute	10.64		90.53				0.08	0.02
LTA chronic	9.25		21.47				0.030	0.0019
minimum of LTAs	9.25		21.47				0.030	0.0019
AMEL mult95	1.27	1.45	1.18	1.55	1.55	1.55	1.55	1.55
MDEL mult99	1.92	2.65	1.57	3.11	3.11	3.11	3.11	3.11
AMEL (aq life)	11.74		25.24				0.04585	0.0029
MDEL(aq life)	17.73		33.63				0.09199	0.006
MDEL/AMEL Multiplier	1.51	1.83	1.33	2.01	2.01	2.01	2.01	2.01
AMEL (human hlth)		0.051		0.049	0.049	0.00059	0.00014	0.00011
MDEL (human hlth)		0.093		0.098	0.098	0.00118	0.00028	0.00022
minimum of AMEL for Aq. life vs HH	11.74	0.051	25.24	0	0	0.00059	0.00014	0.00011
minimum of MDEL for Aq. Life vs HH	17.73	0.093	33.63	0	0	0.00118	0.00028	0.00022
Current limit in permit (30-d avg)	N/A	0.012	18	N/A	N/A	N/A	N/A	N/A
Current limits in permit (daily)	11.3	2.1	N/A	N/A	N/A	N/A	N/A	N/A
Final limit - AMEL	11.74	0.051	25.24	0.049	0.049	0.00059	0.00014	0.00011
Final limit - MDEL	17.73	0.093	33.63	0.098	0.098	0.00118	0.00028	0.00022
Max Effl Conc (MEC), 1999-2002	8.3	0.008	12.0	<0.1	<0.06	<0.04	<0.01	<0.001
Interim Limits for those where TMDL is final limit	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

1. The interim effluent limitations for benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, 4,4'-DDE, dieldrin, and heptachlor epoxide are set at the Minimum Levels (MLs).

ATTACHMENT 3

DOCUMENTATION FOR CHROMIUM AND ZINC TRANSLATOR DEVELOPMENT

EOA, Inc.

DRAFT MEMORANDUM

TO: Lorrie Gervin/Dave Grabiec, City of Sunnyvale
Dan Bruinsma/Dave Tucker, City of San Jose

FROM: Kristin Kerr/ Tom Hall

DATE: January 14, 2003

SUBJECT: **DRAFT Additional Analysis of RMP Station BA30 Zinc Translator Information**

BACKGROUND

A Reasonable Potential Analysis (RPA) is required to be conducted during the permit renewal process to determine which effluent limits need to be included in the reissued permits. On behalf of the City of Sunnyvale and the City of San Jose, EOA prepared separate Draft RPAs memos during July 2002. These initial RPAs used Regional Monitoring Program Yerba Buena Island (Station BC10) data for receiving water background data and a hardness of 400 mg/L. RWQCB staff and their consultants prepared Draft RPAs for the three South Bay cities during July and August 2002 that differed in several ways from the approach used by EOA, primarily in the use of Dumbarton Bridge (Station BA30) data for background and the use of default metals conversion factors instead of site specific translators.

To facilitate subsequent discussion of these RPA approach differences and implications on effluent limit requirements, EOA prepared a follow-up memo titled *Draft Review of Key RPA Issues and Options* (09/24/02, revised 12/19/02 and 01/14/03). To simplify the comparisons, and since it made no difference on the outcome of the RPA results (when translators are used) a slightly modified RPA was included with the "Issues" memo that used a conservative default hardness of 100 mg/L instead of 400 mg/L. Tables were included that showed how the results would differ depending of whether BC10 or BA30 background data were used. There were very minor differences in BC10 vs BA30 calculated translator values. However, four additional constituents at BA30 vs at BC10 would have RP based solely on background concentrations exceeding the corresponding water quality objectives.

One key issue addressed in the "Issues" memo (pages 6-9 and intervening tables) was how to adjust California Toxics Rule (CTR) dissolved metals based water quality objectives (criteria) (WQO) and dissolved metals receiving water concentrations, to a total metals basis. This adjustment is required since Federal Regulations require that effluent limitations be expressed on a total metals basis and thus effluent data are collected and analyzed for total metals concentrations. Thus CTR WQOs need to be adjusted from dissolved to total concentration to allow comparison to the maximum effluent concentrations (MEC) in the EPA based RPA (the first RPA trigger). For consistency under the State Implementation Plan (SIP) RPA Section 1.3 Step 6 (the second RPA trigger), background receiving water dissolved metals concentrations need to be similarly adjusted to total metals to allow comparison to the adjusted CTR WQOs developed and used for the MEC comparison.

(Possible future revisions to the SIP may modify and improve the current RPA process. Both BACWA and RWQCB staff submitted comments to the SWRCB in mid-December 2002 on changes to the SIP regarding how translators should be applied. Another common comment was that background concentration exceedances of WQOs alone should not trigger RP).

CONVERSION FACTORS vs TRANSLATORS in RPAs

Four options for adjusting the WQOs and RMP Station BA30 (Dumbarton Bridge) background receiving water concentrations were presented in the "Issues" memo. Table A in the Attachments to this memo is an updated version of the table summarizing those options with a column added for Sunnyvale MEC values. The table shows (in bold) the four metals that could potentially be viewed as having RP depending on one's assumptions about use of conversion factors versus site specific translators.

Hexavalent Chromium and Lead Even when hexavalent chromium and lead WQOs are adjusted with the conservative default conversion factors (instead of RMP translators), the only instance when there could be RP is the case where the RMP directly measured total metals background concentrations would be compared to the CF adjusted WQOs (Option 2). As noted above and in more detail in the "Issues" memo, this would be an internally inconsistent way of conducting an RP contrary to the SIP. When the dissolved background concentrations are instead converted to total metals using the CFs (Option 3) there is no RP (and by a wide margin) for hexavalent chromium or lead.

Mercury Total mercury concentrations are used in the RPAs instead of dissolved given that mercury is bioaccumulative and therefore the total metal concentration present is of concern. Two total mercury BA30 concentrations were above the CTR WQO of 0.051 ug/L. All MECs were well below the WQO.

Zinc Zinc is the only effluent metal where the Sunnyvale and San Jose MECs (110 and 102 ug/L respectively) could show RP, and only if one were to use the default CFs to adjust the CTR WQOs instead of translators. As shown in Table 1 below, the lowest WQO adjusted with the EPA conversion factor (0.946) is 85.6 ug/L while the lowest WQO adjusted with RMP BA30 translators is 170 ug/L. It is somewhat unusual that the translated CMC resulted in a lower WQO than the translated CCC. This appears to be due at least in part to the fact that for most other metals the chronic (CCC) values are at least two times lower than the acute (CMC) values rather than only about 10% lower for zinc.

Table 1. **RPAs for Zinc: MECs Compared to Differently Adjusted WQOs**

	Default EPA Conversion Factor	BA30 RMP Translator
Saltwater CMC	90	90
CMC Translator	0.946	0.53
Acute WQO Adjusted	95	170
Saltwater CCC	81	81
CCC Translator	0.946	0.2
Chronic WQO Adjusted	85.6	405
Lowest WQO	85.6	170
Sunnyvale MEC	110	110
Sunnyvale Zinc RP?	**Yes**	**No**
San Jose MEC	102	102
San Jose Zinc RP?	**Yes**	**No**

The SIP Section 1.4.1 specifies the use of default EPA conversion factors (i.e. divide the dissolved WQO by the applicable conversion factor to calculate a total recoverable WQO) unless site specific translators have been developed. Permit Work Group (PWG) members have generally been supportive of the use of site specific metals translators based on Regional Monitoring Program data versus the use of default EPA conversion factors. However, in a November 16, 2002 email RWQCB staff requested additional supporting analysis of how these RMP based translators should be calculated.

The direct ratio approach has been used to date, based on the very similar results obtained previously in the Lower South Bay (LSB) for copper and nickel translators using more complex methods.

Given that zinc is the only constituent for which translators are potentially an issue (in the Sunnyvale and San Jose RPAs), this memo presents additional analysis of alternative approaches using available data to derive zinc translators. Until further information is available to more definitively identify the most hydrodynamically appropriate background station for the LSSFB, the RMP Dumbarton Bridge station (BA30) data are being used for background for these analyses.

INITIAL TRANSLATOR DETERMINATION APPROACH

EOA developed proposed site specific copper and nickel translators for the LSSFB as part of the prior (1998) permit reissuance process (*Case Study: Investigation of Metals Translators for the Sunnyvale WPCP, August 1997)*. That memorandum (see Attachment B) described in considerable detail the rationale for translators, and three alternative approaches for deriving translators based on the June 1996 EPA translator guidance document. Readers interested in more background information on translators are referred to Attachment B.

The EOA 1997 translator study looked at the relationship between TSS, TOC, DOC, DO, pH and translators and found that the only consistently statistically significant relationship was with the natural log of TSS. The study found that the direct ratio computation method and the regression with ln(TSS) method produced South Bay translator values that only varied by 0.03 (0.63 vs 0.66, respectively).

The SIP outlines two approaches for developing site specific translators. If existing data are not available from which to calculate translators, dischargers have up to two years from the date of permit issuance to develop a workplan (that must be approved by the RWQCB staff after consultation with the Department of Fish and Game), to collect the necessary data, and submit the results and proposed translators. Several translator studies have been conducted around the Bay (generally for copper and nickel) including work by Sonoma Valley County Sanitation District, Las Gallinas Valley Sanitary District, City of Petaluma, Union Sanitary District for Hayward Marsh, and the City of Sunnyvale.

As an alternate to conducting a new translator study after permit adoption, the SIP allows for the RWQCB to consider applying translators

> "based on a study completed prior to the adoption of this Policy if the RWQCB believes the translator adequately reflects existing conditions (including spatial and/or seasonal variability) in the areas of the water body affected by the discharger's effluent".

This was the approach used in the Sunnyvale RPA, namely to make use of the existing high quality RMP data to calculate translators for metals other than copper and nickel (which have already been developed and approved as part of the May 2002 site specific objective Basin Plan Amendment). The USEPA translator guidance document (June 1996) recommends using a minimum of 8 to 10 pairs of data points (dissolved and total metals) that are representative spatially and temporally (seasonally) of the receiving water to calculate a translator. There are generally 21 RMP data points available from 1993 – 1999 sampled at three different times during the year. Therefore by these criteria, the available RMP data should be adequate and sufficient to calculate translators for the remaining metals.

The Regional Board Response to EOA, Inc. Translator Analysis (November 16, 2002) supported the use of site specific data in developing site-specific metals translators for dissolved water quality objectives, and took no issue with the use of RMP data. However the staff recommended that

"methods to develop translators be consis tent both with EPA guidance, and wi th those used in the Lower South San Francisco Bay (LSSFB) to develop metals translators for copper and nickel ."

EOA, Inc. is very familiar with the methods used in the LSSFB SSO. EOA worked with Tetra Tech as part of the copper/nickel TMDL S SO workgroup in the developing of the transl ator methods and performing the analyses of the data that is documented in Appendix D (pp. 76-80) of the May 2002 SSO Basin Plan Amendment (BPA) staff report. The LSSFB SSO work developed translators using both the direct ratio method and the regr ession against TSS approach referenced in the 1986 EPA guidance document. Results from the two methods only varied by 0.03 (0.45 vs 0.42, r espectively). The LSSFB SSO work also used the C lassification and Regression Tree (CART) program to evaluate the potential effect of other variables on translator results. As in the EOA 1997 analysis, TSS was again found to be the only si gnificant variable in predicting translators.

The July 2002 Sunnyv ale and San Jose D raft RPAs and the follow-up September 24, 2002 " Issues" memo used the direct ratio translator calculati on method in large part based on these prior experiences that showed very similar results with regression derived translators. Given that BA30 is effectively part of the LSSFB, it was not expected that ancillary w ater quality constituent data would vary appreciably from that evaluated in 1997 or for the 2002 SSO be useful in explaining/deriving translators.

However, as requested, results from additional regression and CART analyses are presented below for zinc and ancillary water quality data from the RMP D umbarton Bridge BA30 station. It needs to be kept in mind that the purpose, and sc ope, of these additional anal yses is to document the potential range of technically defensible zinc translators bas ed on the approach used in the LSSFB in a manner appropriate to the available BA30 data. The bottom line is to then revisit the MEC RPA determination and verify that there is or is not RP for zinc based on the resultant translator(s).

It is beyond scope of this analysis to address the multitude of technical and policy issues that need to be resolved as part of developing a reasonable and practical region-wide approach for translator development and applic ation.

ADDITIONAL BA30 DATA AND TRANSLATOR ANALYSES

Raw Data and Bar Charts

RMP sampling at BA30 was conducted three times per year from 1993 – 1999, typically in February, April, and July (Winter, Spring, Summer) to capture the range of Delta outflows (from high to low flows). Attachment A includes a table of raw data and associated summary statistics for dissolved and total zinc, direct dissolved to total zinc ratio based translators, and available physicochemical data (TSS, DOC, DO, pH, silicate and temperature).

Bar charts showing total and di ssolved zinc, ratio based translators, and TSS are also included in Attachment A with the bars color coded by season. V isual inspection shows that total zinc and TSS concentrations track fairly closely but that there is not a consistent relationship between dissolved zinc and TSS. There was also not consistent relationship between total and diss olved zinc. Dissolved zinc concentrations w ere consistently higher in winter samples. The zinc translator with TSS overlay bar chart shows higher translators during winter but no consistent relations hip to TSS. Some factor(s) other than or in addition to TSS appear to be affecti ng dissolved zinc concentrations.

Physiochemical Parameters as Potential Predictors of Translators

Regional Board staff recommended evaluating the RMP data to determine if a stati stically significant relationship exists between physicochemical data and individual total to dissolved ratios. This approach was suggested for any metal having a range of total to dissolv ed ratios where the maximum is at least three times the minimum (e.g., T:D ratios range between 2 and 6). It is ass umed that this suggestion is directed at eval uating the potential relationship between other constituents and particularly variable (and low) translators. It is not c lear why T:D terminology is being introduced instead of referring directly to translators. The suggested screening range is equiv alent to translators (D:T) in the range of 0.50 to 0.167. (T o minimize confusion, this memo will continue with translator terminology.)

With three exceptions (0.63, 0.53, and 0.53) all the zi nc data fall into the suggested range deserving investigation. Probability plots (Attachment A) of total and dis solved zinc using both arithmetic and log scales demonstrate the data to more closely fit a log-normal distribution (as often occurs wi th environmental data). Therefore the translator versus physiochemical data evaluations are presented in log-log X/Y scatter plots with regression lines (Attachment A).

None of the plots of direct ratio zinc translator versus TSS, DOC, DO, silicates, temperature, or chlorophyll a showed any significant relationships, nor did pl ots of total versus dissolved zinc. This is consistent with the prior two translator study results, exc ept that in this instance TSS was only weakly related to the translators. The RWQC B commentors also observed (based on Yerba Buena stati on data) little relationship betw een these variables and transl ators. The correlation coefficients for these plots are shown in Table 2 below.

Table 2. Correlation Coefficients for Scatter Plots

	Correlation Coefficient (r^2 value)
Zinc Translator versus TSS	0.21
Zinc Translator versus DOC	0.0005
Zinc Translator versus DO	0.10
Zinc Translator versus Silicates	0.04
Zinc Translator versus Temperature	0.28
Zinc Translator versus Chlorophyll a	0.13
Zinc Translator versus pH	0.09
Total Zinc versus Dissolved Zinc	0.05

Outlier Analysis

Regional Board staff recommended screening the data for statistical outliers. Graphical displays of the dissolved to total ratio against physicochemical parameters were suggested to help evaluate if one individual sampling event w ere driving a supposed relationship. V isual inspection of the X/Y scatter plots did not indicate the exi stence of readily obv ious outliers.

The log-log plot of the zinc translator vs TSS has a regression line with an r-square value of 0.21. One point with a value of 0.17 and TSS of 3 mg/L was evaluated as a possible outlier (4/16/97 sample). There is a corresponding point (2/02/95) with an almost identical TSS of 3.2 mg/L that has a value of 0.53, the third highest translator in t he dataset. The two events had simil ar DOC values of 2.8 and 3.3 mg/L, respectively. Silicates were lower at 2 vs 4.2 mg/L and chlorophyll a higher at 22.3 vs 14.5 mg/m3 in the 1997 vs 1995 events, perhaps indi cating the presence of a phytoplankton bl oom during the 4/16/97 event based on the l ower silica (used in diatom cell walls) and higher chlorophyl l a present (an indicator of phytoplankt on biomass). Spring phytoplankton blooms are common in the LSS FB.

It not clear that there is a strong basis based on the ancillary data for calling the 0.17 value an outlier and the 0.53 value not an outlier. If the 0.17 value were to be removed from the data set the relationship of zinc translator to TSS does improve somewhat from an r-squared of 0.21 to 0.31 and the slope of the regression line increases in the manner expected (higher translators with lower TSS). If the 0.53 value is removed from the data set the relationship of zinc translator to TSS worsens somewhat from an r-squared of 0.21 to 0.12 and the slope of the regression line decreases.

In the same respect, at the highest TSS values there are two data points that appear perhaps disproportionately distant from the regression line. If the high zinc translator value, 0.33, at the high TSS value of 81 mg/L were to be removed from the dataset, the relationship of zinc translator to TSS does improve somewhat from an r-squared of 0.21 to 0.31 and the slope of the regression line increases in the manner expected (lower translators with higher TSS). If the lower zinc translator value, 0.07, at the high TSS value of 72.3 mg/L were to be is removed from the dataset, the relationship of zinc translator to TSS would worsen somewhat from an r-squared of 0.21 to 0.13.

Given the current unresolved status of how and when it is appropriate to classify and censor a datapoint as an outlier, all of the data have been retained and used in these analyses.

Multiple Parameter Influence on Translators

The RWQCB commentors noted that TSS alone may not be a useful predictor of translators and suggested that multiple factors together be examined to attempt to account for multiple parameters or interactions between parameters. To address this same issue, the LSSFB SSO effort used the Classification and Regression Tree (CART) program. CART is a software implementation (Salford Systems) of a nonparametric multivariate analysis technique known as Regional Sensitivity Analysis (Spear and Hornberger, 1980; Breiman et al., 1984).

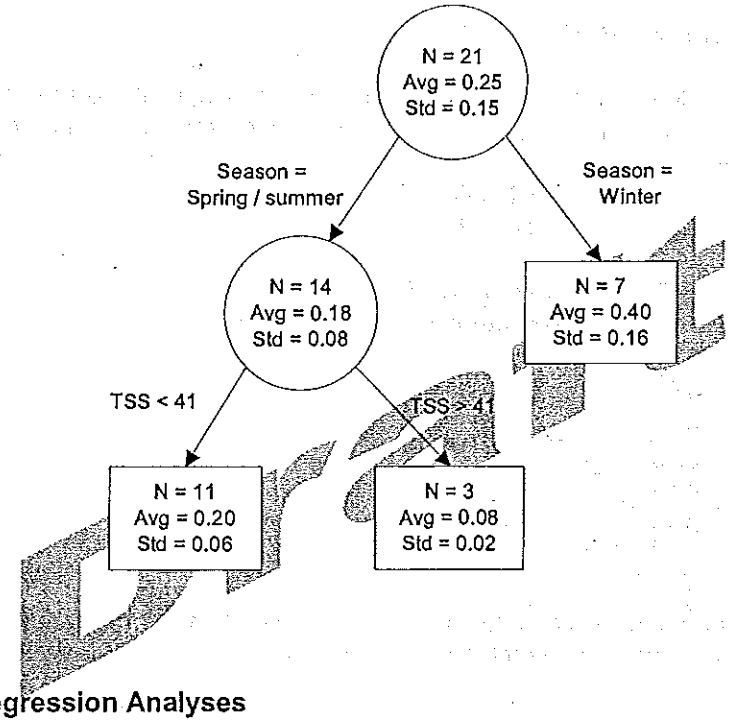
Multivariate analysis is motivated by the fact that various types of parameter interactions may be important with respect to the output variable (in this case the output variable is the translator for Zn at the BA30 station). CART analysis leads to classification rules based on inequality constraints applied to individual parameter values or to linear combinations of parameters. The analysis produces a tree structure in which a parametric division is made at each node by an inequality. Observations satisfying the condition are sent to the left node, otherwise they are sent to the right node. Splits in the data are chosen that minimize the classification error. When a split is chosen, the node is replaced by two daughter nodes. Splitting continues until a prespecified stopping rule is satisfied.

The LSSFB work used translators as the CART response variable and site, season (wet or dry), TSS, and tide as input variables. There were 12 stations and nearly 600 metals datapoints in the LSSFB work. The most important variable in predicting translators was TSS, with site slightly more important than season or tide. Based in part on these results, two slough sites were dropped from the translator calculations because they did not appear to be representative of LSSFB conditions.

CART analysis conducted for the zinc translator investigation was carried out using the RMP BA30 zinc translator data collected between March 1993 and July 1999 (21 sample events). Other parameters used in the CART analysis were DO, DOC, pH, silicates, temperature, TSS and season (winter, spring, summer). Since data from only the one BA30 station are being used in this analysis, station was not a relevant variable for CART analysis. Each variable in the CART tree has an importance score based on how often and with what significance it served as primary or surrogate splitter throughout the tree. The scores reflect the contribution each variable makes in classifying or predicting the target variable, with the contribution stemming from the variable's role in primary splits. Season had a relative score of 100, TSS a relative score of 45 and DOC, pH, silica, and temperature all had relative scores of 0.

Results from the CART analysis are presented graphically below. The figure indicates the first splitting occurs on the parameter "Season". CART grouped spring and summer together and winter separately. The average translator value during the winter season (N=7) was 0.40, slightly higher than the average for the entire dataset of 0.25 (N=21). The average translator value for Spring/ Summer observations (N=14) is 0.18. CART found that these Spring/Summer observations could be further split into categories of observations with TSS values above and below 41 mg/L. As shown, spring/summer observations with TSS values greater than 41 mg/L (N=3) had an average translator value of 0.08, and those with TSS less than 41 mg/L (N=11) had an average TSS value of 0.20.

Further division of the spring/summer data is possible, however such splitting does not appreciably enhance the interpretation of the translator values and produces results of increasingly questionable relevance. CART did not suggest further splitting of the winter dataset, apparently indicating that none of the other input variables were significant in explaining the higher winter translator values.



TSS-Translator Regression Analyses

According to the EPA translator guidance document, if translators are found to be dependent on TSS, regression equations relating to TSS can be developed. The EOA 1997 study and the 2002 LSSFB SSO study developed translators based on regression equations with values that were nearly identical to those developed based on direct ratio calculations. Per EPA guidance, median TSS concentrations were inserted into the regression equations to derive the translators. For the LSSFB work upper and lower 95% confidence intervals and associated equations were also generated. RWQCB commentors recommended conducting a similar regression analysis to that performed in the LSSFB.

It should be noted that the results reported above show a relatively weak relationship between translators and TSS. In the case of the LSSFB work, there was a strong relationship as evidenced by the r-squared value of 0.72. Similar analysis of the complete BA30 data showed an r-squared value of

0.21. The regression line and 95% confidence intervals are shown graphically (Attachment A) and the resultant total dataset equations are as follows:

Linear Regression Line (All Data):
Log(translator) = -0.293 – 0.294 * Log(TSS)

95% confidence interval:
X+/- t(v,z) * (s/n^05)

Where x = mean, s = standard deviation, t(v,z) = t statistic for v=n-1 degrees of freedom and z=1.96

Based on the CART results showing seasonal differences between translators, additional regressions were developed for the winter and for the spring/summer translator/TSS datasets. The winter regression showed an r-squared value of 0.32. The spring/summer regression showed an r-squared value of 0.39. The plots and regression equations are in Attachment A. Translators resulting from use of each of these equations and various TSS concentrations are presented below.

TRANSLATOR CALCULATION OPTIONS

The most direct method of calculating a translator, as described above, is the dissolved to total ratio. The SIP recommends (Section 1.4.1) using a median of the data for translation of chronic criteria and a 90th percentile of data for translation of acute criteria. EPA guidance recommends using a geometric mean of the calculated translators as an estimate of the central tendency. A summary of the dissolved to total ratio based translator results are shown below.

Table 3. Direct Ratio Based Translator Options: All Data

	Arithmetic	Geometric
Min	0.07	
Max	0.63	
Mean	0.25	0.21
Standard deviation	0.15	1.82
90th percentile	0.53	0.53
Median	0.20	0.20

The CART analysis showed a difference in translator values between winter and summer/spring seasons. Therefore, a summary of the direct ratio translators divided into those two categories is shown below.

Table 4. Direct Ratio Based Translator Options: Seasonal

	Summer/Spring		Winter	
	Arithmetic	Geometric	Arithmetic	Geometric
Min	0.07		0.18	
Max	0.35		0.63	
Mean	0.18	0.16	0.40	0.37
Standard deviation	0.08	1.59	0.17	1.57
90th percentile	0.27	0.27	0.58	0.58

The TSS vs translator regression line can also be used to calculate a translator value by plugging in a TSS value in the regression line equations or associated 95th percentile confidence intervals (representing an upper bound). Options for TSS values to use would be the arithmetic or geometric means (representing the central tendency), or separate median TSS values for the summer/spring and winter seasons. The resultant options for translators based on the assumption of a linear relationship with TSS are shown below.

Table 5. TSS-Translator Regression Based Options: All Data

TSS Options for Regression Equation	TSS value	Translator calculated from Linear Regression Equation	Translator from graph upper 95% Conf. Interval
Arithmetic average	28.2	0.19	0.25
Geometric mean	20	0.21	0.3
Geo. Mean Spring/Summer	20.2	0.21	0.3
Geo. Mean Winter	19.8	0.21	0.3

Note: The translators from the graph 95% confidence interval were visually estimated, therefore, only one decimal place is shown in most cases.

The CART Analysis showed there was a difference in the translator values for the winter and spring/summer seasons. This can be seen in the difference between the geometric mean of the winter translator, 0.37, and the spring/summer translator, 0.16. However, there is little difference between the geometric mean of the TSS concentration in winter, 19.8 mg/L and in spring/summer, 20.2 mg/L. Using the linear regression equation to calculate the translator values for the different seasons yields the same translator value of 0.21.

Table 6. TSS-Translator Regression Based Options: Winter Season

TSS Options for Regression Equation	TSS value	Translator calculated from Linear Regression Equation	Translator from graph upper 95% Conf. Interval
Arithmetic average	30.3	0.33	0.5
Geometric mean	19.8	0.37	0.5

Note: The translators from the graph 95% confidence interval were visually estimated so only one decimal place is shown.

Table 7. TSS-Translator Regression Based Options: Spring/Summer Season

TSS Options for Regression Equation	TSS value	Translator calculated from Linear Regression Equation	Translator from graph upper 95% Conf. Interval
Arithmetic average	27.2	0.15	0.2
Geometric mean	20.2	0.16	0.2

TRANSLATOR SUMMARY AND REASONABLE POTENTIAL CONCLUSIONS

The CART analysis found there to be some difference in translators attributable to season (defined as winter, spring, and summer) and grouped the data into two categories: winter and spring/summer. However, there turned out to be relatively little difference in calculated 90th percentile (CMC) translators based on whether all data were used, seasonal data used, or TSS regressions used. Values ranged from 0.5 (upper 95th percentile of TSS regression), to 0.53 (original direct ratio value using all data), to 0.58 (90th percentile of the log transformed winter zinc translators). The maximum observed direct ratio value (3/2/93) was 0.63.

No RP

The CTR zinc saltwater CMC is 90 ug/L and the CCC is 81 ug/L. Using the most conservative 0.58 translator with either of these criteria would produce adjusted WQOs of 155 and 140 ug/L, respectively. Both WQOs are greater than the Sunnyvale and San Jose MECs of 110 and 102 ug/L. Therefore, there is no RP for zinc when this 0.58 translator or any other of the various RMP translator permutations investigated is used.

Limited MEC Values

The complete effluent zinc datasets for the Cities are included in Attachment A. Sunnyvale had only the one 110 ug/L value that would have triggered RP if the default conversion factor of 0.946 had been used to produce an adjusted WQO of 85.6. San Jose would have had either two or four exceedances (102, 91, 86, 86 ug/L) depending on significant figure rounding assumptions.

Potable Water Zinc Source

Santa Clara Valley Water District (SCVWD) adds zinc orthophosphate to its treated potable water for corrosion control in the distribution system. SCVWD potable water zinc concentrations measured at a Sunnyvale turnout receiving all SCVWD water averaged 383 ug/L during calendar years 1999-2001, with maximum values exceeding 600 ug/L. The Cities have no control over this significant source of zinc to their wastewater treatment plants.

ATTACHMENT A

RMP DATA AND GRAPHS

Table A. Sunnyvale MEC and Background Metals Reasonable Potential Analysis
Adjusted WQOs and Background Total Metals Concentrations (ug/L) Derivation Options Using
CTR Default Conversion Factors and RMP BA30 (Dumbarton Bridge) Translator Data (1/14/03 corrected version)

	Option 1			Option 2		Option 3			Option 4			
	Max. Effluent Conc. (MEC) (ug/L)	RMP Max (Dissolved) (ug/L)	Lowest CTR WQO (Not Adjusted) (ug/L)	RMP Max (Total) (ug/L)	Lowest CTR WQO (Adjusted by CF) (ug/L)	CTR Default Conv. Factor	RMP Dissolved Adjusted to Total by CF (ug/L)	Lowest CTR WQO (Adjusted by CF) (ug/L)	RMP Translator	RMP Dissolved (Adjusted by RMP Translator) (ug/L)	Lowest CTR WQO (Adjusted By RMP Translator) (ug/L)	Basis of Lowest WQO
Arsenic	3.1	4.05	36	4.59	36	1.000	4.05	36	0.91	4.45	38	Salt. CCC
Cadmium	0.2	0.22	2.2	0.17	2.4	0.909	0.24	2.4	0.95	0.23	2.3	Fresh. CCC
Chromium (VI)	7	0.49	11	**14.74**	11.4	0.962	0.51	11.4	0.08	6.1	200	Fresh. CMC
Copper	6.2	3.74	6.9 (SSO)	7.19	13	0.83	3.70	13	0.53	7.06	13	SSO
Lead	1.8	0.10	2.5	**3.78**	3.3	0.791	0.13	2.5	0.05	2.00	50	Fresh. CCC
Mercury	0.009	NA	0.051	**0.0680**	0.051	1	**0.0680**	0.051	1	**0.068**	0.051	Org.Cnsp.
Nickel	4.6	3.42	11.9 (SSO)	13.03	27	0.99	3.45	27	0.44	7.77	27	SSO
Selenium	2.7	0.53	5	0.63	5	1	0.53	5	1	0.63	5.0	Fresh. CCC
Silver	1	0.01	1.9	0.12	2.2	0.85	0.01	2.2	0.54	0.02	3.5	Salt.CMC
Zinc	110	3.2	***81*** [3]	14.85	***85.6*** [3]	0.946	3.38	***85.6*** [3]	0.53 [1]	6.00	170 [1]	Salt. CMC [1]
Zinc	110								0.58 [6]	5.5	140	Salt. CMC

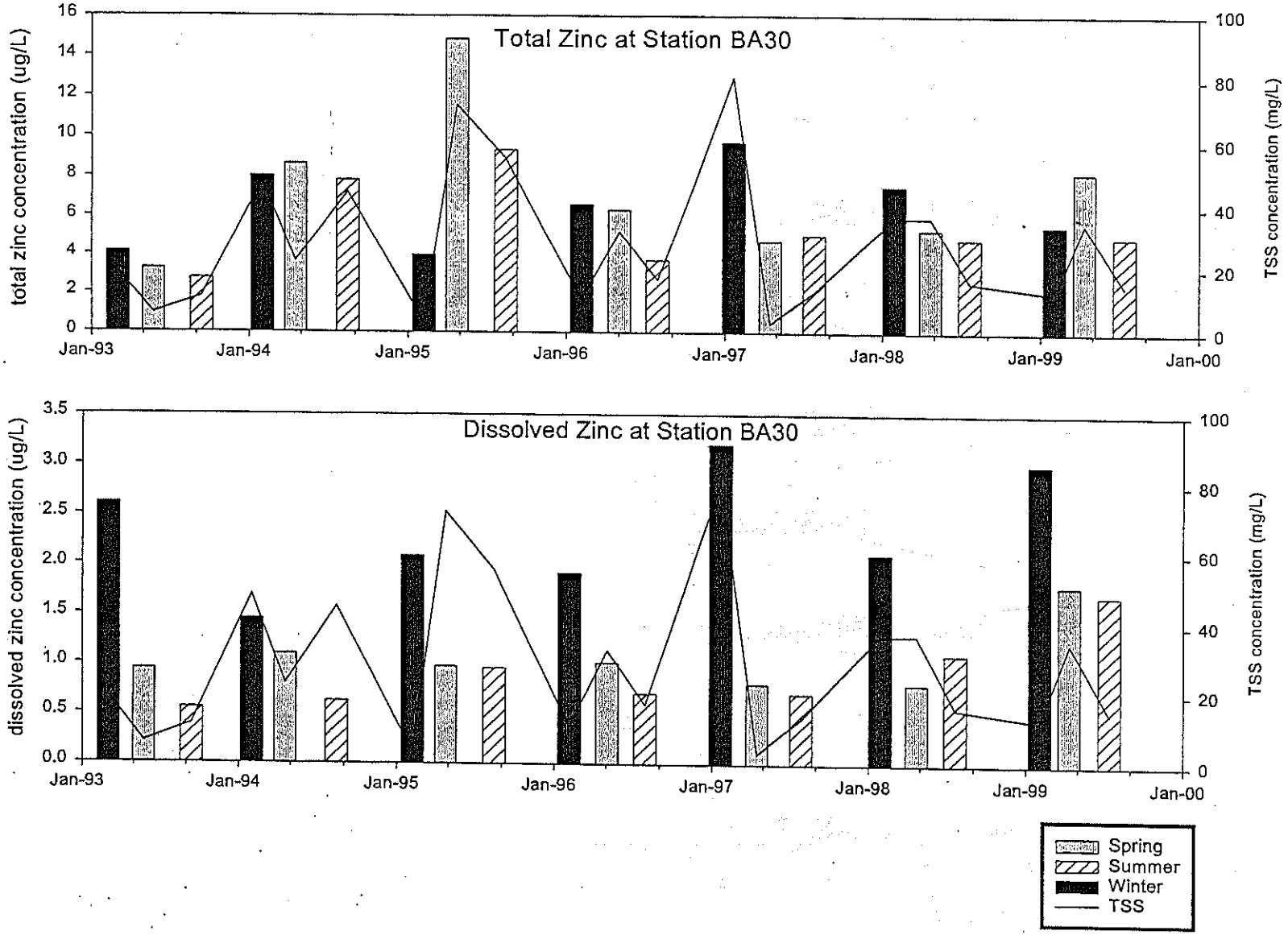
Notes:

1. Option 4 for zinc uses the saltwater CMC of 90 ug/L and corresponding BA30 acute translator, 0.53, since this yields a lower adjusted WQO of 170 ug/L vs using the saltwater CCC of 81 ug/L, and the chronic translator, 0.20, that yields an adjusted WQO of 405 ug/L.
2. **Background concentrations with reasonable potential shown in bold next to corresponding WQO**
3. ***WQO option resulting in MEC RP shown in bold italics (I.e. only unadjusted and CF adjusted zinc WQOs)***
4. The CF used (freshwater CMC, freshwater CCC, saltwater CMC, or saltwater CCC) and the translator used was dependent on which criteria was the lowest.
5. Per SIP guidance, median (of all BA30 based) translators used for adjusting CCC based WQOs, 90th percentiles for CMCs.
6. For zinc, alternate translator of 0.58 based on 90th percentile of log transformed winter season BA30 data produces adjusted WQO of 140 ug/L.
7. For simplicity and conservatism, a background hardness of 100 mg/L is assumed (RP conclusions not impacted by this variable).
8. If maximum CTR allowable 400 mg/L hardness is used, the hardness dependent conversion factors for cadmium and lead are less conservative at 0.851 and 0.589, respectively.
9. RMP maximum total values used for bioaccumaltive mercury and selenium.

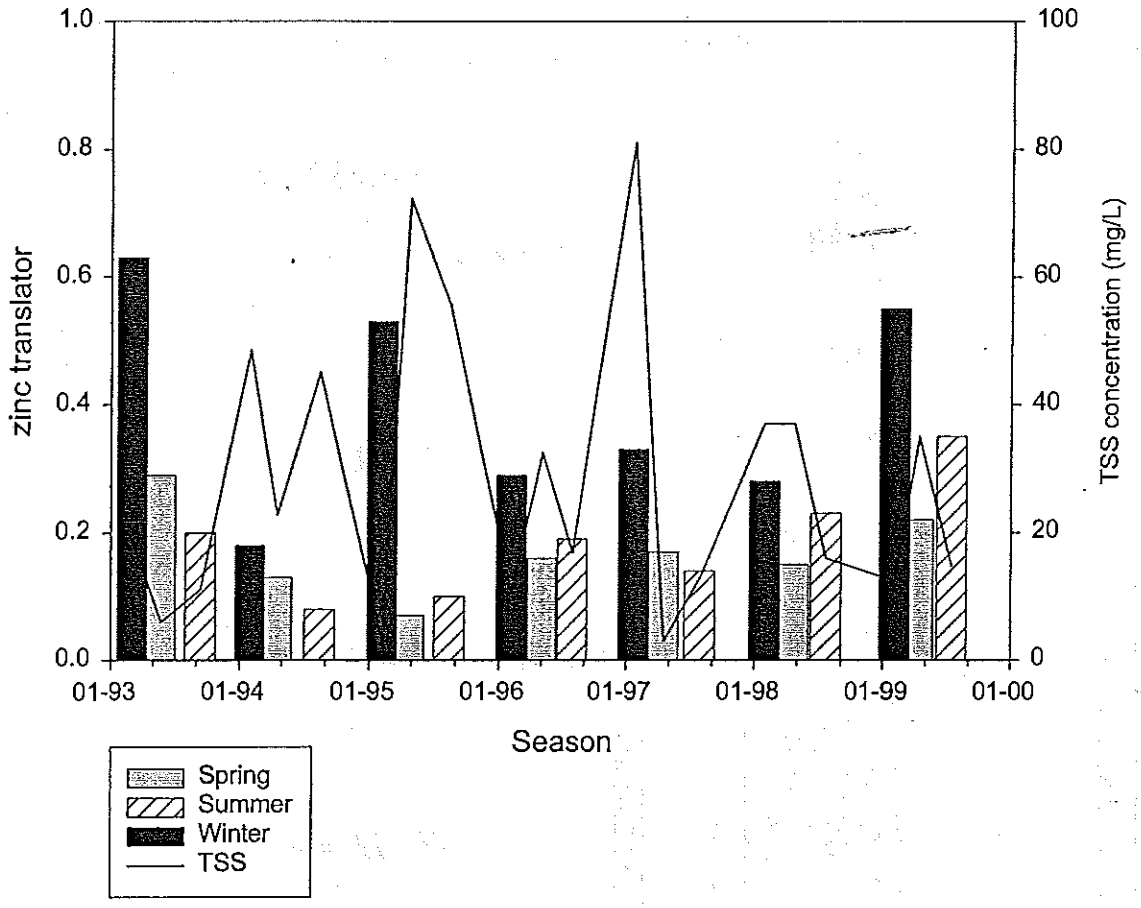
RMP STATION BA30 DUMBARTON BRIDGE DATA

Station Code	Date	total Zn* µg/L	dissolved Zn µg/L	translator Zn	Chlorophyll-a mg/m3	Conductivity µmho	DO mg/L	DOC mg/L	pH pH	Salinity (by SCT) o/oo	Silicates mg/L	Temp °C	TSS mg/L	Season
BA30	03/02/1993	4.13	2.61	0.63	1.9	NA	9.8	3.41	8.0	13.8	5.1	12.0	19.1	winter
BA30	05/24/1993	3.26	0.94	0.29	2.4	NA	7.2	2.80	7.9	22.2	2.6	21.0	6.0	spring
BA30	09/13/1993	2.76	0.55	0.20	1.6	39000	6.9	2.19	7.9	28.7	5.0	21.0	11.2	summer
BA30	01/31/1994	8.02	1.45	0.18	1.5	30200	8.2	1.53	7.9	27.3	1.3	11.0	48.5	winter
BA30	04/18/1994	8.63	1.10	0.13	4.1	31700	7.9	2.88	8.1	25.7	2.2	20.0	22.8	spring
BA30	08/15/1994	7.82	0.62	0.08	1.6	43600	7.3	2.73	8.0	29.5	0.4	23.0	45.1	summer
BA30	02/06/1995	3.96	2.08	0.53	14.5	20500	9.4	3.32	7.7	16.5	4.2	14.2	3.2	winter
BA30	04/24/1995	14.85	0.97	0.07	44.6	18200	8.5	4.11	8.0	13.4	3.7	16.9	72.3	spring
BA30	08/15/1995	9.31	0.95	0.10	1.9	33300	6.2	3.00	7.8	22.2	4.8	22.9	55.6	summer
BA30	02/05/1996	6.60	1.91	0.29	1.1	26200	9.2	3.15	7.9	22.0	3.7	13.5	10.6	winter
BA30	05/02/1996	6.30	1.01	0.16	4.5	24500	6.6	2.58	7.9	15.5	0.9	22.3	32.5	spring
BA30	07/29/1996	3.70	0.70	0.19	4.5	31000	6.7	2.55	8.0	19.0	4.8	24.4	16.9	summer
BA30	01/21/1997	9.70	3.20	0.33	2.3	12380	8.6	3.97	7.7	7.1	6.0	10.5	81.0	winter
BA30	04/16/1997	4.70	0.80	0.17	22.3	32470	10.5	2.79	8.3	NA	2.0	18.4	3.0	spring
BA30	07/28/1997	5.00	0.70	0.14	4.0	43020	7.2	2.96	7.7	27.8	4.0	23.4	13.0	summer
BA30	01/28/1998	7.50	2.10	0.28	2.9	29830	10.1	2.81	7.5	19.0	2.0	13.4	37.0	winter
BA30	04/22/1998	5.30	0.80	0.15	34.2	23890	9.3	3.02	8.4	14.5	1.0	17.4	37.0	spring
BA30	07/21/1998	4.80	1.10	0.23	2.7	32720	r 7.3	2.91	7.9	20.5	5.0	22.1	16.0	summer
BA30	02/02/1999	5.50	3.00	0.55	3.0	29300	8.5	2.33	7.9	26.1	1.1	9.8	12.5	winter
BA30	04/12/1999	8.20	1.80	0.22	16.5	28300	9.9	2.53	8.2	17.1	1.1	14.0	35.0	spring
BA30	07/14/1999	4.90	1.70	0.35	9.0	42000	6.2	3.20	7.8	25.0	1.1	23.2	14.8	summer
Statistics														
# samples		21	21	21	21	19	20	21	21	20	21	21	21	
minimum		2.76	0.55	0.07	1.1	12380	6.2	1.5	7.5	7.1	0.4	9.8	3.0	
maximum		14.85	3.20	0.63	44.6	43600	10.5	4.1	8.4	29.5	6.0	24.4	81.0	
average		6.43	1.43	0.25	8.6	30111	8.2	2.9	7.9	20.6	3.0	17.8	28.2	
geometric mean		5.92	1.25	0.21	4.5	28883	8.1	2.8	7.9	19.6	2.3	17.1	20.0	
median		5.50	1.10	0.20	3.0	30200	8.4	2.9	7.9	21.3	2.6	18.4	19.1	
standard deviation		2.81	0.80	0.15	11.8	8276	1.4	0.6	0.2	6.1	1.8	4.9	22.1	
90th percentile		9.31	2.61	0.53	22.3	42204	9.9	3.4	8.2	27.9	5.0	23.2	55.6	

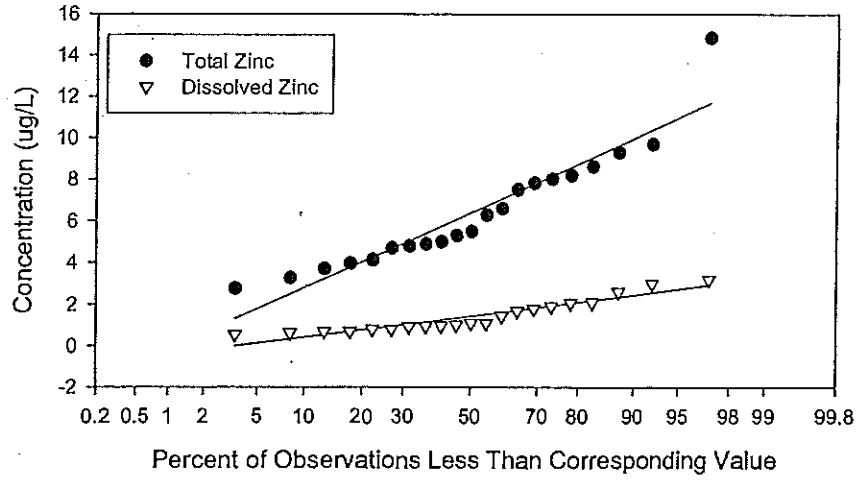
F:\SU32\SU32-29\RPA\RMP Translators\[zn&physicochem data.xls]BA30


Total Zinc at Station BA30
total zinc concentration (ug/L)
TSS concentration (mg/L)
0
2
4
6
8
10
12
14
16
0
20
40
60
80
100
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Dissolved Zinc at Station BA30
dissolved zinc concentration (ug/L)
TSS concentration (mg/L)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
0
20
40
60
80
100
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Spring
Summer
Winter
TSS

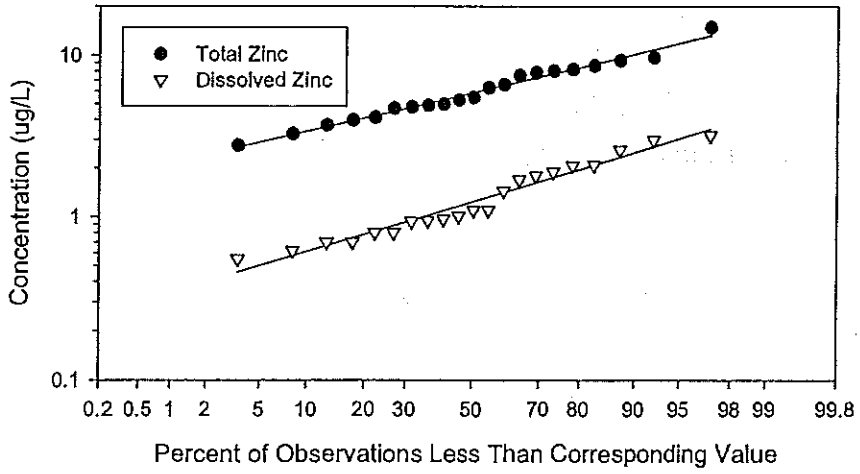
Zinc Translator at Station BA30



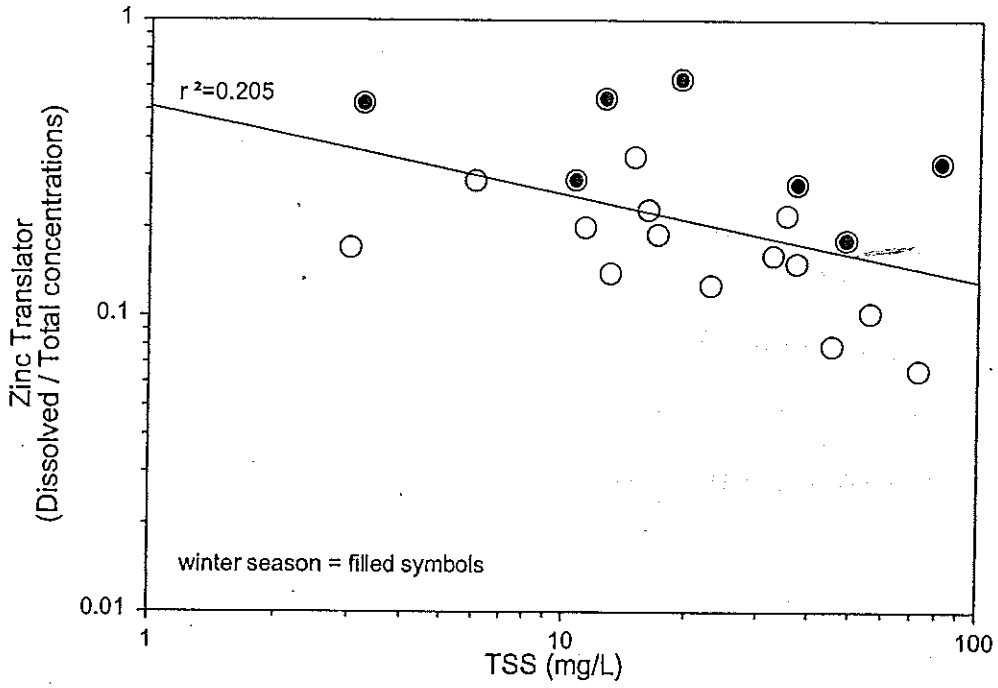
Normal Probability Plot for
Total and Dissolved Zinc at BA30



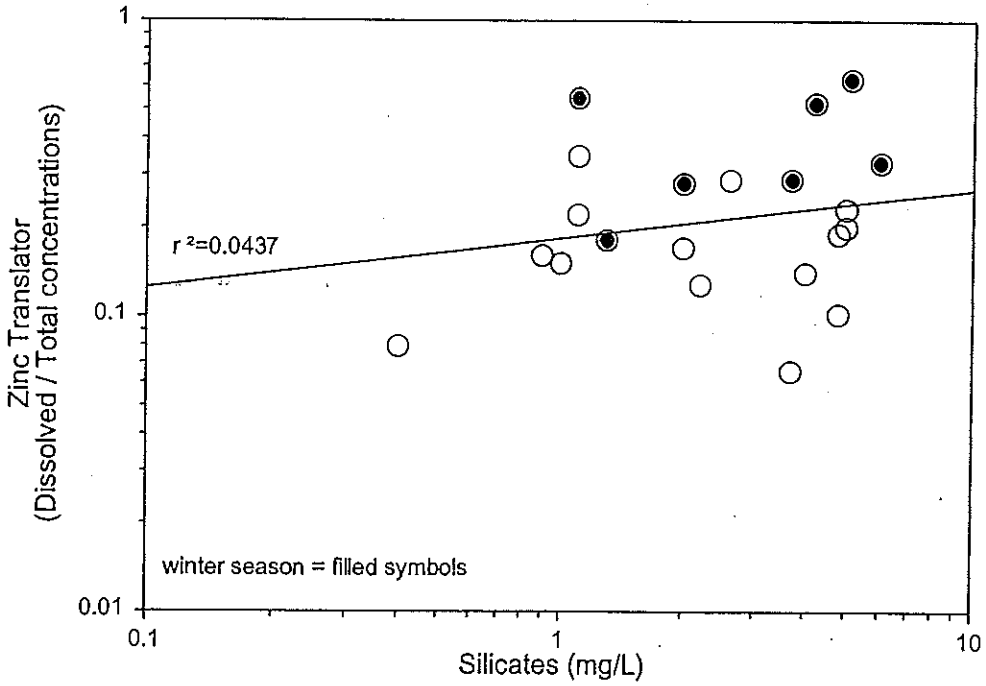
Lognormal Probability Plot for
Total and Dissolved Zinc at BA30



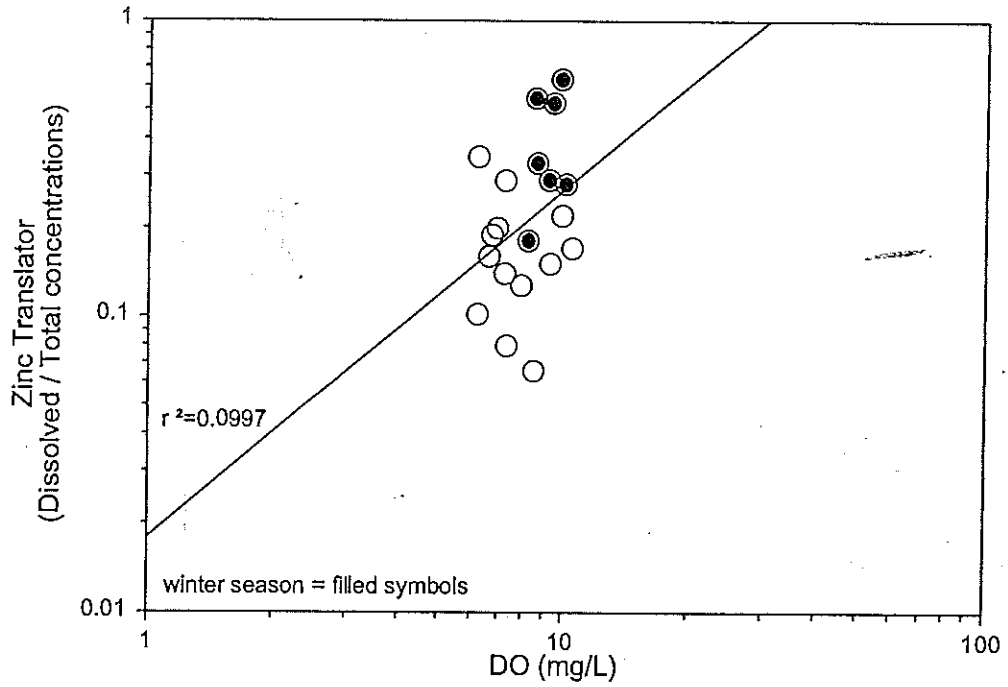
Scatter plot for
TSS vs. Translator for Zinc at BA30



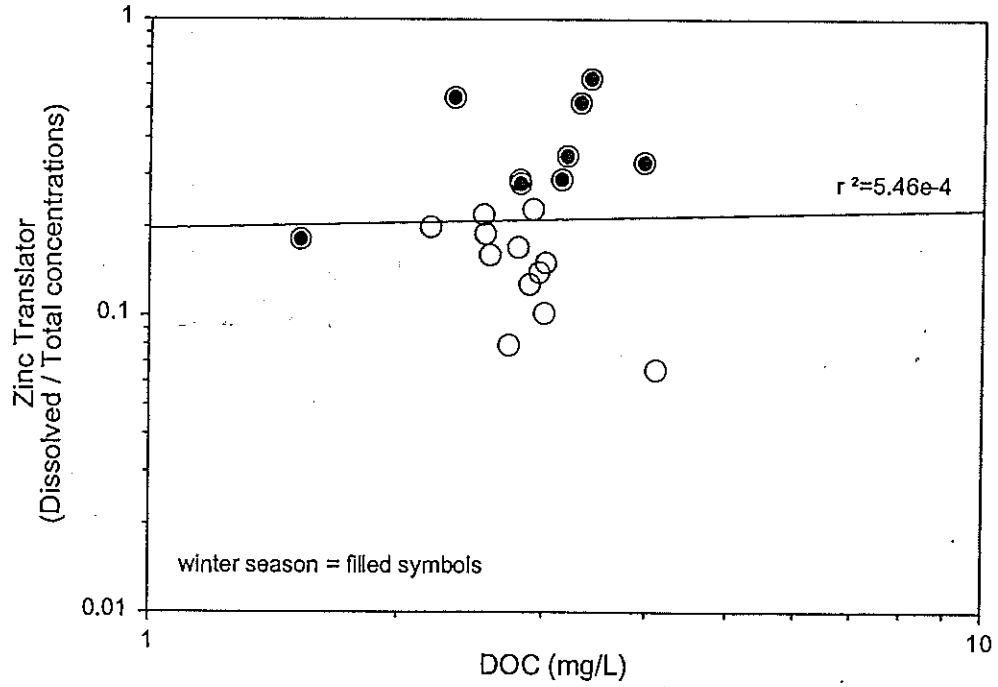
Scatter plot for
Silicates vs. Translator for Zinc at BA30



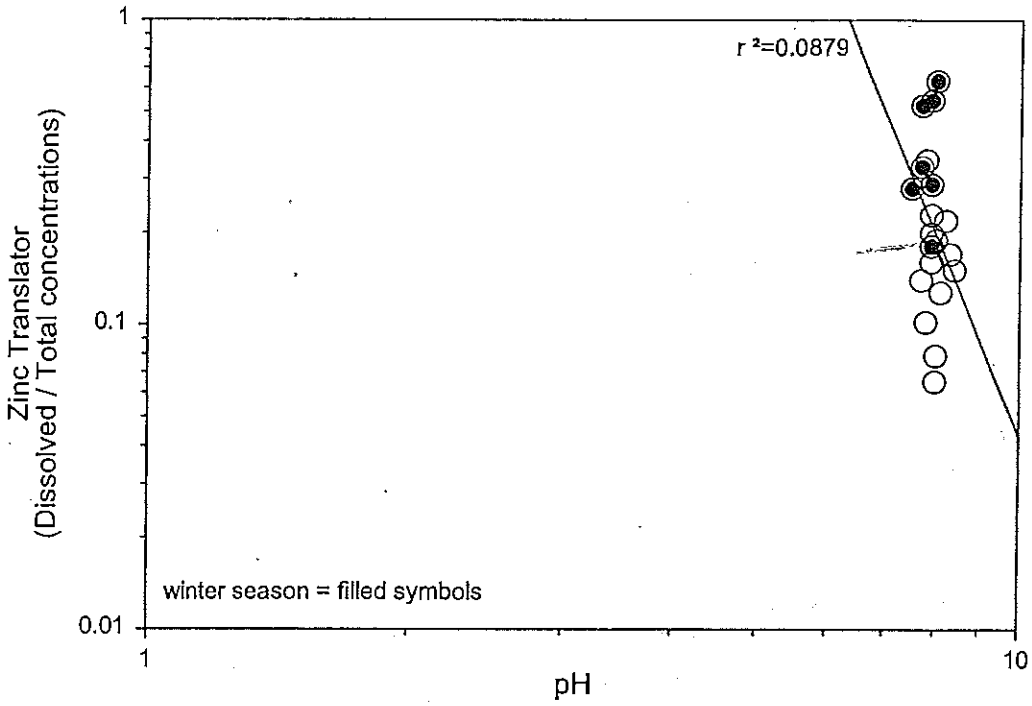
Scatter plot for
DO vs. Translator for Zinc at BA30



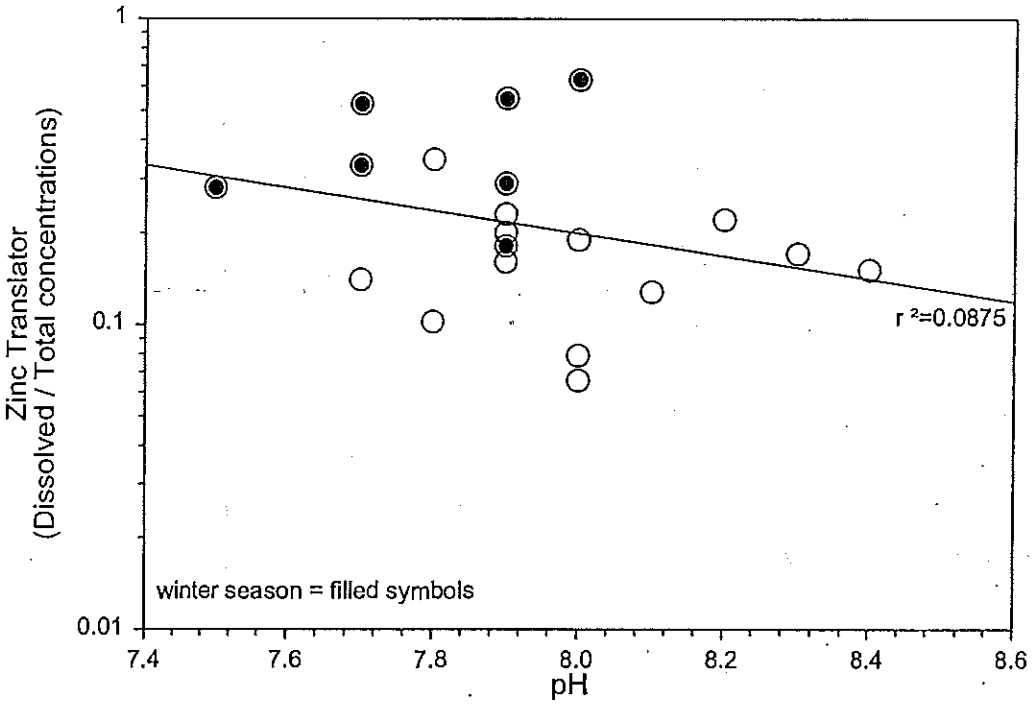
Scatter plot for
DOC vs. Translator for Zinc at BA30



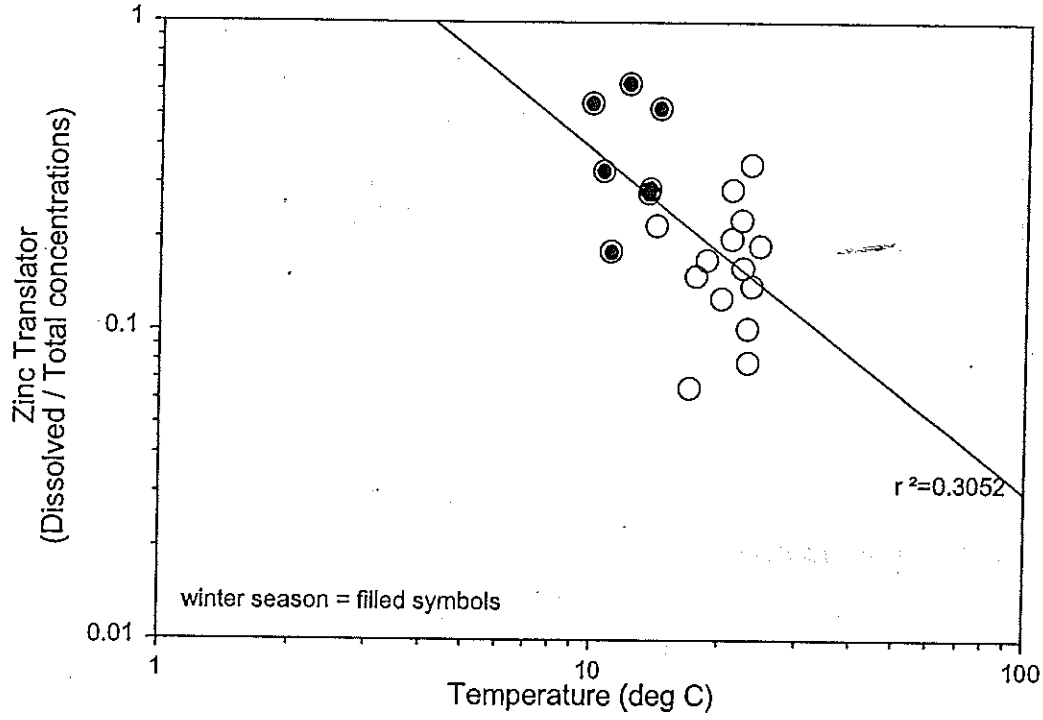
Scatter plot for
pH vs. Translator for Zinc at BA30



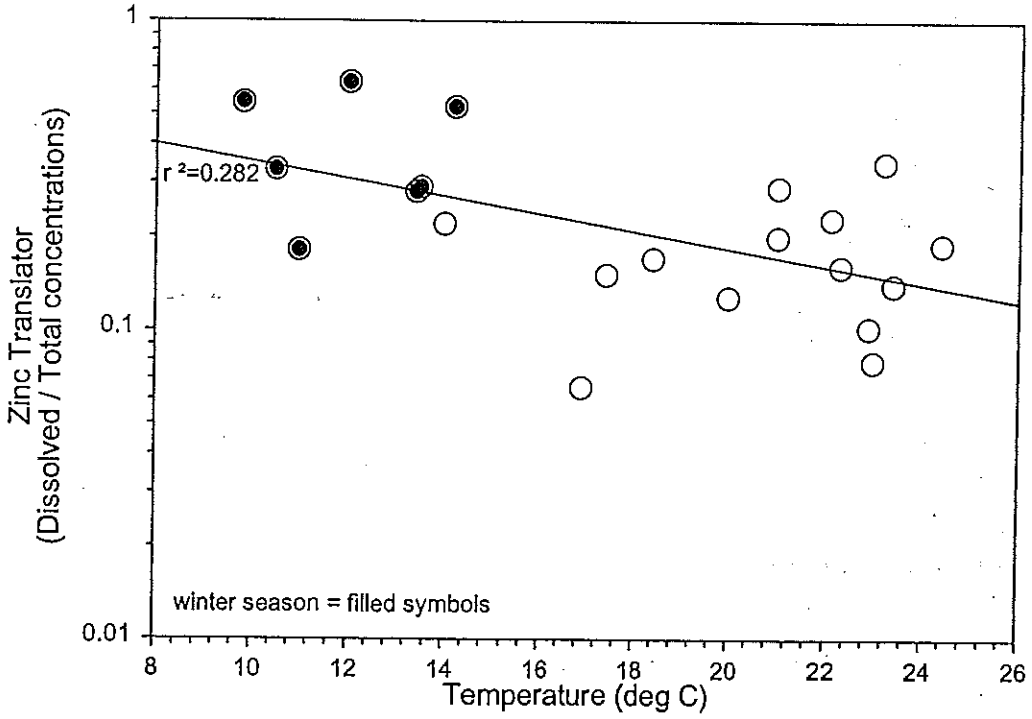
Scatter plot for
pH vs. Translator for Zinc at BA30



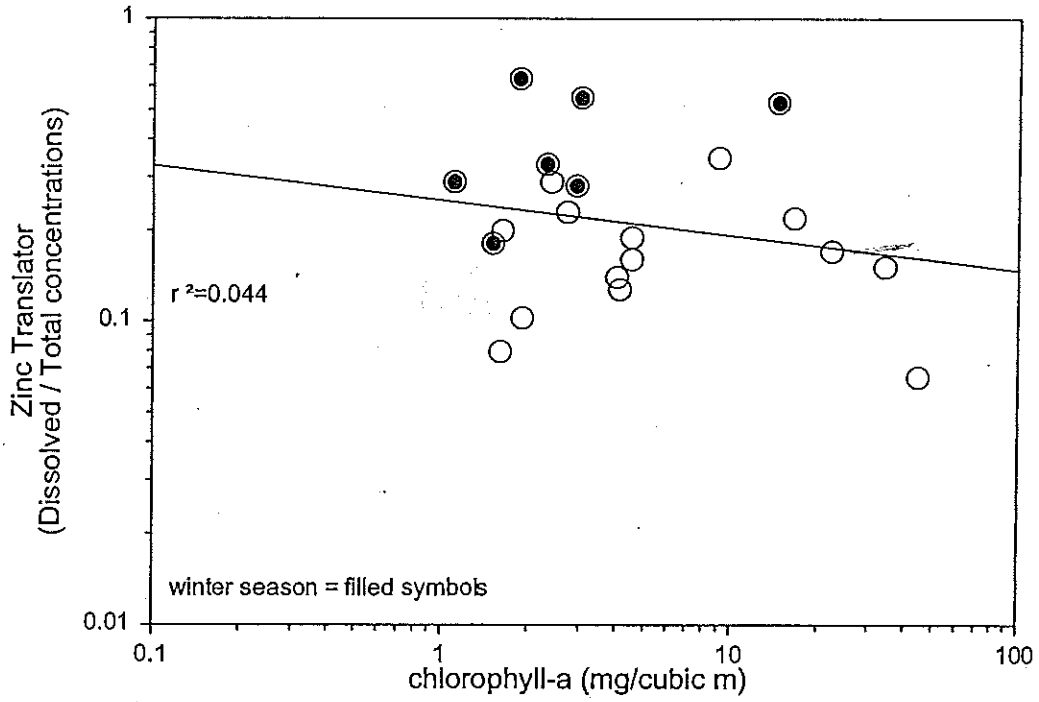
Scatter plot for
Temperature vs. Translator for Zinc at BA30



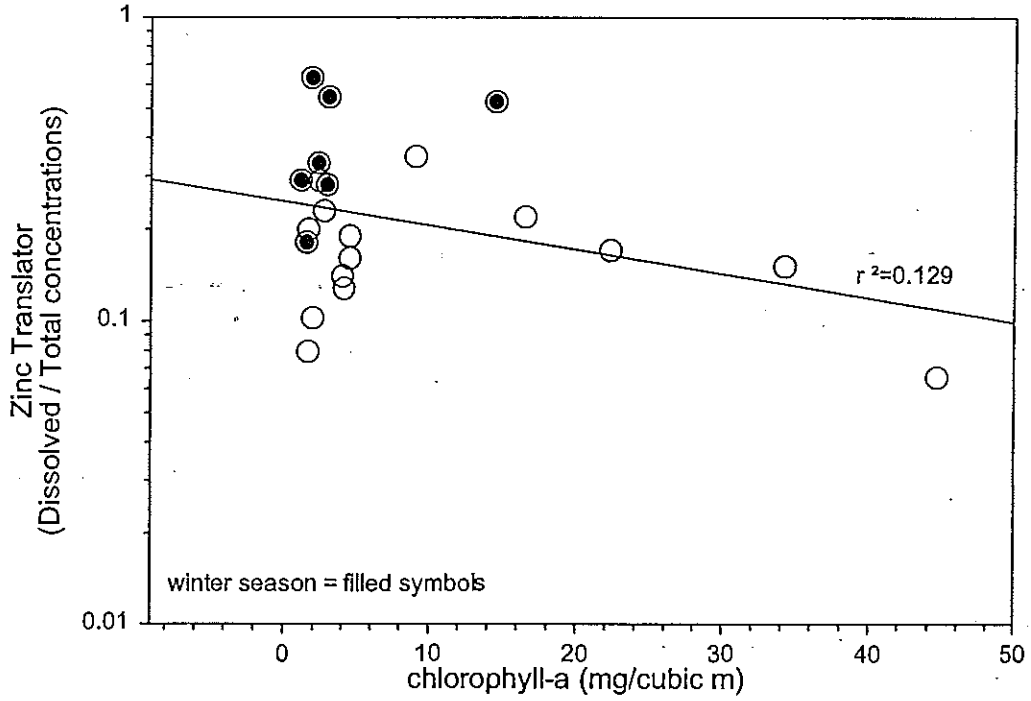
Scatter plot for
Temperature vs. Translator for Zinc at BA30



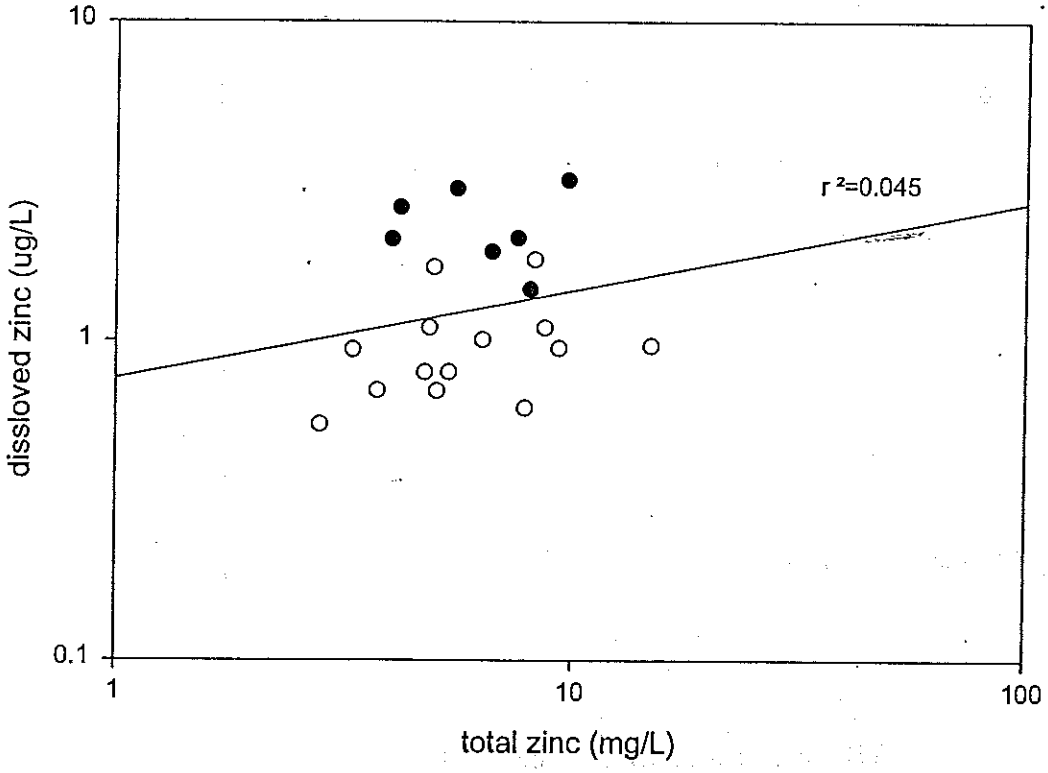
Scatter plot for
Chlorophyll a vs. Translator for Zinc at BA30



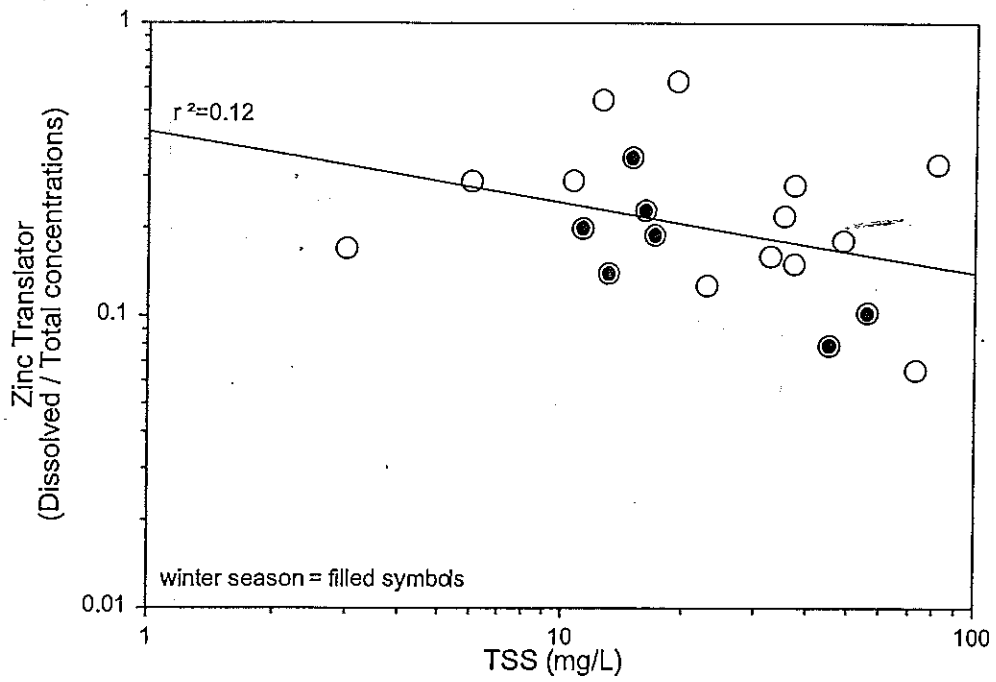
Scatter plot for
Chlorophyll a vs. Translator for Zinc at BA30



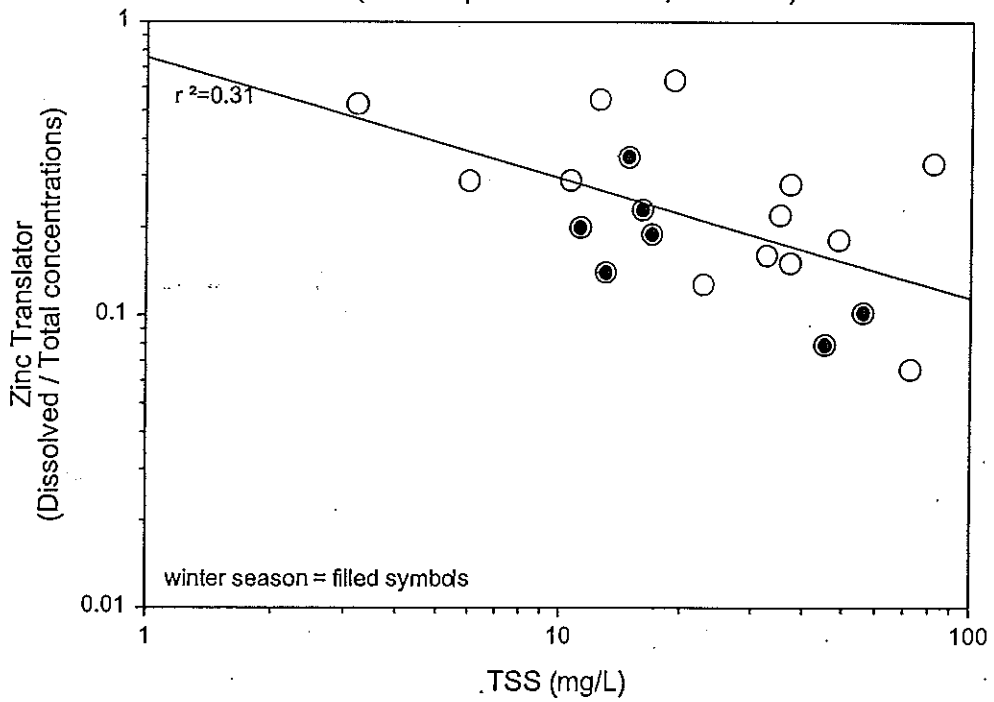
Total Zinc vs Dissolved Zinc at BA30



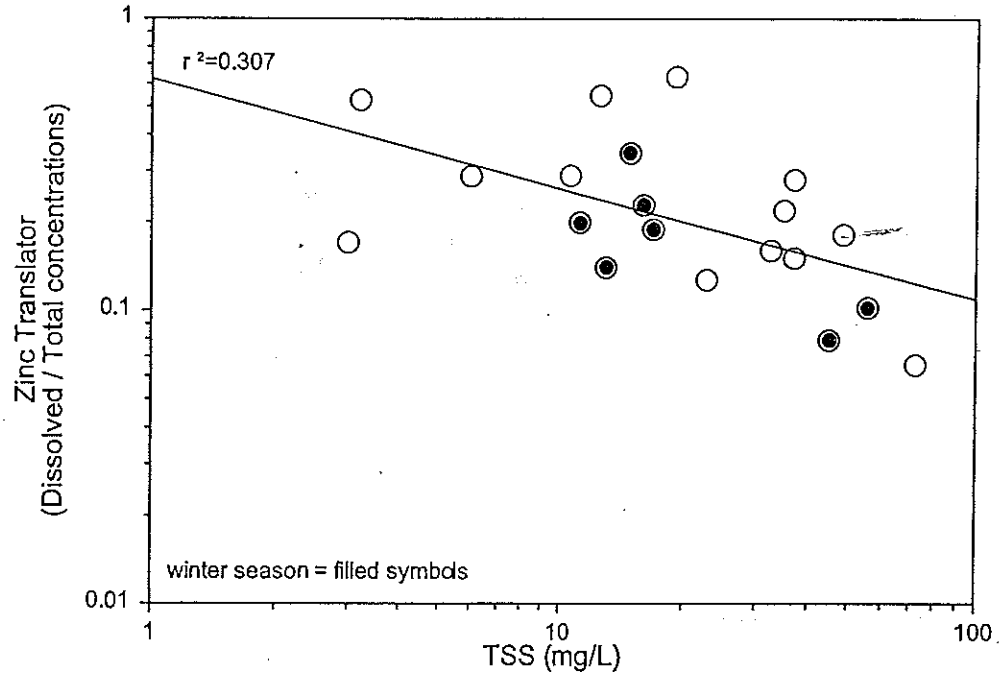
Scatter plot for
TSS vs. Translator for Zinc at BA30
(1 data point removed, 2/6/95)



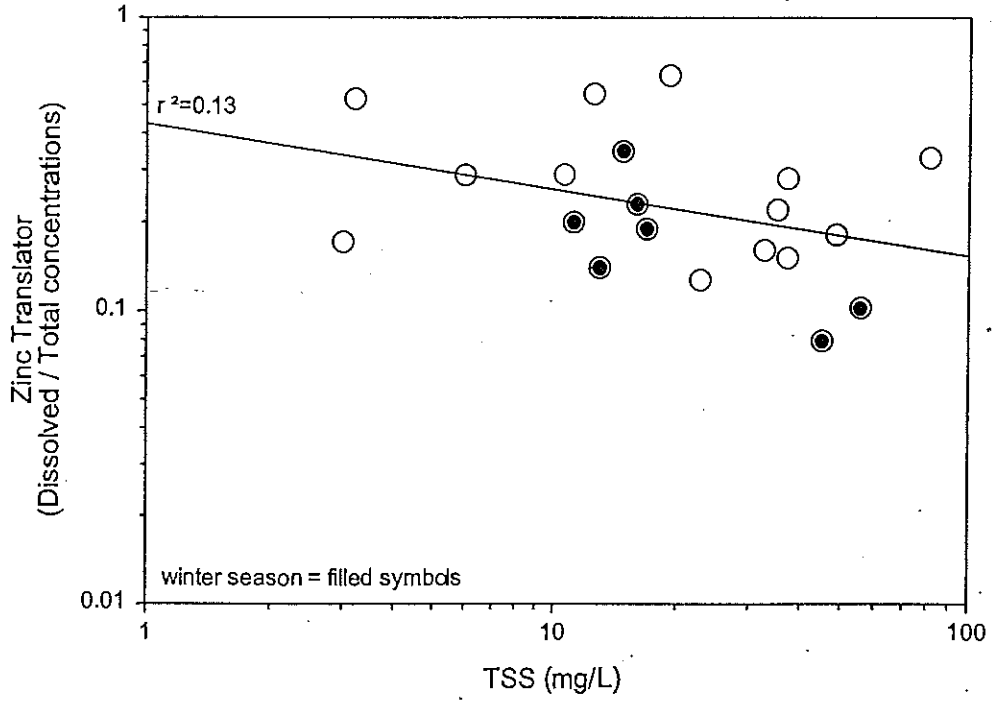
Scatter plot for
TSS vs. Translator for Zinc at BA30
(1 data point removed, 4/16/97)



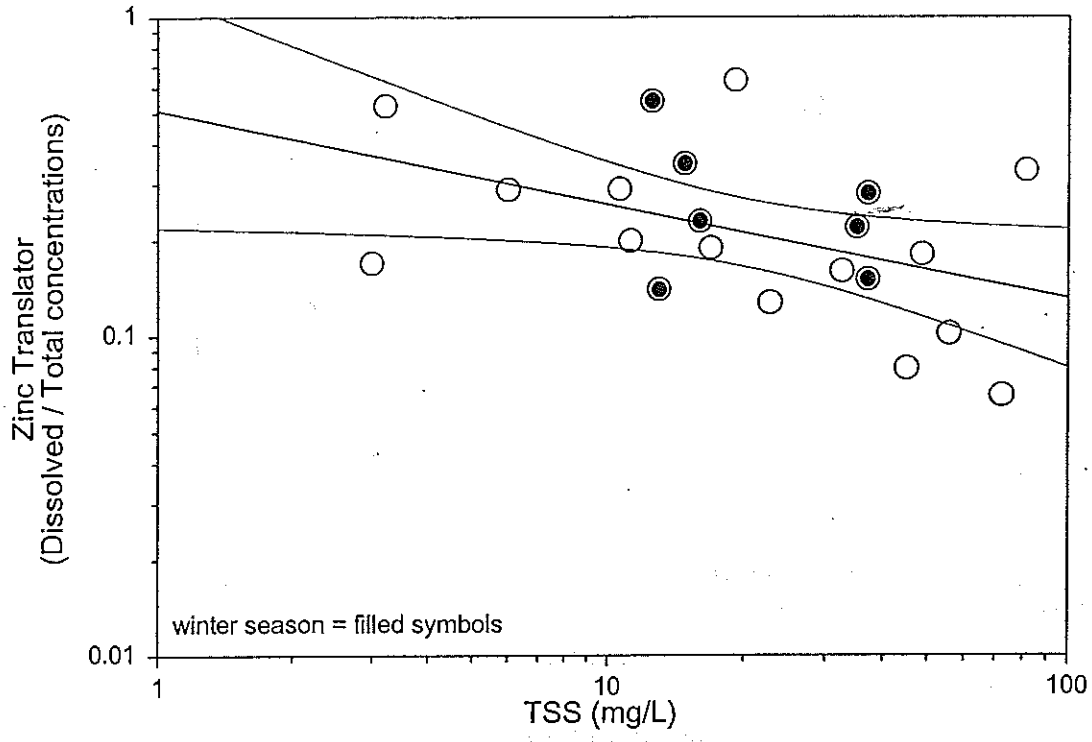
Scatter plot for
TSS vs. Translator for Zinc at BA30
(1 data point removed, 1/21/97)



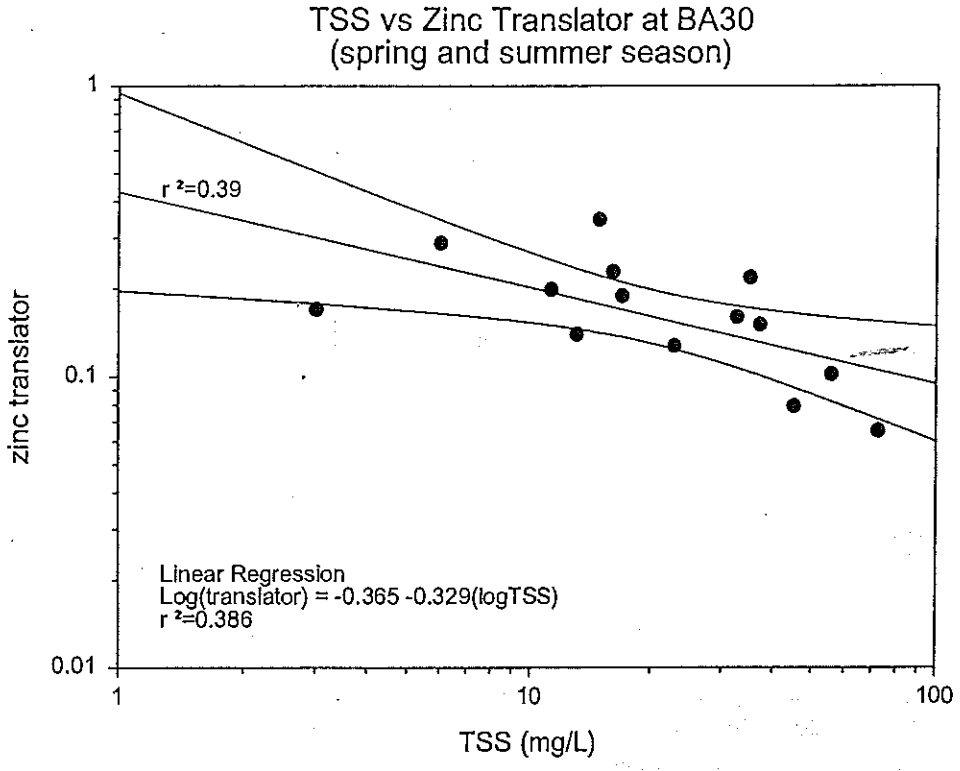
Scatter plot for
TSS vs. Translator for Zinc at BA30
(1 data point removed, 4/24/95)

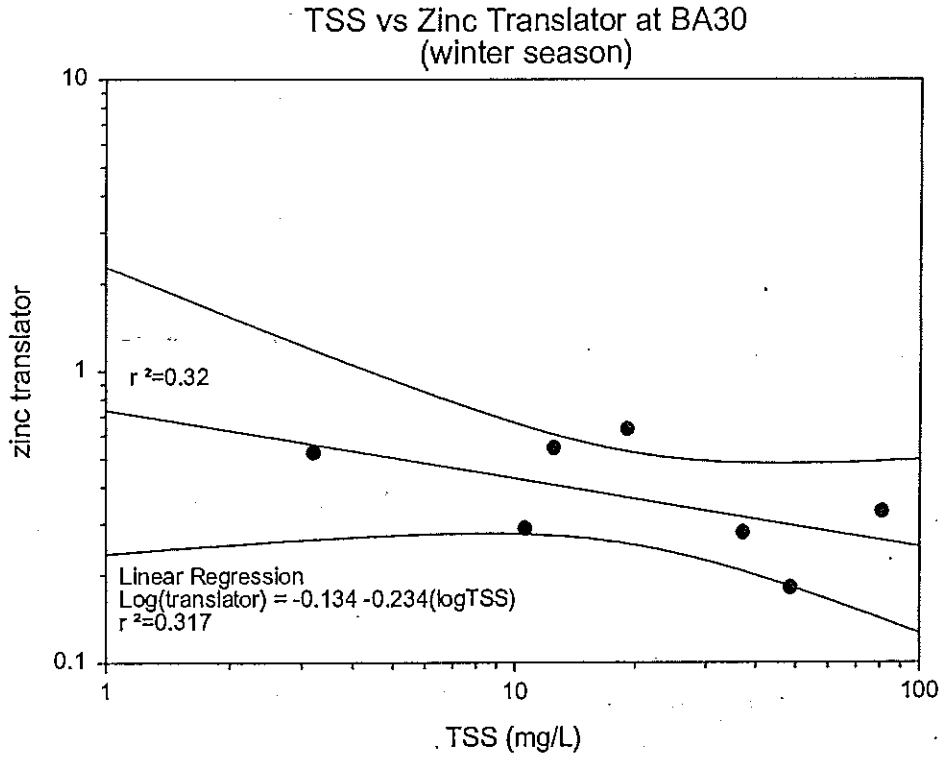


Scatter plot for
TSS vs. Translator for Zinc at BA30
Linear Regression with 95% Confidence Interval

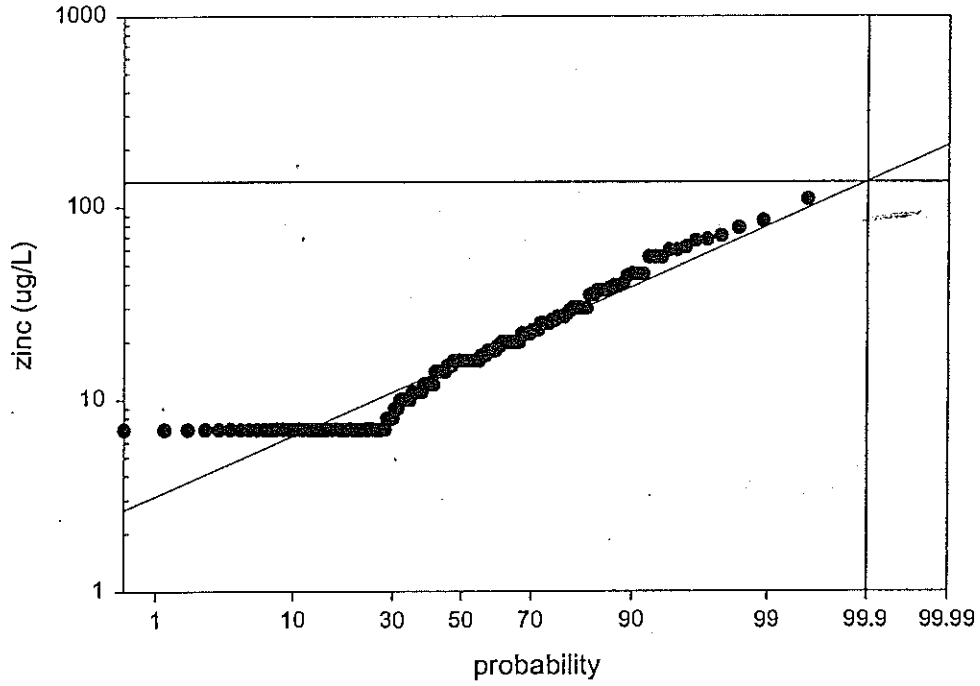


Linear Regression
Log(translator) = -0.293 -0.294(logTSS)
r^2=0.205

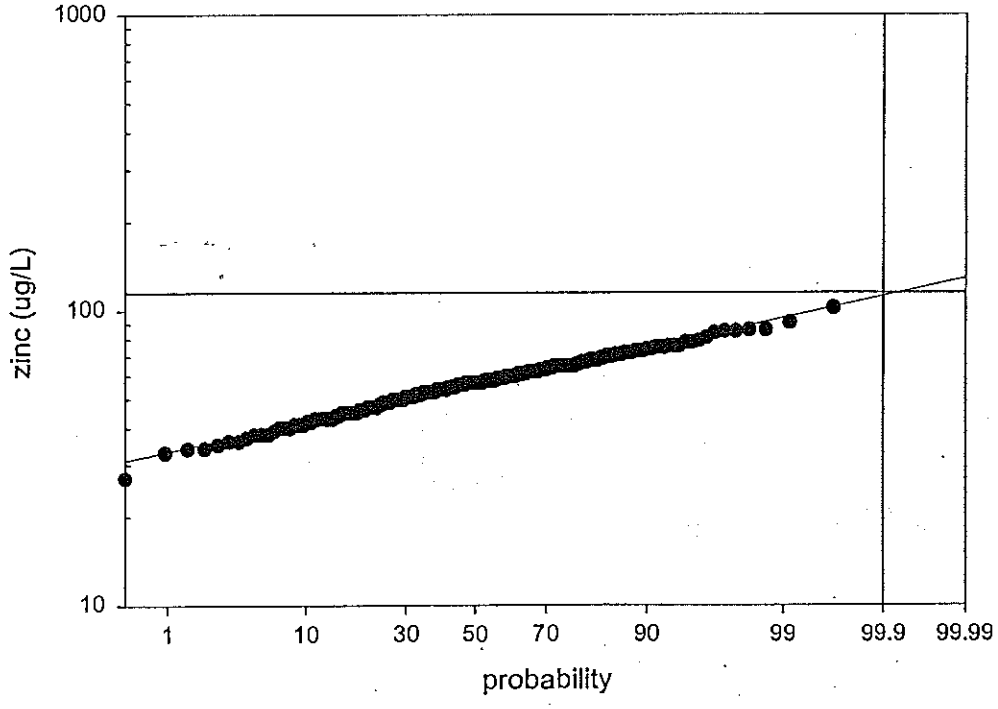

TSS vs Zinc Translator at BA30
(spring and summer season)
zinc translator
1
0.1
0.01
r ²=0.39
Linear Regression
Log(translator) = -0.365 -0.329(logTSS)
r ²=0.386
1
10
100
TSS (mg/L)


TSS vs Zinc Translator at BA30
(winter season)
zinc translator
10
1
0.1
r ²=0.32
Linear Regression
Log(translator) = -0.134 -0.234(logTSS)
r ²=0.317
1
10
100
TSS (mg/L)

Sunnyvale Zinc Effluent Concentration
(11/99-10/02)



San Jose Zinc Effluent Concentration
(11/99-10/02)



San Jose Plant Effluent Zinc Concentrations

	Zinc Effluent	Data Sorted by Concentration	
Date	ug/L	Date	Zn Effluent (ug/L)
04/06/99	49	05/29/01	27
05/04/99	47	01/02/02	33
06/01/99	36	05/20/01	34
07/06/99	40	07/24/01	34
08/05/99	42	08/01/01	35
09/01/99	52	06/01/99	36
10/07/99	51	07/10/01	36
11/02/99	57	12/26/00	37
12/02/99	56	09/04/00	38
01/04/00	62	04/08/01	38
02/01/00	78	04/15/01	38
03/08/00	73	09/11/01	39
04/04/00	63	07/06/99	40
05/02/00	56	11/26/00	40
06/06/00	61	06/26/01	40
07/04/00	41	07/04/00	41
08/01/00	59	03/25/01	41
08/17/00	69	05/24/01	41
08/20/00	65	08/05/99	42
08/22/00	65	01/08/02	42
08/24/00	59	04/10/01	43
08/27/00	56	04/12/01	43
08/29/00	65	04/29/01	43
08/31/00	60	05/06/01	43
09/04/00	38	08/14/01	43
09/05/00	60	12/25/01	43
09/06/00	73	10/02/01	44
09/10/00	85	12/04/01	44
09/12/00	102	04/01/01	45
09/14/00	73	04/17/01	45
09/17/00	59	05/13/01	45
09/19/00	61	06/05/01	45
09/21/00	52	07/17/01	45
09/24/00	65	11/20/01	45
09/26/00	67	05/15/01	46
09/28/00	76	05/27/01	46
10/01/00	62	03/19/02	46
10/03/00	78	05/04/99	47
10/05/00	65	05/08/01	47
10/09/00	54	08/07/01	47
10/10/00	76	08/28/01	47
10/12/00	68	10/30/01	47
10/15/00	59	01/02/01	48
10/17/00	74	03/04/01	48
10/19/00	72	04/06/99	49
10/22/00	55	06/19/01	49
10/24/00	71	07/02/01	49
10/26/00	75	09/25/01	49
10/29/00	58	11/05/00	50

San Jose Plant Effluent Zinc Concentrations

Date	Zinc Effluent ug/L	Data Sorted by Concentration Date	Zn Effluent (ug/L)
10/31/00	60	01/15/01	50
11/02/00	59	02/19/01	50
11/05/00	50	03/11/01	50
11/07/00	55	10/23/01	50
11/08/00	63	03/26/02	50
11/12/00	53	10/07/99	51
11/14/00	65	03/13/01	51
11/16/00	66	10/09/01	51
11/19/00	72	12/18/01	51
11/20/00	55	02/05/02	51
11/21/00	67	09/01/99	52
11/26/00	40	09/21/00	52
11/28/00	75	03/22/01	52
11/30/00	69	03/27/01	52
12/03/00	63	11/12/00	53
12/05/00	70	01/21/01	53
12/07/00	70	02/25/01	53
12/10/00	62	05/01/01	53
12/12/00	71	05/10/01	53
12/14/00	61	06/12/01	53
12/17/00	58	10/16/01	53
12/19/00	91	10/09/00	54
12/20/00	64	03/18/01	54
12/21/00	79	03/20/01	54
12/26/00	37	09/18/01	54
12/27/00	64	11/27/01	54
12/28/00	65	02/26/02	54
01/02/01	48	10/22/00	55
01/03/01	84	11/07/00	55
01/04/01	68	11/20/00	55
01/07/01	66	04/24/01	55
01/09/01	86	01/15/02	55
01/11/01	56	12/02/99	56
01/15/01	50	05/02/00	56
01/16/01	86	08/27/00	56
01/18/01	85	01/11/01	56
01/21/01	53	11/06/01	56
01/23/01	72	11/02/99	57
01/25/01	67	02/11/01	57
01/28/01	60	03/08/01	57
01/30/01	65	04/05/01	57
02/01/01	74	04/19/01	57
02/04/01	61	08/21/01	57
02/06/01	75	11/13/01	57
02/08/01	71	01/22/02	57
02/11/01	57	03/05/02	57
02/13/01	70	03/12/02	57
02/15/01	58	10/29/00	58
02/19/01	50	12/17/00	58

San Jose Plant Effluent Zinc Concentrations

	Zinc Effluent	Data Sorted by Concentration	
Date	ug/L	Date	Zn Effluent (ug/L)
02/20/01	64	02/15/01	58
02/22/01	63	04/03/01	58
02/25/01	53	09/05/01	58
02/27/01	65	12/11/01	58
03/01/01	68	02/12/02	58
03/04/01	48	08/01/00	59
03/06/01	65	08/24/00	59
03/08/01	57	09/17/00	59
03/11/01	50	10/15/00	59
03/13/01	51	11/02/00	59
03/15/01	60	08/31/00	60
03/18/01	54	09/05/00	60
03/20/01	54	10/31/00	60
03/22/01	52	01/28/01	60
03/25/01	41	03/15/01	60
03/27/01	52	02/19/02	60
03/29/01	62	06/06/00	61
04/01/01	45	09/19/00	61
04/03/01	58	12/14/00	61
04/05/01	57	02/04/01	61
04/08/01	38	05/03/01	61
04/10/01	43	01/04/00	62
04/12/01	43	10/01/00	62
04/15/01	38	12/10/00	62
04/17/01	45	03/29/01	62
04/19/01	57	04/26/01	62
04/22/01	76	05/17/01	62
04/24/01	55	04/04/00	63
04/26/01	62	11/08/00	63
04/29/01	43	12/03/00	63
05/01/01	53	02/22/01	63
05/03/01	61	12/20/00	64
05/06/01	43	12/27/00	64
05/08/01	47	02/20/01	64
05/10/01	53	08/20/00	65
05/13/01	45	08/22/00	65
05/15/01	46	08/29/00	65
05/17/01	62	09/24/00	65
05/20/01	34	10/05/00	65
05/22/01	68	11/14/00	65
05/24/01	41	12/28/00	65
05/27/01	46	01/30/01	65
05/29/01	27	02/27/01	65
06/05/01	45	03/06/01	65
06/12/01	53	11/16/00	66
06/19/01	49	01/07/01	66
06/26/01	40	09/26/00	67
07/02/01	49	11/21/00	67
07/10/01	36	01/25/01	67

San Jose Plant Effluent Zinc Concentrations

Date	Zinc Effluent ug/L	Data Sorted by Concentration Date	Zn Effluent (ug/L)
07/17/01	45	10/12/00	68
07/24/01	34	01/04/01	68
08/01/01	35	03/01/01	68
08/07/01	47	05/22/01	68
08/14/01	43	08/17/00	69
08/21/01	57	11/30/00	69
08/28/01	47	12/05/00	70
09/05/01	58	12/07/00	70
09/11/01	39	02/13/01	70
09/18/01	54	10/24/00	71
09/25/01	49	12/12/00	71
10/02/01	44	02/08/01	71
10/09/01	51	10/19/00	72
10/16/01	53	11/19/00	72
10/23/01	50	01/23/01	72
10/30/01	47	03/08/00	73
11/06/01	56	09/06/00	73
11/13/01	57	09/14/00	73
11/20/01	45	10/17/00	74
11/27/01	54	02/01/01	74
12/04/01	44	10/26/00	75
12/11/01	58	11/28/00	75
12/18/01	51	02/06/01	75
12/25/01	43	09/28/00	76
01/02/02	33	10/10/00	76
01/08/02	42	04/22/01	76
01/15/02	55	02/01/00	78
01/22/02	57	10/03/00	78
01/29/02	81	12/21/00	79
02/05/02	51	01/29/02	81
02/12/02	58	01/03/01	84
02/19/02	60	09/10/00	85
02/26/02	54	01/18/01	85
03/05/02	57	01/09/01	86
03/12/02	57	01/16/01	86
03/19/02	46	12/19/00	91
03/26/02	50	09/12/00	102
# samples	184		
# NDs	0		
average	57.5		
st dev	12.6		
avg+3*stdev	95.2		
geomean	56.2		
geo stdev	1.2		
geo avg*geostdev^3	110		
max	102		
probit	115		

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City of Sunnyvale Plant Effluent Zinc Concentrations

Date		Zn Effluent ug/L
04/06/99		16
04/14/99		39
04/19/99		62
04/25/99		67
05/04/99		9
05/12/99	<	7
05/17/99	<	7
05/23/99		12
06/01/99	<	7
06/06/99		20
06/16/99		10
06/22/99		11
06/27/99		16
07/08/99		40
07/13/99	<	7
07/21/99	<	7
07/25/99		14
08/04/99	<	7
08/10/99		8
08/15/99		14
08/23/99		10
09/01/99	<	7
09/07/99	<	7
09/13/99	<	7
09/19/99		10
09/28/99		14
10/06/99		9
10/12/99		7
10/17/99		18
10/25/99		11
11/03/99		16
11/09/99		30
11/15/99		25
11/21/99		23
12/01/99		25
12/06/99		16
12/14/99		27
12/19/99		23
12/27/99		11
01/05/00		18
01/11/00		27
01/17/00		27
01/23/00		44
02/01/00		28
02/09/00		25
02/13/00		17
02/23/00		26
02/29/00		29
03/05/00		18

Data Sorted by Concentration

Date		Zn Effluent (ug/L)
05/12/99	<	7
05/17/99	<	7
06/01/99	<	7
07/13/99	<	7
07/21/99	<	7
08/04/99	<	7
09/01/99	<	7
09/07/99	<	7
09/13/99	<	7
10/12/99		7
05/02/00	<	7
08/09/00	<	7
08/14/00	<	7
08/22/00	<	7
08/27/00	<	7
09/06/00	<	7
09/13/00	<	7
09/18/00	<	7
09/24/00	<	7
10/03/00	<	7
10/09/00	<	7
10/15/00	<	7
10/25/00	<	7
10/31/00	<	7
11/05/00	<	7
01/23/01	<	7
04/16/01	<	7
05/29/01	<	7
06/13/01	<	7
06/18/01	<	7
06/24/01	<	7
07/23/01	<	7
08/01/01	<	7
08/07/01	<	7
08/13/01	<	7
08/20/01	<	7
08/26/01	<	7
09/23/01	<	7
11/13/01	<	7
03/06/02	<	7
03/18/02	<	7
08/10/99		8
04/04/01		8
05/01/01		8
05/04/99		9
10/06/99		9
06/16/99		10
08/23/99		10
09/19/99		10

City of Sunnyvale Plant Effluent Zinc Concentrations

Date	Zn Effluent ug/L	Data Sorted by Concentration Date	Zn Effluent (ug/L)
03/15/00	35	06/25/00	10
03/20/00	22	07/23/00	10
03/26/00	78	06/22/99	11
04/04/00	17	10/25/99	11
04/09/00	15	12/27/99	11
04/19/00	12	05/09/01	11
04/24/00	23	09/12/01	11
05/02/00	< 7	05/23/99	12
05/10/00	39	04/19/00	12
05/15/00	16	03/04/01	12
05/21/00	30	07/01/01	12
05/29/00	68	07/19/01	12
06/06/00	22	07/25/99	14
06/14/00	37	08/15/99	14
06/19/00	16	09/28/99	14
06/25/00	10	02/26/01	14
07/05/00	110	09/04/01	14
07/10/00	45	04/09/00	15
07/18/00	25	11/14/00	15
07/23/00	10	12/10/00	15
08/01/00	20	04/06/99	16
08/09/00	< 7	06/27/99	16
08/14/00	< 7	11/03/99	16
08/22/00	< 7	12/06/99	16
08/27/00	< 7	05/15/00	16
09/06/00	< 7	06/19/00	16
09/13/00	< 7	04/22/01	16
09/18/00	< 7	05/13/01	16
09/24/00	< 7	07/09/01	16
10/03/00	< 7	12/26/01	16
10/09/00	< 7	01/02/02	16
10/15/00	< 7	01/13/02	16
10/25/00	< 7	02/13/00	17
10/31/00	< 7	04/04/00	17
11/05/00	< 7	10/03/01	17
11/14/00	15	10/17/99	18
11/19/00	20	01/05/00	18
11/27/00	20	03/05/00	18
12/05/00	30	04/10/01	18
12/10/00	15	06/05/01	19
12/18/00	20	11/08/01	19
12/25/00	20	06/06/99	20
01/03/01	30	08/01/00	20
01/09/01	45	11/19/00	20
01/15/01	20	11/27/00	20
01/23/01	< 7	12/18/00	20
02/05/01	85	12/25/00	20
02/14/01	45	01/15/01	20
02/20/01	35	09/19/01	20

City of Sunnyvale Plant Effluent Zinc Concentrations

Date		Zn Effluent ug/L	Data Sorted by Concentration Date	Zn Effluent (ug/L)
02/26/01		14	03/20/00	22
03/04/01		12	06/06/00	22
03/12/01		60	03/28/01	22
03/20/01		60	12/17/01	22
03/28/01		22	11/21/99	23
04/04/01		8	12/19/99	23
04/10/01		18	04/24/00	23
04/16/01	<	7	11/15/99	25
04/22/01		16	12/01/99	25
05/01/01		8	02/09/00	25
05/09/01		11	07/18/00	25
05/13/01		16	02/23/00	26
05/21/01		30	12/09/01	26
05/29/01	<	7	12/14/99	27
06/05/01		19	01/11/00	27
06/13/01	<	7	01/17/00	27
06/18/01	<	7	02/01/00	28
06/24/01	<	7	02/29/00	29
07/01/01		12	11/09/99	30
07/09/01		16	05/21/00	30
07/19/01		12	12/05/00	30
07/23/01	<	7	01/03/01	30
08/01/01	<	7	05/21/01	30
08/07/01	<	7	03/15/00	35
08/13/01	<	7	02/20/01	35
08/20/01	<	7	06/14/00	37
08/26/01	<	7	10/10/01	37
09/04/01		14	11/26/01	37
09/12/01		11	12/04/01	38
09/19/01		20	04/14/99	39
09/23/01	<	7	05/10/00	39
10/03/01		17	07/08/99	40
10/10/01		37	01/23/00	44
10/17/01		55	07/10/00	45
10/22/01		55	01/09/01	45
10/28/01		55	02/14/01	45
11/08/01		19	10/17/01	55
11/13/01	<	7	10/22/01	55
11/18/01		71	10/28/01	55
11/26/01		37	03/12/01	60
12/04/01		38	03/20/01	60
12/09/01		26	04/19/99	62
12/17/01		22	04/25/99	67
12/26/01		16	05/29/00	68
01/02/02		16	11/18/01	71
01/13/02		16	03/26/00	78
03/06/02	<	7	02/05/01	85
03/18/02	<	7	07/05/00	110

City of Sunnyvale Plant Effluent Zinc Concentrations

Date	Zn Effluent ug/L	Data Sorted by Concentration Date	Zn Effluent (ug/L)
# samples	146		
# NDs	40		
average	21.0		
st dev	18.0		
avg+3*stdev	74.9		
geomean	15.9		
geo stdev	2.0		
geo avg*geostdev^3	137		
max	110		
probit	135		

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City of Sunnyvale Water Supply Sampling at Wright Plant Turnout

Date	Zn (ug/L)	Date	Zn (ug/L)	Date	Zn (ug/L)
Year 2001	MDL=4.6	Year 2000	MDL=4.6	Year 1999	MDL=7
01/02/01	250	01/04/00	521	01/04/99	357
01/16/01	260	01/18/00	639	01/15/99	273
02/06/01	250	02/07/00	532	01/19/99	246
02/20/01	240	02/22/00	550	01/26/99	286
03/06/01	284	03/06/00	566	02/01/99	380
03/20/01	207	03/20/00	583	02/08/99	280
04/03/01	282	04/03/00	604	02/19/99	362
04/17/01	250	04/17/00	579	02/23/99	421
05/01/01	226	05/01/00	560	03/01/99	316
05/15/01	263	05/15/00	572	03/08/99	489
06/05/01	230	06/05/00	427	03/16/99	301
06/10/01		06/19/00	600	03/22/99	365
06/19/01	255	07/03/00	600	03/29/99	437
07/03/01	306	07/17/00	430	04/06/99	571
07/10/01	270	07/31/00	490	04/20/99	534
07/17/01	305	08/15/00	530	05/04/99	532
07/25/01	206	09/06/00	320	05/17/99	350
08/01/01	260	09/19/00	510	06/02/99	434
08/15/01		10/04/00	220	06/15/99	443
08/21/01	276	10/18/00	380	07/06/99	440
09/05/01	384	11/01/00	310	07/20/99	
09/19/01	61	11/14/00	240	08/03/99	495
10/03/01	229	12/06/00	250	08/17/99	455
10/17/01	254	12/19/00	250	09/07/99	507
11/13/01	232			09/21/99	486
11/27/01	173			10/05/99	482
12/04/01	235			10/18/99	564
12/18/01	208			11/01/99	542
				11/15/99	560
				12/06/99	525
				12/20/99	512

average all years= 383

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RATIONALE FOR USE OF EXISTING RMP DATA FOR LOWER SOUTH BAY METALS TRANSLATOR CALCULATIONS

10/08/02

The Regional Board adopted Resolution 92-043 on April 15, 1992 that endorsed in concept the development and implementation of the Regional Monitoring Program for Trace Substances (RMP). The initial sampling design was based on the Bay Protection and Toxic Cleanup Program (BPTCP) pilot studies conducted during 1991 and 1992. Stations were primarily located in the deeper shipping channels along the "spine" of the Estuary and were selected to collect baseline data on trace substances in the Estuary and to determine seasonal and long-term trends in contaminant concentrations. Additional stations were added over the years to fill in spatial gaps and to monitor near major tributaries and at the estuary interface.

Each year the monitoring plan has been reviewed and adjusted as deemed appropriate by the RMP's advisory committees. External review of the RMP's technical and administrative structure is conducted every five years to ensure that the RMP adapts to scientific and technological advances and continues to be useful to the regulatory and scientific communities. Trace metals sampling was conducted three times per year from 1993 – 1999, typically in February, April, and July to capture the range of Delta outflows (from high to low flows).

Sampling during the period of declining Delta outflows during April was discontinued during 2000 since the dry season was determined to be more indicative of ambient contaminant concentrations in the Estuary. In 2000 chromium was removed from the list of analytes measured in water, sediment, and tissue samples. Additional revisions were made in 2001 and the "redesigned" RMP began to be fully implemented in 2002. Modifications included shifting sampling frequency from seasonal to annual dry season sampling to reduce interannual variation. Only three fixed stations will continue to be sampled (Sacramento and San Joaquin Rivers and Golden Gate Bridge), with the other stations based on an annual randomized sample design.

The RMP produces high quality, nationally recognized data. Sampling is conducted in accordance with the "Field Sampling Manual for the Regional Monitoring Program for Trace Substances" (February 2001). This manual outlines the sampling methods and standard operating procedures for water, sediment, and bioaccumulation sampling. The "2001 Quality Assurance Project Plan for the Regional Monitoring Program for Trace Substances" (September 2000) includes the San Francisco Estuary Institute's (SFEI) quality assurance and quality control (QA/QC) protocols and requirements for contract laboratories associated with the RMP. It addresses QA/QC measures both in the field and in the laboratory.

All available RMP total and dissolved metals data from March 1993 through July 1999 (generally 21 datapoints) were used to directly calculate metals translators (i.e. ratio of dissolved to total metal) in accordance with the EPA translator guidance document ("The Metals Translator: Guidance for Calculating A Total Recoverable Permit Limit From A Dissolved Criterion" (June 1996)). The 21 pairs of datapoints are over double the minimum (of 10) recommended in the USEPA guidance document.

Translator values calculated for both the BC10 (Yerba Buena) and BA30 (Dumbarton Bridge) RMP stations were quite consistent, showing there to be relatively little spatial variability. In the 1993-1999 timeframe samples were collected three times per year and thus captured the full range of seasonal variability (that is primarily a function of Delta outflow).

ATTACHMENT B

SUNNYVALE TRANSLATOR CASE STUDY MEMO

(EOA August/December 1997)

(hard copy only, available upon request)

REFERENCES AVAILABLE ON-LINE

Attachment G. Self-Monitoring Program

Part A
Standard Provisions and Reporting Requirements, August 1993:
Available on line.

(http://www.swrcb.ca.gov/~rwqcb2/Agneda/04-17-02/res74-10standprov.doc)

Attachment I: Board Resolution No. 74-10

[See (http://www.swrcb.ca.gov/~rwqcb2/Agenda/04-17-02/res74-10.doc]

Attachment J: Mercury Staff Report

[See [http://www.swrcb.ca.gov/rwqcb2/sfbaymercurytmdl.htm]
click on the link for "Project Report."

Attachment K: 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 (Pretreatment)

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: (Pretreatment)

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 (Pretreatment)

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 2 on Page 8 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 2 (page 8 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 L

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

RESPONSE TO WRITTEN COMMENTS (September 5, 2003):
ON THE NPDES PERMIT REISSUANCE FOR:

San Jose/Santa ClaraWater Pollution Control Plant
San Jose, Santa Clara County
NPDES Permit No. CA 0037842

Comments on the Tentative Order (TO) summarized below were received during a limited second public comment period as a result of the August 20, 2003 Board Hearing. Comments were allowed on the Salt Marsh Habitat Mitigation sections of the TO, only. Written comments were received from the City of San Jose (City) on September 3, 2003, via e-mail. For brevity, comments are summarized.

To resolve an outstanding historic salt marsh mitigation requirement associated with the City's permit, Board Staff have held meetings beginning in January 2003 with the City, USFWS, CDFG, WaterKeepers, and Interested parties. Between March and July, several options were discussed by participating resource agencies, resulting in several mitigation proposals submitted by the City. Board staff held a series of conference calls to discuss these proposals with agency staff and the City. On July 30, the City, Board, and staff of the resource agencies met and agreed upon the basic tenets of an alternate salt marsh mitigation agreement. In August, these tenets were 1) circulated among the City, USFWS, and CDFG for comment; 2) modified based on input; and 3) adopted at the August Board Hearing in Resolution R2-2003-0077. The tenets of this Resolution are to be included in a forthcoming formal agreement to be entered into at some future date by participating agencies.

Comments received from the City requested generally two types of changes to the salt marsh mitigation findings and provisions of the TO: (1) modifications suggesting general clean-up and shortening of sections, or (2) substantial changes to concepts or details that were agreed to between the City, the Board and resource agencies. Type(1) modifications were accepted and are reflected in the TO. Type (2) requested changes concerning details or concepts of the alternate salt marsh mitigation agreement were considered substantial and inconsistent with Resolution R2-2003-0077, and therefore were not made to the TO.

Below are Board's responses to the City's comments

Response to Comments submitted by the City 9/03/03 in Track Changes for Wetland Mitigation Findings and Provisions.

Findings: 33, 45, 48, 49, 50, 51. City requested both clean-up and substantial changes to alternate salt marsh mitigation agreement.

Staff Response : **Findings: 33, 45, 48, 49, 50, 51.** *Non-substantial changes accepted. Substantial changes to language previously agreed to by agencies, or circulated and finalized among agencies for comment, were not made.*

Comment 1: Provisions: 12.c. "Wetlands Permit Reopener". The City proposes a new paragraph "c." stating:
"In the event that the Discharger cannot complete restoration of the Moseley Tract or other acceptable site, or is unsuccessful in negotiating an alternative funding agreement as specified in this Order, prior to August 31, 2004, before taking any enforcement action based on prior orders related to historic mitigation requirements, the Board will re-open the permit and this order for full reconsideration of the nature, extent and manner in which the Discharger should satisfy any remaining obligation to provide historic mitigation."

Staff Response 1: Provision 12.c.
Staff accepts the concept of a Reopener clause specific to the Alternate Salt Marsh Mitigation Agreement. However, as written, the clause cannot be accepted for the following reasons:
1) as a general principle of administrative law, a current board cannot mandate that a future board "will" do something.

2) Staff agrees with the concept of a reopener clause specific to the alternate wetlands mitigation topic, in the event that an alternate salt marsh mitigation agreement cannot be finalized among named parties. However, the City's proposed language is too broad. As written, a re-opener 'to fully reconsider "the nature, extent and manner in which the Discharger should satisfy any remaining obligation to provide historic mitigation"' may be interpreted to mean that the Board will at a future date rethink the mitigation requirements and their basis for requiring any further mitigation under this permit. This is not consistent with State Board Remand Order WQ 90-5 and Board's Resolutions 96-137, and R2-2003-0077. Staff proposes that, consistent with previous Orders and Resolutions, reopener language be limited to deriving options for a mitigation site alternate to the Moseley Tract, and would ideally build upon efforts and options discussed among staff from the City, the Board and USFWS and CDFG staff between January- July, 2003.
Staff suggests the following compromise:

> *12.c Permit Reopener Relating to Alternate Mitigation Agreement:*
> In the event that the Discharger cannot complete restoration of the Moseley Tract or other site acceptable to the Board and USFWS, or is unsuccessful in negotiating an alternative funding agreement as specified in this Order and Resolution R2-2003-0077, prior to August 31, 2004, it is the intent of the Board to hold a public hearing to consider alternate mitigation scenarios to satisfy historic mitigation requirements.

Additionally, Board staff note that flexibility has been factored into the City's requirement to craft an alternative mitigation solution to Moseley, in several ways; 1) details of an alternate site or project have not be named in the TO or Resolution R2-

2003-0077; 2) a specific number of acres required for restoration has not been named; 3) penalties for delays in restoration (per Resolution 91-152) have not been advised; 4) clauses enabling the Executive Officer to extend the due dates for the proposed alternate salt marsh mitigation agreement have been added to both the Tentative Order and Resolution R2-2003-0077; and 5) a reopener clause has been added to the TO providing the City with an opportunity to propose to the Board in a hearing, alternate salt marsh mitigation strategies to satisfy remaining historical mitigation requirements.

Comment 2: Provision 12.a. The City requests several language changes including "either" clarification.

Staff Response2: Provision 12.a.
Clean up language accepted (either clause), with added language. The word "fully" deleted. Last deleted sentence not accepted as this issue was agreed to in recent drafts circulated among agencies, including City staff. Clause added to extend time schedule.

Comment 3: Provision 12.b. The City requests deletions, and clarification throughout.

Staff Response 3: Provision 12.b
Language shortened, meaning retained. All of deletion not accepted;
The word "full" was omitted before restoration (here and elsewhere).
Language requiring submission of alternate wetland agreement within 6 months of permit adoption was deleted in this section (retained in 12.a, consistent with Resolution R2-2003-0077.

Comment 4: Finding 43 The City requests addition of a sentence reading; "Upon full execution of an alternate mitigation agreement, by all parties, the City of San Jose will (1) have satisfied all its mitigation requirements to mitigate for historical habitat losses as required by State Board Order 90-5, and as originally approved by Board Order 96-137, and (2) will have no further obligation to restore the Mosley Tract."

Staff Response4: Finding 43
The new sentence is redundant with Finding 50 and therefore, was not added. The last part of the sentence numbered (2) has been added to Provision 12.b.

APPENDIX B - SALT POND A18 PERMIT

Linda S. Adams
Secretary for
Environmental Protection

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

San Francisco Bay Region
1515 Clay Street, Suite 1400
(510) 622-2300 • Fax (510) 622-2460
http://www.waterboards.ca.gov/sanfranciscobay

Arnold Schwarzenegger
Governor

ORDER NO. R2-2008-XXXX
NPDES NO. CA0037842

The following Discharger is subject to waste discharge requirements as set forth in this Order.

Table 1. Discharger Information

Discharger	Cities of San Jose and Santa Clara
Name of Facility	San Jose/Santa Clara Water Pollution Control Plant and its sewage collection system
Facility Address	700 Los Esteros Road San Jose, CA 95134 Santa Clara County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by the San Jose/Santa Clara Water Pollution Control Plant from the discharge point identified below is subject to waste discharge requirements as set forth in this Order.

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Tertiary-treated POTW Effluent	37º 26' 06" N	121º 57' 08" W	Artesian Slough (Tributary to South San Francisco Bay via Coyote Creek)

Table 3. Administrative Information

This Order was adopted by the Regional Water Board on:	**<Adoption Date>**
This Order shall become effective on:	**<Effective Date>**
This Order shall expire on:	**<Expiration Date>**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	180 days prior to the Order expiration date

IT IS HEREBY ORDERED, that this Order supersedes Order No. R2-2003-0085 except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on **<Adoption Date>**.

_____
Bruce H. Wolfe, Executive Officer

Table of Contents

Tables

Attachments

I. FACILITY INFORMATION

The following Discharger is subject to the waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	Cities of San Jose and Santa Clara
Name of Facility	San Jose/Santa Clara Water Pollution Control Plant and Collection System
Facility Address	700 Los Esteros Road San Jose , CA 95134 Santa Clara County
Facility Contact, Title, and Phone	David Tucker, Program Manager, (408) 945-5316
Mailing Address	Same as Facility Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Facility Design Flow	167 million gallons per day (MGD) (average dry weather design flow) 261 MGD (peak wet weather design flow)
Service Areas	Cities of San Jose, Santa Clara, and Milpitas; Santa Clara County Sanitation Districts 2 and 3; the West Valley Sanitation District including Campbell, Los Gatos, Monte Sereno and Saratoga; and the Cupertino, Burbank, and Sunol Sanitary Districts
Service Area Population	1,365,000

II. FINDINGS

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

A. Background. The Cities of San Jose and Santa Clara (hereinafter the Discharger) have been discharging under Order No. R2-2003-0085 (previous Order) and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037842. The Discharger submitted a Report of Waste Discharge (ROWD), dated April 4, 2008, and applied for reissuance of its NPDES permit to discharge up to 120 MGD of tertiary treated wastewater as an average dry weather effluent flow from the San Jose/Santa Clara Water Pollution Control Plant (plant).

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. Facility and Discharge Description

1. **Facility Description.** The Discharger owns and operates the plant and its collection system (collectively the facility). The facility provides tertiary treatment of wastewater from domestic, commercial and industrial sources from its service areas as indicated in Table 4 above. The current total service population is approximately 1.4 million. .

   Wastewater treatment processes at the plant include screening and grit removal, primary sedimentation, secondary treatment by the activated sludge process, secondary clarification, filtration, disinfection, and dechlorination.

2. **Discharge Description.** The treated wastewater from the plant flows into Artesian Slough (37° 26'06" Latitude and 121° 57' 08" Longitude), tributary to Coyote Creek and South San

Francisco Bay. The plant has an average dry weather flow design capacity of 167 million gallons per day (MGD), and a 271 MGD peak hourly flow capacity. The average dry weather flow based on flows of three consecutive months was XXXX MGD during 2005–2007, the average effluent flow rate was 108 MGD, based on flow data from 2004–2008, and the maximum daily effluent flow rate from 2006–2008 was 133 MGD.

3. **Collection System Description.** The collection system is 100% separate sanitary sewer. It contains XXX miles of pipes ranging from XXX inches to XXX inches in diameter, and XXX lift stations. **[Discharger to provide a finding]**

4. **Biosolids Management.** The dissolved air flotation process thickens the sludge from around 1% to 4% total solids before being pumped to the anaerobic digesters. Digested sludge from the anaerobic digesters is pumped to deep (10 feet) storage lagoons and drying beds. Biosolids are dried to about 75 percent (%) total solids prior to land application or use as daily cover at a sanitary landfill.

5. **Reclamation Activities.** The Discharger provides approximately 10 MGD of tertiary treated wastewater for non-potable purposes to over 350 customers throughout the service area via the South Bay Water Recycling Program, a fixed piping system operated under Regional Water Board Order No. 95-117. Customer uses include irrigation of golf courses, parks and playgrounds, farms, as well as industrial use. Recycled water is also available for construction use at remote locations. Approximately 0.10 MGD of tertiary treated wastewater is also used seasonally for landscape irrigation of 50 acres on-site.

6. **Storm Water Discharge.** The Discharger is not required to be covered under the State Water Board's statewide NPDES permit for storm water discharges associated with industrial activities (NPDES General Permit CAS000001) because all of the storm water captured within the plant storm drain system is directed to the headworks of the plant and treated to the standards contained in this Order.

Attachment B provides a map of the area around the WPCP. Attachment C provides a flow schematic of the WPCP.

C. Legal Authorities. This Order is issued pursuant to the Clean Water Act (CWA) section 402 and implementing regulations adopted by the USEPA and chapters 5.5, division 7 of the California Water Code (CWC, commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of CWC (commencing with section 13260).

D. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the findings for this Order. Attachments A through E and G through I are also incorporated into this Order.

E. California Environmental Quality Act (CEQA). Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA.

F. Technology-Based Effluent Limitations. CWA Section 301(b) and NPDES regulations at Title 40 of the Code of Federal Regulations (40 CFR) section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR 133 and/or Best Professional Judgment (BPJ) pursuant to 40 CFR 125.3. A detailed discussion of development of the technology-based effluent limitations is included in the Fact Sheet.

G. Water Quality-Based Effluent Limitations (WQBELs). CWA section 301(b) and NPDES regulations at 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

NPDES regulations at 40 CFR 122.44(d)(1)(i) mandate that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion (WQC), such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

H. Water Quality Control Plans. *The Water Quality Control Plan for the San Francisco Bay Basin* (the Basin Plan) is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives (WQOs) for waters of the state, including surface waters and groundwater. It also includes programs of implementation to achieve WQOs. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Resources Control Board (State Water Board), USEPA, and the Office of Administrative Law (OAL), as required. Requirements of this Order implement the Basin Plan.

The Basin Plan does not specifically identify present and potential beneficial uses for Artesian Slough but does identify beneficial uses for Coyote Creek, to which Artesian Slough is tributary. The Basin Plan states that the beneficial uses of any specifically identified water body generally apply to all its tributaries. State Water Board Resolution No. 88-63 establishes state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Because of the tidal and marine influence on receiving waters for this discharge, total dissolved solids levels in Artesian Slough are expected to exceed 3,000 milligrams per liter (mg/L), thereby meeting an exception to Resolution No. 88-63. The MUN designation is therefore not applicable to Artesian Slough. Table 5 identifies beneficial uses that are therefore applicable to Artesian Slough.

Table 5. Beneficial Uses of Artesian Slough

Discharge Point	Receiving Water Name	Beneficial Uses
001	Artesian Slough	Groundwater Recharge (GWR) Cold Freshwater Habitat (COLD) Fish Migration (MIGR) Fish Spawning (SPWN) Warm Freshwater Habitat (WARM) Wildlife Habitat (WILD) Non-contact Water Recreation (REC-2) Contact Recreation (REC-1)

I. National Toxics Rule (NTR) and California Toxics Rule (CTR). USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995, and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the State. The CTR was amended on February 13, 2001. These rules contain WQC for priority pollutants.

J. State Implementation Policy. On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. Compliance Schedules and Interim Requirements. Section 2.1 of the SIP provides that, based on a discharger's request and demonstration that it is infeasible for an existing discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. The Basin Plan allows compliance schedules and interim effluent limitations or discharge specifications to allow time to implement a new or revised WQO.

The State Water Board adopted Resolution No. 2008-0025 on April 15, 2008, titled "Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits", which includes compliance schedule policies for pollutants that are not addressed by the SIP. This policy will become effective after USEPA and OAL's approval, when it will supersede the Basin Plan's compliance schedule policy.

This Order includes a compliance schedule for dioxin-TEQ as allowed by the Basin Plan, consistent with the State Water Board's new policy, except an interim limit is not included for

dioxin-TEQ at this time because of insufficient effluent data. A detailed discussion of the basis for the compliance schedules and interim effluent limitations and/or discharge specifications is included in the Fact Sheet.

L. Alaska Rule. On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards become effective for CWA purposes. [65 Fed. Reg. 24641 (April 27, 2000) (codified at 40 CFR 131.21)]. Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on oil and grease, pH, total suspended solids (TSS), and carbonaceous biochemical oxygen demand (CBOD). Derivation of these technology-based limitations is discussed in the Fact Sheet (Attachment F). This Order's technology-based pollutant restrictions implement the minimum applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum federal technology-based requirements that are necessary to meet water quality standards.

WQBELs have been derived to implement WQOs that protect beneficial uses. Both the beneficial uses and the WQOs have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The procedures for calculating the individual WQBELs for priority pollutants are based on the SIP, which was approved by USEPA on May 18, 2000. All beneficial uses and WQOs contained in the Basin Plan were approved under State law and submitted to USEPA prior to May 30, 2000. Any WQOs and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for the purposes of the CWA" pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

N. Antidegradation Policy. NPDES regulations at 40 CFR 131.12 require that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law and requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

O. Anti-Backsliding Requirements. CWA sections 402(o)(2) and 303(d)(4) and NPDES regulations at 40 CFR122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Except for copper and cyanide, all effluent limitations established by this Order are at least as stringent as those

established by the previous Order. Backsliding in terms of the copper and cyanide limits is permissible as discussed in IV.D.2 of the Fact Sheet (Attachment F).

P. Endangered Species Act. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of applicable State and federal law pertaining to threatened and endangered species.

Q. Monitoring and Reporting Program (MRP, Attachment E). NPDES regulations at 40 CFR 122.48 require that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The MRP establishes monitoring and reporting requirements to implement federal and state requirements. This MRP is provided in Attachment E.

R. Standard and Special Provisions. Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet (Attachment F).

S. Provisions and Requirements Implementing State Law. No provisions or requirements in this Order are included to implement state law only. All provisions and requirements are required or authorized under the federal CWA; consequently, violations of these provisions and requirements are subject to the enforcement remedies that are available for NPDES violations.

T. Notification of Interested Parties. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of this notification are provided in the Fact Sheet (Attachment F).

U. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the public hearing are provided in the Fact Sheet (Attachment F).

III. DISCHARGE PROHIBITIONS

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

B. The bypass of untreated or partially treated wastewater to waters of the United States is prohibited, except as provided for in Section I.G.2 of Attachment D of this Order.

C. The Average dry weather influent flow (ADWIF) shall not exceed 167 MGD, determined during any five-weekday period during the months of June through October.

D. Any sanitary sewer overflow that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations for Conventional and Non-Conventional Pollutants – Discharge Point 001

1. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001 with compliance measured at Monitoring Location EFF-001 as described in the MRP (Attachment E).

Table 6. Effluent Limitations for Conventional and Non-Conventional Pollutants – Discharge Point 001

Parameter	Units[1]	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
$CBOD_5$	mg/L	10	---	20	---	---
TSS	mg/L	10	---	20	---	---
Oil and Grease	mg/L	5	---	10	---	---
pH[2]	standard units	---	---	---	6.5	8.5
Total Chlorine Residual[3]	mg/L	---	---	---	---	0.0
Turbidity	NTU	---	---	---	---	10

Footnotes for Table 6:

(1) Unit abbreviation:

mg/L= milligrams per liter

NTU = Nephelometric turbidity units

(2) If the Discharger monitors pH continuously, pursuant to 40 CFR 401.17, 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) This requirement is defined as below the limit of detection in standard test methods, as defined in the latest edition of *Standard Methods for the Examination of Water and Wastewater*. The Discharger may elect to use a continuous on-line monitoring system(s) for measuring flows, sodium hypochlorite, and sodium bisulfite dosage (including a safety factor) and concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Regional Water Board staff will conclude that these false positive chlorine residual exceedances are not violations of the effluent limitation.

2. **$CBOD_5$ and TSS 85% Percent Removal.** The average monthly percent removal of $CBOD_5$ and TSS values, by concentration, shall not be less than 85 percent.

3. **Enterococcus Bacteria.** The treated wastewater shall meet the following limits of bacteriological quality:

The 30-day geometric mean value for all samples analyzed for enterococcus bacteria shall not exceed 35 colonies per 100 mL.

B. Effluent Limitations for Toxic Pollutants – Discharge Point 001

1. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the MRP (Attachment E).

Table 7. Effluent Limitations for Toxic Pollutants[1, 2]

Pollutant	Units[3]	Effluent Limitations	
		Average Monthly Effluent Limitation (AMEL)	Maximum Daily Effluent Limitation (MDEL)
Copper	µg/L	11	19
Nickel	µg/L	25	33
Cyanide	µg/L	5.7	14
Dioxin-TEQ[4]	µg/L	1.4×10^{-8}	2.8×10^{-8}
Heptachlor	µg/L	0.00021	0.00042
Tributyltin	µg/L	0.0061	0.012
Total Ammonia	mg/L	1.9	4.4

Footnotes for Table 7:

(1) a. Limitations apply to the average concentration of all samples collected during theaveraging period (daily = 24-hour period; monthly = calendar month).

b. All limitations for metals are expressed as total recoverable metal.

(2) A daily maximum or average monthly value for a given constituent shall be considered noncompliant with the effluent limitations only if it exceeds the effluent limitation and the Reporting Level for that constituent. As outlined in Section 2.4.5 of the SIP, Table 8, below indicates the Minimum Level (ML) upon which the Reporting Level is based for compliance determination purposes. In addition, in order to perform reasonable potential analyses for future permit reissuances, the Discharger shall use methods with MLs lower than the applicable WQOs or water quality criteria. A Minimum Level is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

(3) Unit Abbreviation
mg/L= milligrams per liter
µg/L = micrograms per liter
pg/L = picograms per liter

(4) Final effluent limitations for dioxin-TEQ shall become effective XXXX, 2019 (10 years from Order effective date).

Table 8. MLs for Pollutants with Effluent Limitations

Pollutant	ML	Units[3]
Copper	2	µg/L
Nickel	1	µg/L
Cyanide	5	µg/L
Heptachlor	0.01	µg/L
Total Ammonia	0.2	mg/L
Dioxin-TEQ	As specified below	
2,3,7,8-TetraCDD	5	pg/L
1,2,3,7,8-PentaCDD	25	pg/L
1,2,3,4,7,8-HexaCDD	25	pg/L
1,2,3,6,7,8-HexaCDD	25	pg/L
1,2,3,7,8,9-HexaCDD	25	pg/L
1,2,3,4,6,7,8-HeptaCDD	25	pg/L
OctaCDD	50	pg/L
2,3,7,8-TetraCDF	5	pg/L
1,2,3,7,8-PentaCDF	25	pg/L
2,3,4,7,8-PentaCDF	25	pg/L
1,2,3,4,7,8-HexaCDF	25	pg/L
1,2,3,6,7,8-HexaCDF	25	pg/L
1,2,3,7,8,9-HexaCDF	25	pg/L
2,3,4,6,7,8-HexaCDF	25	pg/L
1,2,3,4,6,7,8-HeptaCDF	25	pg/L
1,2,3,4,7,8,9-HeptaCDF	25	pg/L
OctaCDF	50	pg/L
Tributyltin	0.005	µg/L

2. The Discharger shall comply with Regional Water Board Order No. R2-2007-0077, Waste Discharge Requirements for Municipal and Industrial Wastewater Discharges of Mercury to San Francisco Bay (November 1, 2007).

C. Whole Effluent Toxicity

1. Whole Effluent Acute Toxicity:

a. Representative samples of the effluent at Discharge Point 001 with compliance measured at EFF-001 as described in the MRP (Attachment E) shall meet the following limits for acute toxicity. Bioassays shall be conducted in compliance with Section V.A of the MRP (Attachment E).

(1) an eleven (11)-sample median value of not less than 90 percent survival, and

(2) an eleven (11)-sample 90 percentile value of not less than 70 percent survival.

b. These acute toxicity limitations are further defined as follows:

(1) **11-sample median.** A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit, if five or more of the past ten or less bioassay tests show less than 90 percent survival.

(2) **11-sample 90th percentile.** A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit, if one or more of the past ten or less bioassay tests show less than 70 percent survival.

c. Bioassays shall be performed using the most up-to-date USEPA protocol and the most sensitive species as specified in writing by the Executive Officer based on the most recent screening test results. Bioassays shall be conducted in compliance with Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms, currently 5th Edition (EPA-821-R-02-012), with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP) upon the Discharger's request with justification.

d. If the Discharger can demonstrate 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 in compliance with effluent limitations, then such toxicity does not constitute a violation of this effluent limitation.

2. Whole Effluent Chronic Toxicity

a. Compliance with the Basin Plan narrative chronic toxicity objective shall be demonstrated according to the following tiered requirements based on results from representative samples of the effluent at Discharge Point 001, with compliance measured at EFF-001 as described in the MRP (Attachment E), meeting test acceptability criteria and Section V.B of the MRP (Attachment E). Failure to conduct the required toxicity tests or a TRE within a designated period may result in the establishment of effluent limitations for chronic toxicity.

(1) Conduct routine monitoring.

(2) Accelerate monitoring after exceeding a three sample median of 1 chronic toxicity unit (TUc) or a single-sample maximum of 2 TUc or greater. Accelerated monitoring shall consist of bi-monthly monitoring.

(3) Return to routine monitoring if accelerated monitoring does not exceed the "trigger" in (2), above.

(4) If accelerated monitoring confirms consistent toxicity above either "trigger" in (2), above, initiate toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) procedures in accordance with a workplan submitted in accordance with Section V.B.3 of the MRP (Attachment E) that incorporates all comments from the Executive Officer.

(5) Return to routine monitoring after appropriate elements of TRE workplan are implemented and either the toxicity drops below "trigger" levels in (2), above, or, based on the results of the TRE, the Executive Officer authorizes a return to routine monitoring.

b. The Discharger shall conduct routine monitoring with the test species and protocols specified in Section V.B of the MRP (Attachment E). The Discharger shall also perform chronic toxicity screening phase monitoring as described in the Appendix E-1 of the MRP (Attachment E). Chronic Toxicity Monitoring Screening Phase Requirements, Critical Life Stage Toxicity Tests and definitions of terms used in the chronic toxicity monitoring are identified in Appendices E-1 and E-2 of the MRP (Attachment E). In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," currently fourth Edition (EPA-821-R-02-013), with exceptions granted by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

D. Land Discharge Specifications

Not Applicable.

E. Reclamation Specifications

Not Applicable.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

1. Receiving water limitations are based on WQOs contained in the Basin Plan and are a required part of this Order. The discharges shall not cause the following in Artesian Slough, Coyote Creek, or South San Francisco Bay.

   a. Floating, suspended, or deposited macroscopic particulate matter or foams;

   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 and 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 within one foot of the water surface:

a. Dissolved Oxygen — 5.0 mg/L, minimum
Furthermore, 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, the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.

b. Dissolved Sulfide — Natural background levels

c. pH — The pH shall not be depressed below 6.5 or raised above 8.5. The discharge shall not cause changes greater than 0.5 pH units in normal ambient pH levels.

d. 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 water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by the CWA and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to CWA section, or amendments thereto, the Regional Water Board may revise and modify this Order in accordance with such more stringent standards.

B. Groundwater Limitations

Not Applicable.

VI. PROVISIONS

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with Federal Standard Provisions included in Attachment D of this Order.

2. **Regional Water Board Standard Provisions.** The Discharger shall comply with all applicable items of the Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993 (Attachment G), including any amendments thereto. Where provisions or reporting requirements specified in this Order and Attachment G are different from equivalent or related provisions or reporting requirements given in the Standard Provisions in Attachment D, the specifications of this Order and/or Attachment G shall apply in areas where those provisions are more stringent. Duplicative requirements in the federal Standard Provisions (Attachment D) and the Regional Water Board Standard Provisions (Attachment G) are not separate requirements. A violation of a duplicative requirement does not constitute two separate violations.

B. MRP Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order. The Discharger shall also comply with the requirements contained in *Self Monitoring Programs, Part A*, August 1993 (Attachment G).

C. Special Provisions

1. Reopener Provisions

The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances as allowed by law:

a. If present or future investigations demonstrate that the discharge(s) governed by this Order will have, or will 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. If new or revised WQOs or total maximum daily loads (TMDLs) 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 Order will be modified as necessary to reflect updated WQOs and waste load allocations in TMDLs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs, TMDLs, 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.

d. If administrative or judicial decision on a separate NPDES permit or WDR that addresses requirements similar to this discharge.

e. Or as otherwise authorized by law.

The Discharger may request permit modification based on the above. The Discharger shall include in any such request an antidegradation and antibacksliding analysis.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Effluent Characterization for Selected Constituents

The Discharger shall continue to monitor and evaluate the discharge from Discharge Point 001 (measured at EFF-001) for the constituents listed in Enclosure A of the Regional Water Board's August 6, 2001, Letter according to the sampling frequency specified in the attached MRP (Attachment E). Compliance with this requirement shall be achieved in accordance with the specifications stated in the Regional Water Board's August 6, 2001, Letter under Effluent Monitoring for Major Dischargers (Attachment G). The Discharger shall evaluate on an annual basis if concentrations of any constituents increase over past performance. The Discharger shall investigate the cause of the increase. The investigation may include, but need not be limited to, an increase in the

effluent monitoring frequency, monitoring of internal process streams, and monitoring of influent sources. This requirement may be satisfied through identification of these constituents as "pollutants of concern" in the Discharger's Pollutant Minimization Program, described in Provision VI.C.3, below. A summary of the annual evaluation of data and source investigation activities shall also be provided in the annual self-monitoring report.

A final report that presents all the data shall be submitted to the Regional Water Board no later than 180 days prior to the Order expiration date. This final report shall be submitted with the application for permit reissuance.

b. Ambient Background Receiving Water Study

The Discharger shall collect or participate in collecting background, receiving water monitoring data for priority pollutants that are required to perform an RPA and to calculate effluent limitations. Data for conventional water quality parameters (pH, salinity, and hardness) shall be sufficient to characterize these parameters in the receiving water at a point after the discharge has mixed with the receiving waters. This provision may be met through participation in the Collaborative Bay Area Clean Water Agencies (BACWA) Study or a similar ambient monitoring program for San Francisco Bay, such as the Regional Monitoring Program. This Order may be reopened, as appropriate, to incorporate effluent limits or other requirements based on Regional Water Board review of these data.

The Discharger shall submit a final report that presents all such data to the Regional Water Board 180 days prior to expiration of this Order. This final report shall be submitted with the application for permit reissuance.

c. Avian Botulism Control Program

The Discharger shall continue to monitor Artesian Slough, Coyote Creek, and Alviso Slough for the presence of avian botulism, and to control outbreaks through the prompt collection of sick and dead vertebrates. The Discharger shall continue to submit annual reports by February 28 each year regarding its Avian Botulism Control Program to the Regional Water Board, the California Department of Fish and Game (CDFG), and the U.S. Fish and Wildlife Service (USFWS).

d. Salt Marsh Vegetative Assessment

(1) Two times during the anticipated term of the permit, in 2009 and 2012, the Discharger shall assess marsh habitat and document changes to/conversion of marsh habitat to determine potential impacts to endangered species. Areas identified for assessment shall be areas that are or could reasonably be affected by the discharge from the facility, and shall include, but need not be limited to, Artesian Slough, Coyote Creek downstream to Calaveras Point and upstream to Fremont airport, Coyote Slough, and Mud Slough downstream from the former Union Sanitary District wastewater treatment facility. The Discharger shall also assess vegetation at a reference site unaffected by the discharge. A conversion assessment plan, which

includes identification of a reference location, shall be submitted to the Regional Water Board at least six months prior to conducting each assessment.

The status of marsh habitat, including changes to and conversion of marsh habitat within the study areas, will be assessed in consultation with the USFWS by comparing marsh habitat conditions to conditions documented in previous habitat assessments, including the 1989 baseline footprints. If additional analysis of marsh habitat is needed based on this comparison, and after consideration of other factors that may influence the condition of salt marsh habitat, a Habitat Evaluation Procedure (HEP) shall be completed, as described below. The Discharger shall submit its marsh habitat assessment reports to the Regional Water Board, the CDFG, and the USFWS-Sacramento office 90 days after data collection. These reports may contain discussion of ecological factors believed to affect salt marsh habitat conversion which is unrelated to the Discharger's effluent.

(2) The Discharger shall continue to study use of habitat by endangered species in accordance with the modified HEP of the South Bay Action Plan requirements as required by provision VI.C.6.a, below; if deemed necessary based on consultation with Regional Water Board staff, the CDFG, and the USFWS. A HEP analysis shall be completed, in consultation with USFWS and CDFG staff, using the same assumptions as the 1990 modified HEP performed by the Regional Water Board. The Discharger shall submit a report of the HEP analysis to the Regional Water Board 180 days prior to expiration of this Order as part of the application for the next permit reissuance. The Discharger shall also submit a copy of this report to CDFG and USFWS Sacramento office.

e. California Clapper Rail and Salt Marsh Harvest Mouse Surveys

The Discharger shall conduct one synoptic survey for the presence or absence of California clapper rail and salt marsh harvest mouse during the term of this Order. The Discharger shall submit an updated proposed workplan to the Regional Water Board, CDFG, and USFWS six months prior to starting the survey. A final report summarizing the results of the survey shall be included with the Discharger's updated South Bay Action Plan, as required by provision VI.C.6.a, below.

f. Optional Mass Offset

If the Discharger can demonstrate that further net reductions of the total mass loadings of 303(d)-listed pollutants to the receiving water cannot be achieved through economically feasible measures such as aggressive source control, wastewater reuse, and treatment plant optimization, but only through a mass offset program, the Discharger may submit to the Regional Water Board for approval a mass offset plan to reduce 303(d)-listed pollutants to the same watershed or drainage basin. The Regional Water Board may modify this Order to allow an approved mass offset program.

g. Optional Near-Field Site-Specific (SST) Translator Study

The Discharger has the option to conduct a receiving water study, near-field to the discharge, during the term of this Order for determination of new, near-field SSTs for

chromium, zinc, and lead for use during the next permit reissuance. If the Discharger plans to perform the study, then it shall follow the tasks and schedules below.

Table 9. Optional SST Study Tasks and Schedules

Task	Schedule
(1) Submit a study plan acceptable to the Executive Officer.	At the Discharger's discretion
(2) Commence data collection.	Within 45 days after submitting the study plan
(3) Submit a final study report documenting the study and proposing translators for the discharge.	Within 60 days after data collection.

3. Best Management Practices and Pollution Minimization

a. Pollution Minimization Program (PMP)

The Discharger shall continue to improve, in a manner acceptable to the Executive Officer, its PMP to reduce pollutant loadings to the treatment plant and therefore to the receiving waters.

b. Annual Pollution Prevention (P2) Report

The Discharger shall submit an annual report, acceptable to the Executive Officer, no later than February 28th of each calendar year. The annual report shall cover January through December of the preceding year. For those agencies choosing to submit earlier in the year, the report shall cover the preceding 12 months two months prior to the submittal date. As an example, a report submitted on June 30, shall cover the preceding 12 month ending in April. Each annual report shall include at least the following information:

(1) *A brief description of the treatment plant, treatment plant processes and service area.*

(2) *Discussion of current pollutants of concern.* Periodically, the Discharger shall determine which pollutants are currently a problem and/or which pollutants may be potential future problems. This discussion shall address why the pollutants were identified as pollutants of concern.

(3) *Identification of sources of pollutants of concern.* This discussion shall address how the Discharger identifies pollutant sources. The Discharger should also identify sources or potential sources not directly within its ability or authority to control, such as pollutants in the potable water supply and air deposition.

(4) *Identification and implementation of measures 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 the tasks themselves or participate in a regional, State, or national group to 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.

(5) *Outreach to employees.* The Discharger shall inform its employees regarding pollutants of concern, potential sources, and how they might be able to help reduce the discharge of these pollutants. The Discharger may provide a forum for employees to provide input to the program.

(6) *Continuation of Public Outreach Program.* The Discharger shall prepare a public outreach program to communicate pollution minimization measures to its service area. Outreach may include participation in existing community events such as county fairs, initiating new community events such as displays and contests during Pollution Prevention Week, conducting school outreach programs, conducting plant tours, and providing public information in various media. Information shall be specific to target audiences. The Discharger shall coordinate with other agencies as appropriate.

(7) *Discussion of criteria used to measure the PMP's and tasks' effectiveness.* The Discharger shall establish criteria to evaluate the effectiveness of its PMP. This discussion shall address specific criteria used to measure the effectiveness of each task identified in Provision VI.C.3.b.(3–6), above.

(8) *Documentation of efforts and progress.* This discussion shall detail all of the Discharger's activities in the PMP during the reporting year.

(9) *Evaluation of the PMP's and tasks' effectiveness.* The Discharger shall use the criteria established in b.(7), above, to evaluate the PMP's and tasks' effectiveness.

(10) *Identification of specific tasks and time schedules for future efforts.* Based on the evaluation of effectiveness, the Discharger shall describe how it will continue or change its PMP tasks to more effectively reduce the loading of pollutants to the treatment plant and therefore in its effluent.

c. PMP for Pollutants with Effluent Limitations

The Discharger shall develop and conduct a PMP as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a priority pollutant is present in the effluent above an effluent limitation and either:

(1) A sample result is reported as DNQ and the effluent limitation is less than the RL; or

(2) A sample result is reported as ND and the effluent limitation is less than the MDL, using definitions described in the SIP.

d. If triggered by the reasons in c. above, the Discharger's PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

(1) An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake

sampling, or alternative measures approved by the Executive Officer when it is demonstrated that source monitoring is unlikely to produce useful analytical data;

(2) 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;

(3) 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;

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

(5) The annual report required by 3.b. above, shall specifically address the following items:

i. All PMP monitoring results for the previous year,

ii. A list of potential sources of the reportable priority pollutant(s),

iii. A summary of all actions undertaken pursuant to the control strategy, and

iv. A description of actions to be taken in the following year.

4. Construction, Operation and Maintenance Specifications

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

(1) 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.

(2) The Discharger shall regularly review and evaluate its wastewater facilities and operation practices in accordance with section a(1), above. Reviews and evaluations shall be conducted as an ongoing component of the Discharger's administration of its wastewater facilities.

(3) The Discharger shall provide the Executive Officer, upon request, a report describing the current status of its wastewater facilities and operation practices, including any recommended or planned actions and an estimated time schedule for these actions. The Discharger shall also include, in each annual self-monitoring report, a description or summary of review and evaluation procedures, and applicable wastewater facility programs or capital improvement projects.

b. Operations and Maintenance Manual (O&M), Review, and Status Reports

(1) The Discharger shall maintain an O&M Manual for the Discharger's wastewater facilities. The O&M Manual shall be maintained in usable condition and be available for reference and use by all applicable personnel.

(2) The Discharger shall regularly review, revise, or update, as necessary, the O&M Manual(s) to ensure that the document(s) may 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 90 days of completion of such changes.

(3) The Discharger shall provide the Executive Officer, upon request, a report describing the current status of its O&M manual, including any recommended or planned actions and an estimated time schedule for these actions. The Discharger shall also include, in each annual self-monitoring report, a description or summary of review and evaluation procedures and applicable changes to its operations and maintenance manual.

c. Reliability Status Report

As part of reviewing requests for exceptions to the Basin Plan discharge Prohibition 1, the Regional Water Board will evaluate the reliability of the Discharger's system in preventing inadequately treated wastewater from being discharged into the receiving waters. The Discharger shall submit an updated Reliability Report to the Regional Water Board for review by February 28 each year. Updates to the Reliability Report shall be completed as necessary.

d. Contingency Plan, Review, and Status Reports

(1) The Discharger shall maintain a Contingency Plan as required by Regional Water Board Resolution No. 74-10 (Attachment G) 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 CWC.

(2) The Discharger shall regularly review and update, as necessary, the Contingency Plan so that the plan may remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and updates shall be completed as necessary.

(3) The Discharger shall provide the Executive Officer, upon request, a report describing the current status of its Contingency Plan review and update. The Discharger shall also include, in each annual self-monitoring report, a description or summary of review and evaluation procedures and applicable changes to its Contingency Plan.

5. Special Provisions for POTWs

a. Pretreatment Program

(1) The Discharger shall implement and enforce its approved pretreatment program in accordance with federal Pretreatment Regulations (40 CFR 403), pretreatment standards promulgated under Sections 307(b), 307(c), and 307(d) of the CWA, pretreatment requirements specified under 40 CFR 122.44(j), and the requirements in Attachment H, "Pretreatment Requirements." The Discharger's responsibilities include, but are not limited to:

i. Enforcement of National Pretreatment Standards of 40 CFR 403.5 and 403.6;

ii. 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 its approved pretreatment program;

iii. Submission of reports to USEPA, the State Water Board, and the Regional Water Board, as described in Attachment H "Pretreatment Requirements".

iv. Evaluate the need to revise local limits under 40 CFR 403.5(c)(1); and within 180 days after the effective date of this Order, submit a report acceptable to the Executive Officer describing the changes with a plan and schedule for implementation. To ensure no significant increase in the discharge of copper, and thus compliance with antidegradation requirements, the Discharger shall not consider eliminating or relaxing local limits for copper in this evaluation.

(2) The Discharger shall implement its approved pretreatment program and the program shall be an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Regional Water Board, the State Water Board, or the USEPA may take enforcement actions against the Discharger as authorized by the Clean Water Act.

b. Sludge Management Practices Requirements

(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 503. If the Discharger desires to dispose of sludge by a different method, a request for permit modification must be submitted to USEPA 180 days before start-up of the alternative disposal practice. All the requirements in 40 CFR 503 are enforceable by USEPA whether or not they are stated in an NPDES permit or other permit issued to the Discharger. The Regional Water Board should be copied on relevant correspondence and reports forwarded to USEPA regarding sludge management practices.

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

(3) 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 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 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 sludge incinerator as defined in 40 CFR 503, the Discharger shall submit an annual report to USEPA and the Regional Water Board containing monitoring results and pathogen and vector attraction reduction requirements as specified by 40 CFR 503, postmarked February 15 of each year, for the period covering the previous calendar year.

(7) Sludge that is disposed of in a municipal solid waste landfill must meet the requirements of 40 CFR 258. In the annual self-monitoring report, the Discharger shall include the amount of sludge disposed of and the landfill(s) to which it was sent.

(8) Permanent on-site sludge storage or disposal activities are not authorized by this Order. 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 Regional Water Board's Standard Provisions (Attachment G), apply to sludge handling, disposal and reporting practices.

(10) The Regional Water Board may amend this Order prior to expiration if changes occur in applicable state and federal sludge regulations.

c. Sanitary Sewer Overflows and Sewer System Management Plan

The Discharger's collection system is part of the facility that is subject to this Order. As such, the Discharger must properly operate and maintain its collection system (Attachment D, Standard Provisions - Permit Compliance, subsection I.D). The Discharger must report any noncompliance (Attachment D, Standard Provision - Reporting, subsections V.E.1 and V.E.2), and mitigate any discharge from the Discharger's collection system in violation of this Order (Attachment D, Standard Provisions - Permit Compliance, subsection I.C). The General Waste Discharge Requirements for Collection System Agencies (General Collection System WDR, Order No. 2006-0003 DWQ) has requirements for operation and maintenance of collection

systems and for reporting and mitigating sanitary sewer overflows. While the Discharger must comply with both the General Collection System WDR and this Order, the General Collection System WDR more clearly and specifically stipulates requirements for operation and maintenance and for reporting and mitigating sanitary sewer overflows.

Implementation of the General Collection System WDR requirements for proper operation and maintenance and mitigation of spills will satisfy the corresponding federal NPDES requirements specified in this Order. Following reporting requirements in the General Collection System WDR will satisfy NPDES reporting requirements for sewage spills. Furthermore, the Discharger shall comply with the schedule for development of sewer system management plans (SSMPs) as indicated in the letter issued by the Regional Water Board on July 7, 2005, pursuant to CWC section 13267. The required completion date is August 31, 2008. The Discharger shall report sanitary sewer overflows electronically using the State Water Board's state-wide online reporting system.

Additionally, the State Water Board amended the General Collection System WDR on February 20, 2008 in Order No. WQ 2008-0002-EXEC, to strengthen the notification and reporting requirements for sanitary sewer overflows. The Regional Water Board issued a 13267 letter on May 1, 2008, requiring dischargers to comply with the new notification requirements and to comply with similar notification and reporting requirements for spills from wastewater treatment facilities. This Order incorporates these notification and reporting requirements as requirements of this Order.

6. Other Special Provisions

a. South Bay Action Plan (SBAP)

The Discharger shall implement the SBAP. The Discharger shall also implement a revised SBAP for compliance with Regional Water Board Resolution No. 91-152, which approved the Discharger's original "San Jose Action Plan" in lieu of a 120 MGD average dry weather effluent flow limitation. The updated SBAP shall include a description of current and planned water recycling and conservation programs, as well as a contingency plan in the event that effluent flow rates increase above 120 MGD. The Discharger shall update the SBAP annually, reporting on the previous year's accomplishments and the activities planned for the upcoming year, and shall submit the updated SBAP by February 28 of each year. The SBAP shall contain:

(1) **Water Conservation and Water Recycling Programs.** The Discharger shall continue to implement its water conservation, industrial recycling and reuse, and water recycling programs. Additionally, the Discharger agrees to maintain average dry weather effluent flow rates below 120 MGD, or to those levels that will not affect rare and endangered species habitat.

(2) **SBAP Contingency Plan.** Within the SBAP, the Discharger shall include a contingency plan with measures to be implemented if the average dry weather effluent flow exceeds 120 MGD during the term of this Order. The contingency plan will include a description of the planning effort to identify water recycling and conservation efforts the Discharger plans to implement over and above current levels of effort, to reduce flows below 120 MGD or to levels that will not adversely impact

rare and endangered species habitat. Impacts to marsh habitat are determined by methods described in provision VI.C.2.d, above. Upon a discharge of 120 MGD or above, the Discharger shall immediately implement its contingency plan. Additionally, the Regional Water Board will allow the Discharger six months to propose a solution to reduce flows or to document that increases in discharge rates are beyond the Discharger's control.

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

(4) **New Industry Requirements.** The Discharger shall continue to review development applications submitted to the San Jose Planning Department to address wastewater and recycled water issues related to business expansions and new development prior to any building permit(s) being issued. The Discharger shall continue to coordinate with Planning Departments within the tributary area to develop a comparable review process, and shall require Best Management Practices (BMPs), Reasonable Control Measure Plans (RCMPs), and/or Mass Audit Studies (MASs) of all new industrial dischargers, to ensure proper attention to pollutant minimization.

b. Cyanide Action Plan

The Discharger shall implement monitoring and surveillance, pretreatment, source control and pollution prevention for cyanide in accordance with the following tasks and time schedule.

Table 10. Cyanide Action Plan

Task	Compliance Date
(1) Review Potential Cyanide Contributors The Discharger shall submit an inventory of potential contributors of cyanide to the wastewater treatment facility (e.g., metal plating operations, hazardous waste recycling, etc.). If no contributors of cyanide are identified, Tasks 2 and 3 are not required, unless the Discharger receives a request to discharge detectable levels of cyanide to the sanitary sewer. If so, the Discharger shall notify the Executive Officer and implement Tasks (2) and (3).	Within 90 days of Order adoption
(2) Implement Cyanide Control Program The Discharger shall submit a plan for, and begin implementation of, a program to minimize cyanide discharges to the sanitary sewer system consisting, at a minimum, of the following elements: i. Inspect each potential contributor to assess the need to include that contributing source in the control program. ii. Inspect contributing sources included in the control program annually. Inspection elements may be based on USEPA guidance, such as	February 28, 2009 with 2008 annual P2 report

Task	Compliance Date
Industrial User Inspection and Sampling Manual for POTWs (EPA 831-B-94-01). iii. Develop and distribute educational materials to contributing sources and potential contributing sources regarding the need to prevent cyanide discharges. iv. Prepare an emergency monitoring and response plan to be implemented if a significant cyanide discharge occurs. v. If ambient monitoring shows cyanide concentrations of 1.0 µg/L or higher in the main body of San Francisco Bay, undertake actions to identify and abate cyanide sources responsible for the elevated ambient concentrations.	
(3) Report Status of Cyanide Control Program Submit a report to the Regional Water Board documenting implementation of the cyanide control program.	Annually with P2 reports due February 28

c. Copper Action Plan

The Discharger shall implement pretreatment, source control, and pollution prevention for copper in accordance with the following tasks and time schedule.

Table 11. Copper Action Plan

Task	Compliance Date
(1) Review Potential Copper Sources The Discharger shall submit an inventory of all potential copper sources to the wastewater treatment facility.	Within 90 days of Order adoption
(2) Implement Copper Control Program The Discharger shall submit a plan for and begin implementation of a program to reduce copper discharges identified in Task (1) consisting, at a minimum, of the following elements: i. Provide education and outreach to the public (e.g., focus on proper pool and spa maintenance and plumbers' roles in reducing corrosion). ii. If corrosion is determined to be a significant copper source, work cooperatively with local water purveyors to reduce and control water corrosivity, as appropriate, and ensure that local plumbing contractors implement best management practices to reduce corrosion in pipes. iii. Educate plumbers, designers, and maintenance contractors for pools and spas to encourage best management practices that minimize copper discharges.	February 28, 2009 with 2008 annual P2 report
(3) Implement Additional Measures If the three-year rolling mean copper concentration of Lower South Bay exceeds 3.6 µg/L, evaluate the effluent copper concentration trend, and if it is increasing, develop and implement additional measures to control copper discharges.	Within 90 days of exceedance
(4) Report Status of Copper Control Program Submit a report to the Regional Water Board documenting implementation of the copper control program.	Annually with P2 reports due February 28

d. Compliance Schedule for Dioxin-TEQ

The following table outlines actions to be completed in order to meet the final limits for dioxin-TEQ.

Table 12. Dioxin-TEQ Compliance Schedule

Task	Deadline
(1) Investigate sample collection, sample handling, and analytical laboratory quality assurance and quality control practices to ensure that analytical results for dioxin-TEQ are accurately determined and reported. Submit a report by the deadline describing the results of the investigation and any changes in quality assurance and quality control practices implemented.	Within 4 months after permit effective date
(2) If dioxin-TEQ effluent monitoring data show that the Discharger is out of compliance, as described in Section 2.4.5, Compliance Determination, of the SIP, the Discharger shall submit a plan to identify all dioxin-TEQ sources to the discharge and identify source control measures to reduce concentrations of these pollutants to the treatment plant, and therefore to receiving waters.	No later than 12 months after a detection of dioxin-TEQ
(3) Implement the plan developed in task (2), including both pollutant source identification and source control.	Within 30 days of the deadline for task (2)
(4) Submit a report that contains an inventory of the pollutant sources.	No later than four months after the deadline for task (2)
(5) Submit a report documenting development and initial implementation of a program to reduce and prevent the pollutants of concern in the discharge. The program shall consist, at a minimum, of the following elements: i. Maintain a list of sources of pollutants of concern. ii. Investigate each source to assess the need to include it in the program. iii. Identify and implement targeted actions to reduce or eliminate iv. Develop and distribute, as appropriate, educational materials regarding the need to prevent sources to the sewer system.	No later than six months after the deadline for task (2)
(6) Continue to implement the program described in task (5) and submit annual status reports that evaluate its effectiveness and summarize planned changes. Report whether the program has successfully brought the discharge into compliance with the effluent limits in this Order.	Annually with P2 reports due February 28
(7) In the event that source control measures are insufficient for meeting final WQBELs specified in Effluent Limitations and Discharge Specifications IV.B for or dioxin-TEQ, the Discharger shall submit a schedule for implementation of additional actions to reduce the concentrations of these pollutants.	No later than 4 months after the most recent annual P2 report that identifies that additional actions are needed
(8) The Discharger shall commence implementation of the identified additional actions in accordance with the schedule submitted in task (7).	Within 45 days after the deadline for task (7)

Task	Deadline
(9) Full Compliance with IV.B Effluent Limitations and Discharger Specifications for dioxin-TEQ. Alternatively, the Discharger may comply with the limits through implementation of a mass offset strategy for dioxin-TEQ in accordance with policies in effect at that time. Alternatively, the Discharger may comply with the limits through implementation of a mass offset strategy for dioxin-TEQ in accordance with policies in effect at that time.	XXXX, 2019 (10 years from Order effective date)

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in Section IV of this Order will be determined as specified below:

A. General

Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined in the MRP, Attachment A and Section VI of the Fact Sheet of this Order. For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

B. Multiple Sample Data

When determining compliance with an AMEL or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ**),** also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$

where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL): the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL): the highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative pollutants are those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (*CV*) is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge: Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the Order), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ) are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA) is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters are all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation: the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL) means the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median is the middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND) are those sample results less than the laboratory's MDL.

Ocean Waters are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed.

For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Satellite Collection System is the portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

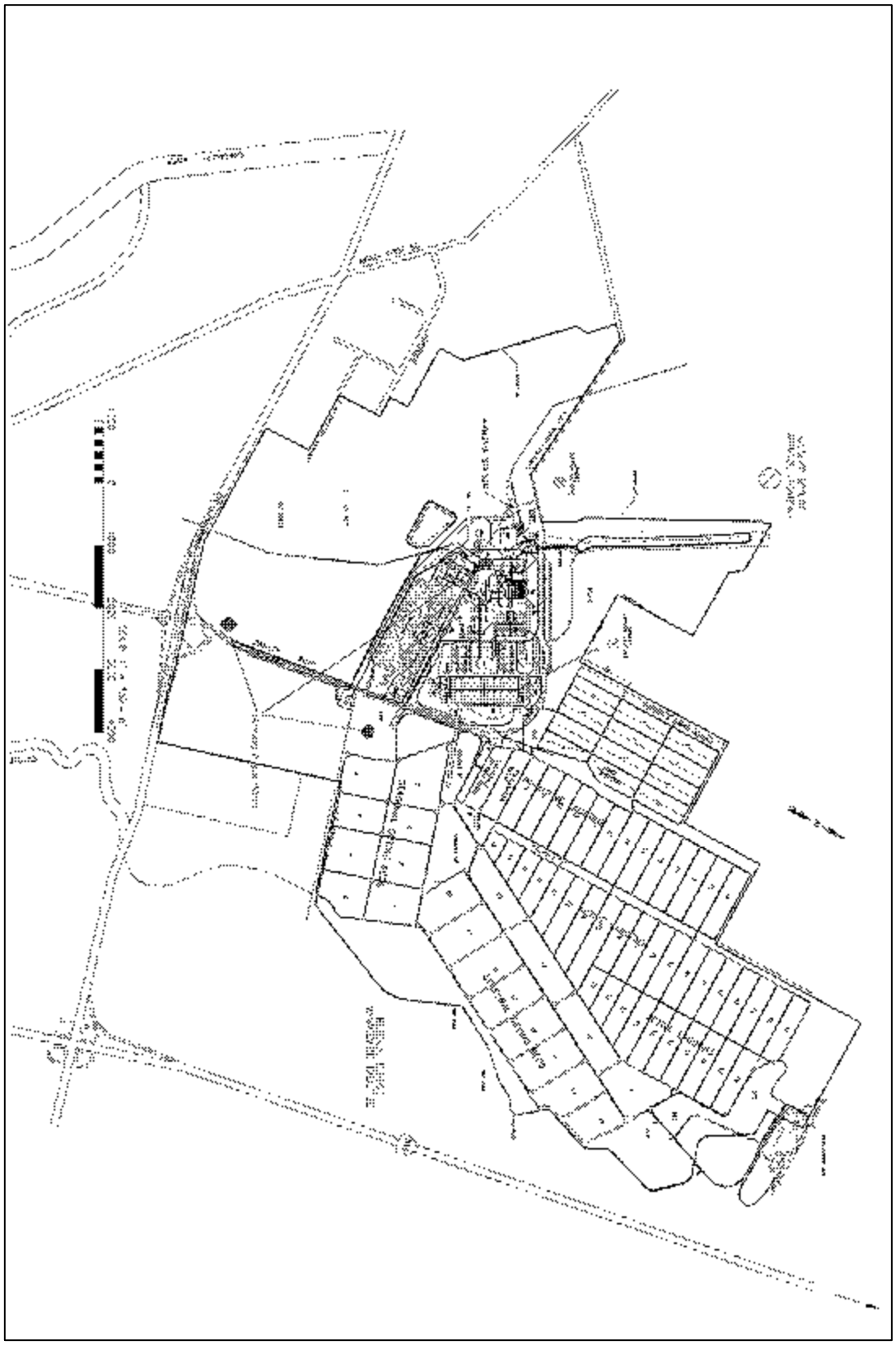
Standard Deviation (s **)** is a measure of variability that is calculated as follows:

$$\sigma = (\Sigma[(x - \mu)^2]/(n - 1))^{0.5}$$

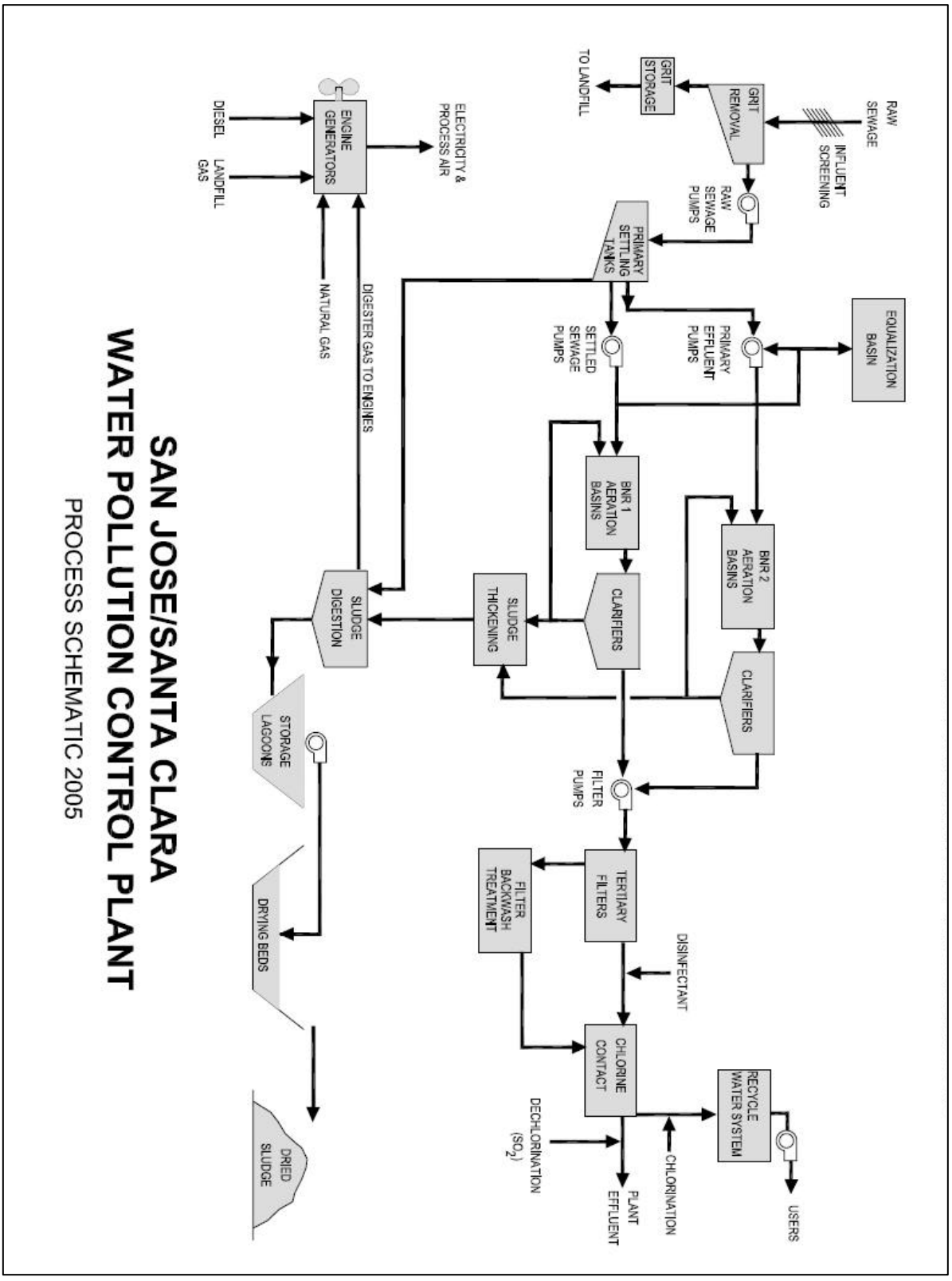
where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – FACILITY MAP



ATTACHMENT C – PROCESS FLOW DIAGRAM



ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the CWC and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. § 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order (40 C.F.R. § 122.41(e)).

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 C.F.R. § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 C.F.R. § 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 C.F.R. § 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 122.41(i)(4).)

G. Bypass

1. Definitions

   a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)

   b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of

equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).).

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):

a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));

b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));

c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of this Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k))

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 C.F.R. § 122.22(a)(3)).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and

c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R.§ 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

The Regional Water Board is authorized to enforce the terms of this Order under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of this Order. (40 C.F.R. § 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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Tables

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

40 CFR 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Regional Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. The Discharger shall comply with the MRP for this Order as adopted by the Regional Water Board, and with all of the requirements contained in Self-Monitoring Program, Part A, dated August 1993 (SMP, Attachment G). The MRP and SMP may be amended by the Executive Officer pursuant to 40 CFR 122.62, 122.63, and 124.5. If any discrepancies exist between the MRP and SMP, the MRP prevails.

B. All analyses shall be conducted using current USEPA methods, or methods that have been approved by the USEPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5, or equivalent methods that are commercially and reasonably available and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits and to perform reasonable potential analysis. Equivalent methods must be more sensitive than those specified in 40 CFR 136, must be specified in the permit, and must be approved for use by the Executive Officer, following consultation with the State Water Board's Quality Assurance Program.

C. Sampling and analysis of additional constituents is required pursuant to Table 1 of the Regional Water Board's August 6, 2001, Letter titled *Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (Attachment G).

D. Laboratories analyzing monitoring samples shall be certified by the Department of Health Services, in accordance with Water Code section 13176, and must include quality assurance/quality control data with their reports.

E. For compliance and reasonable potential monitoring, analyses shall be conducted using commercially available and reasonably achievable detection levels that are lower than the WQOs/WQC or the effluent limitations, whichever are lower. The objective is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to the Minimum Levels given below. Table E-1 lists the test methods the Discharger may use for compliance and reasonable potential monitoring for the toxic pollutants with effluent limits.

Table E-1. Test Methods and Minimum Levels for Pollutants with Reasonable Potential

CTR #	Constituent	Types of Analytical Methods [1] Minimum Levels (µg/L)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICPMS	SPGFAA	HYDRIDE	CVAF	DCP
6	Copper						5		0.5	2			
9	Nickel						5	20	1	5			
14	Cyanide				5								
	Dioxin-TEQ [2]												
117	Heptachlor		0.01										

CTR #	Constituent	Types of Analytical Methods [1] Minimum Levels (µg/L)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICPMS	SPGFAA	HYDRIDE	CVAF	DCP
---	Tributyltin[3]	0.005											
---	Total Ammonia	0.2 mg/L (as N) using titration method											

Footnotes for Table E-1:

(1) Analytical Methods / Laboratory techniques are defined as follows:

Color	=	Colorimetric;
CVAF	=	Cold Vapor Atomic Fluorescence.
DCP	=	Direct Current Plasma
FAA	=	Furnace Atomic Absorption;
GC	=	Gas Chromatography
GCMS	=	Gas Chromatography Mass Spectroscopy
GFAA	=	Graphite Furnace Atomic Absorption;
ICP	=	Inductively Coupled Plasma
ICPMS	=	Inductively Coupled Plasma/Mass Spectrometry;
LC	=	Liquid Chromatography
SPGFAA	=	Stabilized Platform Graphite Furnace Atomic Absorption (i.e. EPA 200.9)

(2) Use USEPA Method 1613. MLs shall be those specified by Table 8 of this Order for each congener.

(3) Analysis of tributyltin shall be by GC-FPD, GS-MS, or a USEPA approved method; the method shall be capable of speciating organotins and have limits of detection for tributyltin of 5 nanograms per liter (ng/L). Alternative methods of analysis must be approved by the Executive Officer.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order.

Table E-2. Monitoring Station Locations

Type of Sampling Location	Monitoring Location Name	Monitoring Location Description
Influent	INF-001	At any point in the treatment facility headworks at which all waste tributary to the treatment system is present, and proceeding any phase of treatment, and exclusive of any return flows or process side streams that would significantly impact the quantity or quality of the influent.
Effluent	EFF-001	At any point in the outfall from the treatment facility, following treatment, including disinfection, and before contact with receiving water, where all waste streams tributary to Discharge Point 001 are present.

III. INFLUENT MONITORING REQUIREMENTS

The Discharger shall monitor influent to the facility at INF-001 as follows.

Table E-3. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow[1]	**MGD/MG**	**Cont/D**	**Cont**

Parameter	Units	Sample Type	Minimum Sampling Frequency
$CBOD_5$	**mg/L**	**C-24**	**1/week**
	kg/day	**C-24**	**1/week**
TSS	**mg/L**	**C-24**	**1/week**
	kg/day	**C-24**	**1/week**

Legends for Table E-3

MGD = million gallons per day
MG = million gallons
mg/L = milligrams per liter
kg/day = kilograms per day
Cont = continuous monitoring
Cont/D = measured continuously and recorded and reported daily
C-24 = 24-hour composite

Footnote for Table E-3:

1) Flows shall be monitored continuously and the following shall be reported in monthly self-monitoring reports:
   a. Daily average flow rate (MGD).
   b. Daily total flow volume (MG).
   c. Monthly average flow rate (MGD).
   d. Monthly total flow volume (MG).
   e. Average daily maximum and average daily minimu m flow rates (MGD) in a month.

IV. EFFLUENT MONITORING REQUIREMENTS

The Discharger shall monitor treated effluent discharged from the facility at EFF-001 as follows.

Table E-4. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow Rate[1]	MGD/MG	Cont/D	Cont
$CBOD_5$	mg/L	C-24	1/week
	kg/day	C-24	1/week
TSS	mg/L	C-24	1/week
	kg/day	C-24	1/week
$CBOD_5$ and TSS percent removal[2]	%	calculate	1/month
pH[3]	s.u.	Grab	1/day
Oil and Grease[4]	mg/L	C-24	1/quarter
	kg/day	C-24	1/quarter
Turbidity	NTU	Grab	1/day
Total Chlorine Residual[5]	mg/L	Cont/H	1/hour
	kg/day	calculate	1/hour
Enterococcus Bacteria	cfu/100 mL	Grab	5/week
Temperature	^oC	Grab	1/day
Dissolved Oxygen	mg/L	Grab	1/day
	% Saturation	Grab	1/day
Total Ammonia Nitrogen	mg/L as N	C-24	1/month
	kg/day as N	C-24	1/month
Unionized Ammonia	mg/L as N	calculate	1/month
Nitrogen	Mg/L as N	C-24	1/month
Acute Toxicity[6]	% survival	C-24	1/month
Chronic Toxicity[7]	TUc	C-24	1/month

Parameter	Units	Sample Type	Minimum Sampling Frequency
Copper	µg/L	Grab	1/month
Nickel	µg/L	Grab	1/month
Cyanide	µg/L	Grab	1/month
Dioxin-TEQ[8]	µg/L	Grab	2/year
Heptachlor[9]	µg/L	Grab	1/month[9]
Tributyltin[9]	µg/L	Grab	1/month[9]
Remaining Priority Pollutants[10]	µg/L	[11]	1/quarter
Standard Observations[11]	---	---	1/week

Legends for Table E-4:

(1) Unit Abbreviations

MGD	= million gallons per day
MG	= million gallons
mg/L	= milligrams per liter
µg/L	= micrograms per liter
s.u.	= standard units
NTU	= Nephelometric turbidity units
ml/L-hr	= milliliters per liter, per hour
kg/d	= kilograms per day
℃	= degrees Celsius
cfu/100 mL	= colony-forming units per 100 milliliters
TUc	= chronic toxic units

(2) Sample Type Abbreviations

Cont	= measured continuously
Cont/D	= measured continuously, and recorded and reported daily
Cont/H	= measured continuously, and recorded and reported hourly
C-24	= 24-hour composite
Flow-through	= continuously pumped sample during duration of toxicity test

Footnotes for Table E-4:

(1) **Flow.** Flows shall be monitored continuously and the following shall be reported in monthly self-monitoring reports:
   a. Daily average flow rate (MGD),
   b. Daily total flow volume (MG),
   c. Monthly average flow rate (MGD),
   d. Monthly total flow volume (MG), and
   e. Average daily maximum and average daily minimum flow rates (MGD) in a month.

(2) **$CBOD_5$ and TSS.** The percent removal for $CBOD_5$ and TSS shall be reported for each calendar month in accordance with Effluent Limitation IV.A.2. Samples for $CBOD_5$ and TSS shall be collected simultaneously with influent samples.

(3) **pH.** If pH is monitored continuously; the minimum and maximum pH values for each day shall be reported in monthly self-monitoring reports.

(4) **Oil and Grease.** Each oil and grease sampling 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 the 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.

(5) **Total Chlorine residual.** During all times when chlorination is used for disinfection of the effluent, effluent chlorine residual concentrations shall be monitored continuously. The Discharger may record discrete readings from the continuous monitoring every hour on the hour, and report, on a daily basis, the maximum concentration observed following dechlorination. Total chlorine dosage (kg/day) shall be recorded on a daily basis. Chlorine residual concentrations shall be monitored and reported for sampling points both prior to and following dechlorination. Total chlorine dosage (kg/day) shall be recorded on a daily basis. However, any confirmed chlorine residual incident occurring at any time during the day is an effluent limit violation and must be reported in accordance with SMP Part A and Standard Provisions (Attachments D and G).

(6) **Acute Toxicity.** Acute bioassay tests shall be performed in accordance with Section V.A of this MRP.

(7) **Chronic toxicity.** Critical life stage toxicity tests shall be performed and reported in accordance with the Chronic Toxicity Requirements specified in Section V.B of the MRP.

(8) **Dioxin-TEQ.** Chlorinated dibenzodioxins and chlorinated dibenzofurans shall be analyzed using the latest version of USEPA Method 1613; the analysis shall be capable of achieving one half the USEPA method 1613 Minimum Levels. Alternative methods of analysis must be approved by the Executive Officer. In addition to reporting results for each of the 17 congeners, the dioxin-TEQ shall be calculated and reported using 1998 USEPA Toxicity Equivalent Factors for dioxin and furan congeners.

(9) **Heptachlor and tributyltin.** If not detected after 3 years of monitoring, the Discharger may request to the Regional Water Board do reduce the sampling frequency to once per quarter.

(10) **Remaining priority pollutant.** The sample type and analytical method should be as described in the August 6, 2001, letter (Attachment G).

(11) **Standard observations.** As specified in the Self-Monitoring Program, Part A.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The Discharger shall monitor acute and chronic toxicity at EFF-001 as follows.

A. Whole Effluent Acute Toxicity

1. Compliance with the acute toxicity effluent limitations of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour continuous flow-through bioassays.

2. Test organisms shall be rainbow trout (*Onchorhynchus mykiss*) unless specified otherwise in writing by the Executive Officer.

3. All bioassays shall be performed according to the most up-to-date protocols in 40 CFR 136, currently in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms*, 5th Edition.

4. If specific identifiable substances in the discharge can be demonstrated by the Discharger as being rapidly rendered harmless upon discharge to the receiving water, compliance with the acute toxicity limit may be determined after the test samples are adjusted to remove the influence of those substances. Written approval from the Executive Officer must be obtained to authorize such an adjustment.

5. Effluent used for fish bioassays must be dechlorinated prior to testing. Monitoring of the bioassay water shall include, on a daily basis, the following parameters: pH, dissolved oxygen, total ammonia, un-ionized ammonia (by calculation, if toxicity is observed), temperature, hardness, and alkalinity. These results shall be reported. If a violation of acute toxicity requirements occurs or if the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new batches of fish and shall continue back to back until compliance is demonstrated.

B. Whole Effluent Chronic Toxicity

1. Chronic Toxicity Monitoring Requirements

a. Sampling. The Discharger shall collect 24-hour composite samples of the effluent at monitoring location EFF-001, for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.

b. Test Species. The test species shall be *Ceriodaphnia dubia.* The Discharger shall conduct a three species screening chronic toxicity test as described in Appendix E-1 prior to any significant change in the nature of the effluent or prior to permit reissuance. The most sensitive species shall be used for routine chronic toxicity monitoring. The Executive Officer may change to another test species if data suggest that another test species is more sensitive to the discharge.

c. Methodology. Sample collection, handling, and preservation shall be in accordance with USEPA protocols. In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, as shown in Appendix E-1. These are *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms,* currently third edition (EPA-821-R-02-014), and *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, currently fourth Edition (EPA-821-R-02-013), with exceptions granted the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

d. Dilution Series. The Discharger shall conduct tests with a control and five effluent concentrations (including 100% effluent) and using a dilution factor ≥ 0.5.

2. Chronic Toxicity Reporting Requirements

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

(1) Sample date(s)

(2) Test initiation date

(3) Test species

(4) End point values for each dilution (e.g., number of young, growth rate, percent survival)

(5) NOEC value(s) in percent effluent

(6) IC_{15}, IC_{25}, IC_{40}, and IC_{50} values (or EC_{15}, EC_{25} ... etc.) as percent effluent

(7) TUc values (100/NOEC, 100/IC_{25}, or 100/EC_{25})

(8) Mean percent mortality (±s.d.) after 96 hours in 100% effluent (if applicable)

(9) NOEC and LOEC values for reference toxicant test(s)

(10) IC_{50} or EC_{50} value(s) for reference toxicant test(s)

(11) Available water quality measurements for each test (pH, D.O., temperature, conductivity, hardness, salinity, ammonia)

b. Compliance Summary. The results of the chronic toxicity testing shall be provided in the 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 items listed above under 2.a, specifically item numbers (1), (3), (5), (6) (IC_{25} or EC_{25}), (7), and (8).

3. Chronic Toxicity Reduction Evaluation (TRE)

a. The Discharger shall prepare a generic TRE work plan within 90 days of the effective date of this Order to be ready to respond to toxicity events. The Discharger shall review and update the work plan as necessary to remain current and applicable to the discharge and discharge facilities.

b. Within 30 days of exceeding either trigger for accelerated monitoring, the Discharge shall submit to the Regional Water Board a TRE work plan, which should be the generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.

c. Within 30 days of the date of completion of the accelerated monitoring tests observed to exceed either trigger, the Discharger shall initiate a TRE in accordance with a TRE work plan that incorporates any and all comments from the Executive Officer.

d. The TRE shall be specific to the discharge and be prepared in accordance with current technical guidance and reference materials, including USEPA guidance materials. The TRE shall be conducted as a tiered evaluation process, such as summarized below:

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

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

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

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

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

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

e. The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity (complying with requirements of Section IV.A.4 of this Order).

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

g. 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.

h. 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.

i. The Regional Water 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 Regional Water Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

Not Applicable.

VII. RECLAMATION MONITORING REQUIREMENTS

Not Applicable.

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

The Discharger shall continue to participate in the Regional Monitoring Program (RMP), which involves collection of data on pollutants and toxicity in water, sediment and biota of the Estuary. The Discharger's participation and support of the RMP is used in consideration of the level of receiving water monitoring required by this Order.

IX. OTHER MONITORING REQUIREMENTS

A. Pretreatment Requirements

The Discharger shall comply with the pretreatment requirements specified in Table E-5 for influent (at Monitoring Location INF-001), effluent (at Monitoring Location EFF-001), and biosolids monitoring.

Table E-5. Pretreatment Monitoring Requirements

Constituents / EPA Method	Influent INF-001	Effluent[4] EFF-001	Biosolids
VOC / 624	2/year	2/year	2/year
BNA / 625	2/year	2/year	2/year
Hexavalent Chromium[1]	1/month	1/month	2/year
Metals[2]	1/month	1/month	2/year
O-Pest / 614	2/year	2/year	2/year
C-Pest and Pesticides/ 632	2/year	2/year	2/year
Sludge[3]	--	--	2/year

Legends for Table E-5:

VOC = volatile organic compounds
BNA = base/neutrals and acids extractable organic compounds
O-Pest = organophosphorus pesticides
C-Pest = carbamate and urea pesticides
N/A = not applicable

Footnotes for Table E-5:

(1) Total chromium may be substituted for hexavalent chromium at the Discharger's discretion.

(2) Same EPA method used to determine compliance with the NPDES permit. The parameters are arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, zinc, selenium, and cyanide.

(3) EPA approved methods.

(4) Effluent monitoring conducted in accordance with Table E-4 can be used to satisfy these pretreatment monitoring requirements.

B. Sludge Monitoring

The Discharger shall comply with sludge monitoring requirements required by 40 CFR Part 503.

X. MODIFICATIONS TO PART A OF SELF-MONITORING PROGRAM (ATTACHMENT G)

Modify Section F.4 as follows:

Self-Monitoring Reports

[Add the following to the beginning of the first paragraph:]

For each calendar month, a self-monitoring report (SMR) shall be submitted to the Regional Water Board in accordance with the requirements listed in Self-Monitoring Program, Part A. 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.

[And add at the end of Section F.4 the following:]

g. If the Discharger wishes to invalidate any measurement, the letter of transmittal will include identification of the measurement suspected to be invalid and notification of

intent to submit, within 60 days, a formal request to invalidate the measurement. This request must include the original measurement in question, the reason for invalidating the measurement, all relevant documentation that supports the invalidation (e.g., laboratory sheet, log entry, test results, etc.), and discussion of the corrective actions taken or planned (with a time schedule for completion) to prevent recurrence of the sampling or measurement problem. The invalidation of a measurement requires the approval of Water Board staff and will be based solely on the documentation submitted at that time.

h. Reporting Data in Electronic Format

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

1) **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) and in the Progress Report letter dated December 17, 2000, or in a subsequently approved format that the Order has been modified to include.

2) **Monthly Reporting Requirements:** For each reporting month, an electronic SMR shall be submitted to the Regional Water Board in accordance with Section F.4 of SMP, Part A. However, until USEPA approves the electronic signature or other signature technologies, Dischargers that are using the ERS must submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, a violation report, and a receipt of the electronic transmittal.

3) **Annual Reporting Requirements:** Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting an annual report electronically, but a hard copy of the annual report shall be submitted according to Section F.5 of SMP, Part A.

XI. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with SMP Part A (Attachment G), the federal Standard Provisions (Attachment D) and the Regional Water Board's Standard Provisions (Attachment G) related to monitoring, reporting, and recordkeeping.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS website will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through VIII. The Discharger shall submit monthly SMRs, including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. Monthly SMRs shall be due 30 days after the end of each calendar month. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR. Annual SMRs shall be due by February 1 of each year, covering the previous calendar year. The report shall contain the items described in the Regional Water Board's Standard Provisions and SMP Part A (Attachment G).

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-6. Monitoring Periods

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
Continuous	Permit effective date	All
1/hour		Every hour on the hour
1/day	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.
1/week	Permit effective date	Sunday through Saturday
1/month	Permit effective date	First day of calendar month through last day of calendar month
1/quarter	Permit effective date	Once during January 1 – March 31, April 1- June 30, July 1 – September 30, and October 1 – December 31
2/year	Permit effective date	Once during wet season (typically November 1 through April 30), once during dry season (typically May 1 through October 31)

4. The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136. The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

      For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve. Compliance Determination.

e. Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above, Attachment A, and Table E-1, priority pollutant MLs of this Order. For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

f. When determining compliance with an AMEL (or average weekly effluent limit) for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

(1) The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

(2) The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

5. The Discharger shall submit SMRs in accordance with the following requirements:
The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall (1) clearly identify violations of the WDRs, (2) discuss corrective actions taken or planned, and (3) propose time schedule for corrective actions. Identified violations

must include a description of the requirement that was violated and a description of the violation.

SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

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

C. Discharge Monitoring Reports (DMRs)

1. As described in Section XI.C.1 above, at any time during the term of this Order, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of DMRs. Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharge shall submit the original DMR and one copy of the DMR to one of the addresses listed below:

Standard Mail	FedEx/UPS/Other Private Carriers
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

D. Other Reports

Annually, with the first monthly SMR following the respective due dates, the Discharger shall report the results of any special studies, monitoring, and reporting required by Section VI.C.2 (Special Studies, Technical Reports, and Additional Monitoring Requirements) of this Order. The Discharger shall include a report of progress towards meeting compliance schedules established by Section VI.C.6.d of this Order.

APPENDIX E-1

CHRONIC TOXICITY
DEFINITION OF TERMS AND 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 percent 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 nonlethal, nonquantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25 percent reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as USEPA'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:

1. Use of test species specified in Appendix E-2, attached, and use of the protocols referenced in those tables, or as approved by the Executive Officer.

2. Two stages:

a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Appendix E-2 (attached).

b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.

3. Appropriate controls.

4. Concurrent reference toxicant tests.

5. Dilution series with a control and five effluent concentrations (including 100% effluent) and using a dilution factor ≥ 0.5.

C. The Discharger shall submit a screening phase proposal acceptable to the Executive Officer. The proposal shall address each of the elements listed above. If within 30 days, the Executive Officer does not comment, the Discharge shall commence with screening phase monitoring.

APPENDIX E-2

SUMMARY OF TOXICITY TEST SPECIES REQUIREMENTS

Table AE-1. Critical Life Stage Toxicity Tests for Estuarine Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
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 AE-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 AE-3. Toxicity Test Requirements for Stage One Screening Phase

Requirements	Receiving Water Characteristics		
	Discharges to Coast	Discharges to San Francisco Bay[2]	
	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[1] Marine/Estuarine	 0 4	 1 or 2 3 or 4	 3 0
Total number of tests	4	5	3

1. The freshwater species may be substituted with marine species if:

   a. The salinity of the effluent is above 1 part per thousand (ppt) greater than 95 percent of the time, or

   b. 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.

2. a. Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95 percent of the time during a normal water year.

   b. Fresh refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.

ATTACHMENT F – FACT SHEET

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List of Tables

ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	2 438014001
CIWQS Place ID	255333
Discharger	Cities of San Jose and Santa Clara
Name of Facility	San Jose/Santa Clara Water Pollution Control Plant and collection system
Facility Address	700 Los Esteros Road San Jose CA 9134 Santa Clara County
Facility Contact, Title, Phone	David Tucker, Program Manager, (408) 945-5316
Authorized Person to Sign and Submit Reports	John Stufflebean, Director of Environmental Services, (408) 535-8560
Mailing Address	Same as Facility Address
Billing Address	Same as Facility Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes
Reclamation Requirements	N
Facility Permitted Flow	-----
Facility Design Flow	167 million gallons per day (MGD) (average daily, dry weather design treatment capacity) 261 MGD (peak wet weather design treatment capacity)
Watershed	Santa Clara Hydrologic Unit
Receiving Water	Artesian Slough
Receiving Water Type	Estuarine
Service Areas	Cities of San Jose, Santa Clara, and Milpitas; Santa Clara County Sanitation Districts 2 and 3; the West Valley Sanitation District including Campbell, Los Gatos, Monte Sereno and Saratoga; and the Cupertino, Burbank, and Sunol Sanitary Districts
Service Area Population	1,365,000

A. The Cities of San Jose and Santa Clara own and operate the San Jose/Santa Clara Water Pollution Control Plant (plant) and its sewage collection system (collectively the facility). The facility provides tertiary treatment of the wastewater collected from its service areas and discharges to Artesian Slough, a tributary to South San Francisco Bay via Coyote Creek.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The discharge of treated wastewater from the plant to Artesian Slough, a water of the United States, has been regulated by Order No. R2-2003-0085 (previous Order) and NPDES Permit No. CA0037842, which was adopted on November 1, 2003, and expired on September 30, 2008.

C. The Discharger filed a Report of Waste Discharge (ROWD) and submitted an application for reissuance of its Waste Discharge Requirements (WDRs) and NPDES permit on April 1, 2008, and submitted revisions and supplementals on April 10, 2008, and April 25, 2008. The application was deemed complete and the previous Order has been administratively extended.

II. FACILITY DESCRIPTION

A. Description of Wastewater and Biosolids Treatment or Controls

1. Wastewater Treatment Processes

The Discharger owns and operates the San Jose/Santa Clara WPCP, which provides primary, secondary, and tertiary treatment of domestic and commercial wastewater collected from its service areas as indicated in Table F-1. The Discharger's current service population is approximately 1.4 million.

Wastewater treatment processes at the plant include screening, primary sedimentation, secondary treatment with the activated sludge process, ammonia removal, secondary clarification, filtration, disinfection (chlorine gas), and dechlorination (sulfur dioxide).

Influent Flow Management. In 2007, a new headworks, Raw Sewage Pump Station No. 2, and various yard structures and pipelines were constructed to increase the sustained hydraulic capacity of the plant to 300 MGD and the peak hydraulic capacity to 400 MGD. An Emergency Overflow Basin was constructed to allow for storage of raw sewage when influent flows exceeded 300 MGD, and which will allow for a peak hydraulic loading of 400 MGD for up to several hours. The basin will also serve as emergency storage of raw sewage in the event of a power failure or when downstream processes or equipment are shut down for maintenance activities. The new headworks (screenings, grit removal, and pumping) capacity was designed for 160 MGD, and supplements the old Headworks capacity rated at 271 MGD; however, these capacities are not completely additive.

Preliminary Treatment. Preliminary treatment consists of wastewater passing through bar screens, removing large debris from the raw sewage, followed by grit removal.

Primary Treatment. Following preliminary treatment, wastewater is pumped into rectangular primary clarifiers for the removal of floatable and settled material. The floatable material is skimmed off and pumped to a scum/grease concentration system. The concentrated scum is then pumped into disposal containers and sent to a local Class III landfill. The settled primary solids are removed from the bottom of the clarifiers using rotating chain and flight collectors and are discharged into sludge pits located at the head end

of the clarifier. The thickened primary sludge is then pumped directly into the anaerobic digesters.

Preliminary and primary treatment removes approximately 40 to 60 percent of suspended solids, and 20 to 50 percent of biological oxygen demand (BOD). The primary effluent, with remaining BOD and colloidal and non-settleable solids, is then pumped to the biological treatment process.

Biological Treatment. All wastewater flow receives biological (secondary) treatment. The wastewater treatment practice used is a modified biological nutrient removal (BNR) process that is designed to remove BOD and ammonia (NH_3) in the same aeration basins. Each basin is divided into four sections referred to as "quads". The first and third quads are operated under anoxic conditions, while the second and fourth quads are operated under aerobic conditions. This configuration achieves effective filament control and allows for some denitrification. The biological system is controlled with sludge age, which runs around 5 – 7 days. Complete removal of ammonia (nitrification) is achieved in the aeration tanks. The mixed liquor from the aeration basins flows to secondary clarifiers for solids removal via settling. The majority of settled solids are returned (return activated sludge) to the aeration basins, and the remainder (waste activated sludge) is pumped to dissolved air flotation tanks for solids thickening and digestion.

Filtration Process. Following biological treatment, the wastewater is pumped to the tertiary filtration process for additional treatment. The filters provide removal of the BOD and suspended solids remaining from biological treatment via gravity filtration through dual media filters consisting of silica sand and anthracite coal—all supported by an under drain system. There are 16 separate filters, four of which are dedicated to producing Title 22 unrestricted-use reclaimed water, and 12 which produce water suitable for discharge to San Francisco Bay. Filter backwash water is sent to a backwash equalization basin for storage, followed by alum addition and then flocculation and sedimentation. The treated backwash water is pumped to chlorine contact tanks for disinfection prior to discharge to San Francisco Bay. The settled solids from the backwash water are pumped back to primary treatment.

Disinfection. Chlorine gas is metered into the filter effluent at the head of four serpentine chlorine contact channels. Ammonia is also metered into the same location to produce a solution of chloramines for disinfection. Chloramination provides the needed disinfection as the effluent travels through the chlorine contact channels. The contact time varies with the flow, but contact time is typically 30 to 45 minutes. As the effluent leaves the contact channels its chlorine residual is measured and an appropriate amount of sulfur dioxide is added to neutralize the chlorine. In the event of a failure in either the chlorine or sulfur dioxide gas systems there are backup dosing points and backup liquid sodium hypochlorite and sodium bisulfite systems. When required, caustic soda is added following dechlorination for pH adjustment. Most of the water is destined for discharge to the Bay, but an average of about 10 MGD is diverted for recycled water use in numerous locations throughout our service area.

Solids Management. The dissolved air floatation system receives wasted activated sludge from the secondary clarifiers. The dissolved air flotation process thickens the sludge from around 1% to 4% total solids before it is pumped to the anaerobic digesters. Supernatant from the dissolved air floatation process is returned to the headworks for treatment. Digested

sludge from the anaerobic digesters is pumped to deep (10 feet) storage lagoons where the sludge remains for over two years undergoing additional stabilization and thickening. The sludge is then harvested using floating dredges and pumped to shallow solar drying beds. Special tractors, with aeration equipment, turn the sludge over a period of several weeks to dry the biosolids to >75% total solids. Once dried, the biosolids are transported via an outside contractor to a local landfill for use as alternative daily cover.

2. Collection System.

[Discharger to provide a finding of its collection system]

3. Reclamation

A fraction of tertiary treated water is recycled and used in numerous locations throughout the service area via the South Bay Water Recycling Program. The Discharger provides approximately 10 MGD of tertiary treated wastewater for non-potable purposes to over 350 customers throughout the service area. Customer uses include irrigation of golf courses, parks and playgrounds, farms, as well as industrial use. Recycled water is also available for construction use at remote locations. Approximately 0.10 MGD of tertiary treated wastewater is also used seasonally for landscape irrigation of 50 acres on-site. Water recycling requirements for the South Bay Water Recycling Program are regulated under a separate permit, Order No. 95-117.

4. Storm Water Discharges

All storm water from within the plant is directed to the headworks of the plant; therefore, this Order regulates the discharges of storm water that originate on the grounds of the plant, and coverage under the Statewide permit for discharges of storm water associated with industrial activities (NPDES General Permit No. CAS000001) is not required.

B. Discharge Point and Receiving Water

The location of the discharge point and the receiving water are shown in Table F-2 below.

Table F-2. Outfall Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Tertiary treated municipal wastewater	37º 26’ 06” N	121º 57’ 08” W	Artesian Slough

Artesian Slough is located in the Coyote Creek Hydrologic Area of the Santa Clara Hydrologic Unit and is tributary to South San Francisco Bay.

Lower South San Francisco Bay is a unique and sensitive portion of the San Francisco Bay Estuary, in part due to the freshwater inflow being lower there than in the greater portion of San Francisco Bay. Tributaries to South San Francisco Bay are small in number and size. It is characterized by higher, more uniform salinities and is generally shallow, except for a deep central channel. Surrounding South San Francisco Bay is an extensive network of tidal mudflats, tidal sloughs, coastal salt marshes, diked salt marshes, brackish water marshes, salt ponds, and

freshwater marshes. In general, water quality in the entire San Francisco Bay can be characterized as a concentration gradient, with the lowest concentrations in Central Bay and highest concentrations in South San Francisco Bay and the southern sloughs, due to there being less tidal mixing and flushing in South San Francisco Bay and the southern sloughs than elsewhere in San Francisco Bay.

C. Summary of Previous Requirements and Self-Monitoring Data

Effluent limitations contained in the previous Order for discharges to Artesian Slough and representative monitoring data from the term of the previous Order are presented in the following tables.

Table F-3. Previous Effluent Limitations and Monitoring Data for Conventional and Non-Conventional Pollutants

Parameter	(units)	Effluent Limitations			Monitoring Data (1/2003-1/2008)		
		Monthly Average	Weekly Average	Daily Maximum	Highest Monthly Average	Highest Weekly Average	Highest Daily Discharge
$CBOD_5$	mg/L	10	---	20	4.25[(1)]	---	6[(1)]
TSS	mg/L	10	---	20	7.14	---	12.9
pH	standard units	6.5 – 8.5			Minimum – 7.0 Maximum – 7.7		
Oil and Grease	mg/L	5	---	10	< 5	---	< 5
Enterococci	colonies/ 100 mL	35[(2)]	---	276[(3)]	4[(2)]	---	71[(3)]
Total Chlorine Residual	mg/L	---	---	0.0 [(4)]	---	---	0.0
Settleable Matter	mL/L-hr.	0.1	---	0.2	< 0.1	---	0.2
Turbidity	NTU	---	---	10	---	---	6
Acute Toxicity	% survival	[(4)]			Minimum percent survival – 97.8%		
Ammonia-N	mg/L	3	---	8	0.9	---	0.9

Footnotes for Table F-3:

"<" Analyte not detected in effluent; value given is the MDL as reported by the analytical laboratory.

(1) The Discharger monitored and reported this parameter as BOD.

(2) As a 30-day geometric mean.

(3) As a single sample maximum.

(4) Requirement defined as below the limit of detection in standard test methods defined in the latest USEPA approved edition of *Standard Methods for the Examination of Water and Wastewater*.

(5) The limits are an 11-sample median value of not less than 90 percent survival and an 11-sample 90th percentile value of not less than 70 percent survival.

Table F-4. Previous Effluent Limitations and Monitoring Data for Toxic Pollutants

Parameter	Units	Final Limits		Interim Limits		Monitoring Data (From 1/2003 to 1/2008)
		Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Highest Daily Concentration
Copper	µg/L	18	12	---	---	9.54
Mercury	µg/L	---	---	2.1	0.012	0.0200
Nickel	µg/L	34	25	---	---	12.3
4,4'-DDE	µg/L	---	---	0.05	---	< 0.0018
Dieldrin	µg/L	---	---	0.01	---	< 0.002
Heptachlor Epoxide	µg/L	---	---	0.01	---	< 0.002
Benzo(b)Fluoranthene	µg/L	---	---	10.0	---	< 0.02
Indeno(1,2,3-cd)Pyrene	µg/L	---	---	0.05	---	< 0.02

"<" Analyte not detected in effluent; value given is the minimum detection limit (MDL) as reported by the analytical laboratory.

D. Compliance Summary

1. **Compliance with Previous Numeric Effluent Limits.** There were no exceedances of numeric effluent limits during the term of the previous Order. There was one exceedance of the single-sample chronic toxicity monitoring trigger of 2.0 TUc, with a reported value of 2.4 TUc.

2. **Compliance with Previous Provisions.** A list of special activities required by the previous Order and the status of those requirements are shown in Table F-5, below. **[Discharger to verify the correctness of the following information]**

Table F-5. Compliance with Previous Order Provisions

Provision Number	Requirement	Status of Completion
E.2	Avian Botulism Control Program	Reports have been submitted annually by February 28.
E.3	Lab Reliability Evaluation for Aldrin	Lab reliability report was submitted January 15, 2004. Aldrin was not detected above the WQC during the permit term.
E.4	Mercury Special Study – POTW Fate and Transport	Workplan was submitted January 13, 2004. Mercury Fate and Transport Progress Report was submitted February 2006. Mercury Fate and Transport Interim Study Report was submitted March 2007.
E.7	Pollution Prevention and Minimization Program (PMP)	Reports have been submitted annually by February 28.
E.9	Copper-Nickel Water Quality Attainment Strategy	Reports have been submitted annually by February 28.
E.11	South Bay Action Plan (SBAP)	Reports have been submitted annually by February 28.
E.12	Wetlands Mitigation	All mitigation requirements were fulfilled December 2004 with contribution to Peninsula Open Space Trust, to assist in Bair Island restoration.
E.13	Salt Marsh Vegetative Assessment	Vegetative assessment report was submitted February 28, 2008.
E.14	California Clapper Rail and Salt Marsh Mouse Surveys	California Clapper Rail and Salt Marsh Harvest Mouse Survey report was submitted January 15, 2007.

Provision Number	Requirement	Status of Completion
E.17	Operations and Maintenance Manual and Reliability Report Updates	Reports have been submitted annually by February 28.
E.18	Contingency Plan Update	Reports have been submitted annually by February 28.
E.19	Annual Status Reports	Reports have been submitted annually by February 28.
E.20	303(d)-listed Pollutants Site-Specific Objective and TMDL Status Review	Letter was submitted January 28 2008, confirming participation in BACWA.

E. Planned Changes

The San Jose/Santa Clara WPCP is in the planning stages of an improvement project for alternative disinfection. The improvement project is estimated to be completed and operational by December 31, 2009.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

This Order's requirements are based on the requirements and authorities described in this Section.

A. Legal Authorities

This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the USEPA and chapter 5.5, division 7 of the California Water Code (CWC, commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as WDRs pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260).

B. California Environmental Quality Act (CEQA)

Under CWC section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** *The Water Quality Control Plan for the San Francisco Bay Basin* (the Basin Plan) is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives (WQOs) for waters of the state, including surface waters and groundwater. It also includes programs of implementation to achieve WQOs. The Basin Plan was adopted by the Regional Water Board and approved by the State Water Board, USEPA, and the Office of Administrative Law (OAL), as required. Requirements of this Order implement the Basin Plan.

   The Basin Plan does not specifically identify present and potential beneficial uses for Artesian Slough but does identify beneficial uses for Coyote Creek, to which Artesian Slough is tributary. The Basin Plan states that the beneficial uses of any specifically identified water body generally apply to all its tributaries. State Water Board Resolution No. 88-63 establishes state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Because of tidal and marine influences on receiving waters for this discharge, total dissolved solids levels in Artesian

Slough are expected to exceed 3,000 mg/L, thereby meeting an exception to Resolution No. 88-63. The MUN designation is therefore not applicable to Artesian Slough. Table F-6 identifies beneficial uses that are therefore applicable to Artesian Slough.

Table F-6. Beneficial Uses of Artesian Slough

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Artesian Slough	Groundwater Recharge (GWR) Cold Freshwater Habitat (COLD) Fish Migration (MIGR) Fish Spawning (SPWN) Warm Freshwater Habitat (WARM) Wildlife Habitat (WILD) Non-contact Water Recreation (REC-2) Contact Recreation (REC-1)

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and amended it on May 4, 1995, and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria (WQC) for priority toxic pollutants, which are applicable to South San Francisco Bay.

3. **State Implementation Policy (SIP).** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

4. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes [65 Fed. Reg. 24641 (April 27, 2000), codified at 40 CFR 131.21]. Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

5. **Antidegradation Policy.** 40 CFR 131.12 requires that the state WQS include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies

under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

6. **Anti-Backsliding Requirements.** 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

D. Impaired Water Bodies on CWA 303(d) List

In November 2006, the USEPA approved a revised list of impaired water bodies prepared by the State [the 303(d) list], prepared pursuant to provisions of CWA section 303(d), which requires identification of specific water bodies where it is expected that WQS will not be met after implementation of technology-based effluent limitations on point sources. Artesian Slough and Coyote Creek are not identified as impaired waterbodies; however, South San Francisco Bay is listed as an impaired waterbody for chlordane, DDT, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, PCBs, and dioxin-like PCBs. The SIP requires final effluent limitations for all 303(d)-listed pollutants to be consistent with total maximum daily loads (TMDLs) and associated waste load allocations (WLAs).

The Regional Water Board plans to adopt TMDLs for pollutants on the 303(d) list in South San Francisco Bay within the next ten years (a TMDL for mercury was adopted on February 12, 2008).

TMDLs will establish WLAs for point sources and load allocations (LAs) for non-point sources, and will be established to achieve the WQS for impaired waterbodies. The discharge of mercury from the plant is regulated by the Regional Water Board Order No. R2-2007-0077, which implements the adopted mercury TMDL and contains monitoring and reporting requirements.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in 40 CFR: section 122.44(a) requires that permits include applicable technology-based limitations and standards; and section 122.44(d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative WQC to protect the beneficial uses of the receiving water. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established.

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

A. Discharge Prohibitions

1. **Discharge Prohibitions III.A (No discharge other than that described in this Order):** This prohibition is the same as in the previous permit and is based on CWC section 13260, which requires filing a Report of Waste Discharge (ROWD) before discharges can occur. Discharges not described in the ROWD, and subsequently in this Order, are prohibited.

2. **Discharge Prohibition III.B (No bypass except under the conditions at 40 CFR 122.41(m)(4)(i)(A)(B)-(C)):** This prohibition is based on 40 CFR 122.41(m)(4) (see Federal Standard Provisions, section G, Attachment D) and is retained from the previous Order.

3. **Discharge Prohibition III.C (The average dry weather influent flow shall not exceed 167 MGD):** 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. This prohibition is meant to ensure effective wastewater treatment by limiting flows to the plant's design treatment capability. In addition, this Order also requires full implementation of the South Bay Action Plan, including water conservation and water reclamation efforts. The Discharger completed the South Bay Action Plan on September 30, 1991, and the Regional Water Board accepted it through Resolution No. 91-152 in lieu of a 120 MGD average dry weather effluent flow (ADWEF) cap. The South Bay Action Plan is annually updated by the Discharger; however, if the plant's ADWEF exceeds 120 MGD, pursuant to Regional Water Board Resolution No. 91-152, the Regional Water Board may hold a public hearing to consider adoption of a permit amendment or enforcement order imposing a discharge flow limit of 120 MGD. The ADWEF is the lowest average effluent flow for any three consecutive months between the months of May and October.

4. **Discharge Prohibition III.D (No sanitary sewer overflows to waters of the United States).** Discharge Prohibition No. 15 from Basin Plan Table 4-1 and the CWA prohibit the discharge of wastewater to surface waters except as authorized under an NPDES permit. POTWs must achieve secondary treatment, at a minimum, and any more stringent limitations that are necessary to achieve WQS [33 U.S.C. § 1311 (b)(1)(B and C)]. Therefore, a sanitary sewer overflow that results in the discharge of raw sewage, or sewage not meeting secondary treatment requirements, is prohibited under the Clean Water Act and the Basin Plan.

B. Exceptions to Basin Plan Prohibitions

Basin Plan Table 4-1 contains the following discharge prohibition (Prohibition 1):

> *1. Any wastewater which has particular characteristics of concern to beneficial uses at any point at which the wastewater does not receive a minimum 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 section 4.2 provides for exceptions to this prohibition in the following circumstances:

- 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

- A discharge is approved as part of a reclamation project; or
- It can be demonstrated that net environmental benefits will be derived as a result of the discharge; or
- A discharge is approved as part of a groundwater clean-up project….

The treated wastewater discharges from the San Jose/Santa Clara, Palo Alto, and Sunnyvale wastewater treatment plants are discharged to confined waters and do not receive a minimum initial dilution of 10:1. In 1973, these dischargers formed the South Bay Dischargers Authority to jointly consider relocating their outfalls to a location north of the Dumbarton Bridge, but instead, based on studies they conducted between 1981 through 1986, they concluded that their discharges provided a net environmental benefit.

At the same time, the Regional Water Board amended the Basin Plan to establish several new WQOs. Due to the unique hydrodynamic environment of the South Bay, however, the 1986 Basin Plan exempted the South Bay from the new WQOs, instead calling for the development of site-specific objectives (SSOs).

In 1988, the Regional Water Board reissued the Sunnyvale and Palo Alto permits (Order Nos. 88-176 and Order No. 88-175), concurring that these discharges provided a net environmental benefit. It therefore granted exceptions to the Basin Plan discharge prohibition provided that the dischargers would conduct studies addressing salt marsh conversion, development of SSOs and effluent limitations for metals, ammonia removal, and avian botulism control. However, the Regional Water Board concluded that discharges from the San Jose/Santa Clara wastewater treatment plant did not provide a net environmental benefit, citing that the discharge was converting extensive salt marsh habitat to a brackish and freshwater marsh. Nevertheless, the Regional Water Board found that the discharge could provide a net environmental benefit if the Discharger were to mitigate the loss of salt marsh habitat. The Regional Water Board issued a Cease and Desist Order (CDO, Order No. 89-013) in 1989 requiring compliance with the Basin Plan prohibition or mitigation for the loss of salt marsh habitat. The Regional Water Board concurrently reissued the NPDES permit (Order No. 89-012) for the San Jose/Santa Clara facility.

Interested parties objected to all three permits and petitioned the State Water Board for review. The State Water Board responded in 1990 through Order No. WQ 90-5. It concluded that all three dischargers had failed to demonstrate a net environmental benefit. Specifically, nutrient loading in South San Francisco Bay was a problem, avian botulism was harming wildlife and estuarine habitat, and metals discharges were potentially contributing to San Francisco Bay impairment. In addition, San Jose/Santa Clara discharges in particular had a substantial adverse impact on rare and endangered species as a result of the loss of salt marsh habitat.

Through Order No. WQ 90-5, the State Water Board acknowledged that relocation of the discharges north of the Dumbarton Bridge was not economically or environmentally sound. The State Water Board "strongly encouraged" the Regional Water Board and the South Bay

Dischargers Authority to pursue wastewater reclamation projects as a means to reduce discharges to San Francisco Bay, and it also concluded that exceptions to the Basin Plan discharge prohibitions could be granted on the basis of "equivalent protection" (i.e., protection equivalent to relocating the discharges to a location north of the Dumbarton Bridge), provided that certain conditions were met. It stated that exceptions could be granted if (a) the discharge permits were to include numeric WQBELs for toxic pollutants, (b) the dischargers were to continue efforts to control avian botulism; and (c) the dischargers were to properly protect threatened and endangered species. For the San Jose/Santa Clara discharge, protection of threatened and endangered species could be accomplished by limiting average dry weather flows discharged to San Francisco Bay to no more than 120 MGD (or to flows that would not further harm rare or endangered species) and by creating or restoring 380 acres of wetlands.

This Order includes numeric WQBELs for toxic pollutants and requires the Discharger to continue its efforts to control avian botulism and to protect threatened and endangered species. The Regional Water Board therefore continues to grant an exception to Basin Plan discharge prohibition 1 (Table 4-1) on the basis of equivalent protection. Attachment I provides a chronological description of the actions taken by the State and Regional Water Boards and the Cities of San Jose and Santa Clara related to the requirements of Order No. 90-5. The summary also clarifies the origin of some provisions that appear in this Order.

C. Effluent Limitations for Conventional and Non-Conventional Pollutants

1. Scope and Authority of Technology-Based Effluent Limitations

CWA section 301(b) and 40 CFR 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable WQS. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR 133. These Secondary Treatment Regulations include the following minimum requirements for POTWs.

Table F-7. Secondary Treatment Requirements

Parameters	30-Day Average	7-Day Average
BOD_5 (1)	30 mg/L	45 mg/L
$CBOD_5$ (1) (2)	25 mg/L	40 mg/L
TSS (1)	30 mg/L	45 mg/L
pH	6.0 – 9.0	

Footnotes for Table F-7:

(1) The 30-day average percent removal, by concentration, shall not be less than 85 percent.

(2) At the option of the permitting authority, these effluent limitations for $CBOD_5$ may be substituted for limitations for BOD_5.

San Francisco Bay south of the Dumbarton Bridge is a unique water body, with a limited capacity to assimilate wastewater. Due to limited circulation, wastewater discharges to this area may take several months to reach the ocean. In addition, the unique wetlands and ambient conditions of South San Francisco Bay sometimes result in natural dissolved oxygen levels that are lower than the Basin Plan's receiving water limit of a minimum of 5.0 mg/L. The limited assimilative capacity of South San Francisco Bay necessitates effluent BOD and TSS limitations that are more restrictive than those required for secondary treatment.

The Discharger constructed advanced waste treatment facilities in the late 1970's and has consistently met limits on conventional pollutants that are more stringent than the secondary treatment standards. These effluent limits represent the best performance the existing facilities can reliably achieve so as to help meet the Basin Plan's WQOs for dissolved oxygen.

2. Applicable Effluent Limitations

This Order retains the following effluent limitations for conventional and non-conventional pollutants, applicable to Discharge Point 001, from the previous Order.

Table F-8. Summary of Effluent Limitations for Conventional and Non-Conventional Pollutants

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
$CBOD_5$	mg/L	10	---	20	---	---
TSS	mg/L	10	---	20	---	---
$CBOD_5$ and TSS	%	85	---	---	---	---
Oil and Grease	mg/L	5	---	10	---	---
pH	s.u.	---	---	---	6.5	8.5
Total Chlorine Residual	mg/L	---	---	---	---	0.0[(1)]
Turbidity	NTU	---	---	---	---	10
Enterococcus Bacteria	Colonies/ 100 mL	35[(2)]	---	---	---	---

Footnotes for Table F-8:

(1) Requirement defined as below the limit of detection in standard test methods defined in the latest USEPA approved edition of Standard Methods for the Examination of Water and Wastewater. The Discharger may elect to use a continuous on-line monitoring system for measuring flow, chlorine, and sodium bisulfite dosage (including a safety factor) and concentration to prove that chlorine residual exceedances are false positives. Convincing evidence must be provided to Regional Water Board staff to conclude these false positive exceedances are not violations of this permit.

(2) Expressed as a 30-day geometric mean.

a. $CBOD_5$ and TSS. The effluent limitations for $CBOD_5$ and TSS, including the 85% removal requirement are unchanged from the previous Order. These limitations are technologically feasible to meet by the advanced wastewater treatment technologies the plant uses. 40 CFR 122.45(d) specifies that discharge limitations for POTWs shall be stated as average weekly limitations and average monthly limitations, unless impracticable. Expressing effluent limitations for $CBOD_5$ and TSS as maximum daily limitations instead of average weekly limitations results in more stringent limits, as effluent variability is not averaged out over a period of a week. Self-monitoring data show the Discharger has been able to consistently comply with these $CBOD_5$ and TSS effluent limits.

b. Oil and Grease. The effluent limitations for oil and grease are technology-based and are unchanged from the previous Order. These limitations are based on Basin Plan Table 4-2 for shallow water dischargers. Self-monitoring data show the Discharger has been able to consistently comply with these oil and grease effluent limits.

c. pH. The effluent limitations for pH are water quality-based and are unchanged from the previous Order. These limitations are based on Basin Plan Table 4-2 for shallow water dischargers. Self-monitoring data show the Discharger has been able to consistently comply with these pH effluent limits.

d. Total chlorine residual. The effluent limitation for total chlorine residual is water-quality-based and is based on Basin Plan Table 4-2 and is unchanged from the previous Order. The Discharger may use a continuous on-line monitoring system to measure flow, chlorine, and sodium bisulfite concentration and dosage to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Regional Water Board staff may conclude that these false positives of chlorine residual exceedances are not violations of the limitation. However, any other real chlorine residual incidents will be treated as violations, even if they do not occur on the hour. Effluent data show the Discharger can comply with this effluent limit. Self-monitoring data show the Discharger has been able to consistently comply with the total chlorine residual effluent limit.

e. Turbidity. The effluent limitation for turbidity is unchanged from the previous Order and is representative of adequate and reliable tertiary level wastewater treatment. This limitation is technologically feasible to meet by the advanced wastewater treatment technologies the plant uses. Self-monitoring data show the Discharger has been able to consistently comply with this turbidity effluent limit.

f. Enterococcus bacteria. The effluent limitation for enterococcus bacteria is unchanged from the previous Order except the single sample maximum limit of 276 colonies per 100 mL is no longer required to be consistent with recently adopted NPDES permits and USEPA criteria. This limitation is based on the enterococcus criteria for salt water contact recreation for a lightly used area, established by USEPA and cited by Table 3-2 of the Basin Plan. The Discharger has previously conducted a study, in August and September 2002 (prior to adoption of Order No. R2-2003-0085), demonstrating that effluent limitations for enterococcus bacteria are protective of beneficial uses of the receiving water. The Discharger indicates that shellfish harvesting does not occur in the vicinity of the discharge. Self-monitoring data show the Discharger has been able to consistently comply with this enterococcus effluent limit.

This Order does not retain the previous Order's technology-based effluent limitations for settleable matter because Basin Plan Table 4-2 no longer requires them for POTWs. This Order does not retain the previous Order's technology-based effluent limitations for total ammonia. Instead, this Order establishes more stringent WQBELs for total ammonia as detailed in the Fact Sheet Section IV.D.4.d.(8).

D. WQBELs

WQBELs have been derived to implement WQOs that protect beneficial uses. Both the beneficial uses and the WQOs have been approved pursuant to federal law. The procedures for

calculating individual WQBELs are based on the SIP, which was approved by the USEPA prior to May 1, 2001, or Basin Plan provisions approved by the USEPA on May 29, 2000. Most beneficial uses and WQOs contained in the Basin Plan were approved under state law and submitted to and approved by the USEPA prior to May 30, 2000. Any WQOs and beneficial uses submitted to the USEPA prior to May 30, 2000, but not approved by the USEPA before that date, are nonetheless "applicable water quality standards for purposes of the [Clean Water] Act" pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than the applicable WQS for purposes of the CWA.

1. Scope and Authority

a. 40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a WQS, including numeric and narrative objectives within a standard. 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." Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric WQC, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

   The process for determining "reasonable potential" and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable WQOs/WQC that are contained in other state plans and policies, and applicable WQC contained in the CTR and NTR.

b. NPDES regulations and the SIP provide the basis to establish maximum daily effluent limitations (MDELs).

   (1) **NPDES Regulations.** NPDES regulations at 40 CFR 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 maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works."

   (2) **SIP.** The SIP (Section 1.4) requires WQBELs to be expressed as MDELs and average monthly effluent limitations (AMELs).

c. MDELs are used in this Order to protect against acute water quality effects. The MDELs are necessary for preventing fish kills or mortality to aquatic organisms.

2. Applicable Beneficial Uses and WQC

The WQC applicable to the receiving waters for this discharge are from the Basin Plan; the CTR, established by USEPA at 40 CFR 131.38; and the NTR, established by USEPA at 40 CFR 131.36. Some pollutants have WQC established by more than one of these three sources.

a. **Basin Plan.** The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, for all marine and freshwaters *except for* South San Francisco Bay, south of Dumbarton Bridge. For this portion of South Bay, the CTR WQC apply, except SSOs have been adopted for copper and nickel for marine and estuarine waters of South San Francisco Bay, south of Dumbarton Bridge. SSOs for cyanide have been adopted for all segments of San Francisco Bay.

b. **CTR.** 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 all inland surface waters and enclosed bays and estuaries of the San Francisco Bay Region, including South San Francisco Bay south of the Dumbarton Bridge.

c. **NTR.** The NTR establishes numeric aquatic life criteria for selenium and numeric human health criteria for 33 toxic organic pollutants for waters of San Francisco Bay upstream to, and including Suisun Bay and the Delta. These NTR WQC are applicable to South San Francisco Bay.

d. **Narrative Objectives for Water Quality-Based Toxics Controls.** Where numeric objectives have not been established or updated in the Basin Plan, NPDES regulations at 40 CFR 122.44(d) require that WQBELs be established based on USEPA criteria, supplemented where necessary by other relevant information, to attain and maintain narrative WQOs to fully protect designated beneficial uses.

To determine the need for and establish WQBELs, when necessary, the Regional Water Board staff has followed the requirements of applicable NPDES regulations, including 40 CFR 122 and 131, as well as guidance and requirements established by the Basin Plan; USEPA's Technical Support *Document for Water Quality-Based Toxics Control* (the TSD, EPA/505/2-90-001, 1991); and the SIP.

e. **Basin Plan Receiving Water Salinity Policy.** The Basin Plan and CTR state that the salinity characteristics (i.e., freshwater versus saltwater) of the receiving water shall be considered in determining the applicable WQOs. 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 fresh waters that support estuarine beneficial uses, the WQOs shall be the lower of the salt- or freshwater criteria (the freshwater criteria for some metals are calculated based on ambient hardness) for each substance.

The receiving water for this discharge is Artesian Slough which ultimately flows into South San Francisco Bay via Coyote Creek. Salinity data are not available for Artesian

Slough or Coyote Creek; however, salinity as measured at the Regional Monitoring Program (RMP) San Jose Slough station (C-3-0) indicates an estuarine environment (73 percent of the salinity data fell between 1 and 10 ppt). Artesian Slough and Coyote Creek are tidally influenced and are therefore considered estuarine receiving waters. The lower of the marine and freshwater WQOs from the Basin Plan, NTR, and CTR apply to this discharge.

f. **Receiving Water Hardness.** Ambient hardness values are used to calculate freshwater WQOs that are hardness dependent. In determining the WQOs for this Order, Regional Water Board staff used a hardness value of 400 mg/L as $CaCO_3$. The minimum hardness value observed at RMP station C-3-0 is 510 mg/L. USEPA guidance in the CTR [40 CFR 131.38(c)(4)] states that when the ambient hardness exceeds 400 mg/L as $CaCO_3$, a value of 400 mg/L shall be used in calculating hardness-based criteria.

g. **Site-Specific Translators (SSTs).** 40 CFR 122.45(c) requires that effluent limitations for metals be expressed as total recoverable metal. Since applicable WQC for metals are typically expressed as dissolved metal, factors or translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. The CTR includes default conversion factors that are used in NPDES permitting activities; however, site-specific conditions, such as water temperature, pH, suspended solids, and organic carbon, greatly impact the form of metal (dissolved, filterable, or otherwise) that is present in the water and therefore available to cause toxicity. In general, the dissolved form of the metals is more available and more toxic to aquatic life than the filterable forms. SSTs can be developed to account for site-specific conditions, thereby preventing exceedingly stringent or under protective WQOs.

SSTs for copper and nickel were developed for Lower South San Francisco Bay and are in the Basin Plan. The SSTs for copper and nickel are presented in Table F-9.

For this permit reissuance, Regional Water Board staff developed SSTs for chromium (VI), zinc, and lead for the Lower South San Francisco Bay using data from the Dumbarton Bridge RMP station (BA30), and following USEPA's recommended guidelines for translator development. These translators were applied in determining reasonable potential and/or effluent limitations for these constituents. These translators were updated using additional RMP data collected since the previous permit issuance and Minitab statistical software. The newly calculated translators for Zn, Cr(VI), and Pb are also presented in Table F-9, below. In determining the need for and calculating WQBELs for all other metals, where appropriate, Regional Water Board staff used default conversion factors in the CTR, Table 2.

Table F-9. SSTs for Cu, Ni, Zn, Cr(VI), and Pb for Lower South San Francisco Bay

Pollutant	AMEL Translator	MDEL Translator
Copper	0.53	0.53
Nickel	0.44	0.44
Zinc	0.24	0.56
Chromium (VI)	0.037	0.089
Lead	0.060	0.15

3. Determining the Need for WQBELs

Assessing whether a pollutant has Reasonable Potential is the fundamental step in determining whether or not a WQBEL is required. Using the methods prescribed in section 1.3 of the SIP, Regional Water Board staff analyzed the effluent data to determine if the discharge demonstrates Reasonable Potential. The Reasonable Potential Analysis (RPA) compares the effluent data with numeric and narrative WQOs in the Basin Plan, the NTR, and the CTR.

a. **Reasonable Potential Methodology.** The RPA identifies the observed MEC in the effluent for each pollutant based on effluent concentration data. There are three triggers in determining Reasonable Potential according to Section 1.3 of the SIP.

(1) The first trigger (Trigger 1) is activated if the MEC is greater than or equal to the lowest applicable WQC (MEC ≥ WQC), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than or equal to the adjusted WQC, then that pollutant has Reasonable Potential, and a WQBEL is required.

(2) The second trigger (Trigger 2) is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQC (B > WQC), and the pollutant is detected in any of the effluent samples.

(3) The third trigger (Trigger 3) is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the WQC.

b. **Effluent Data.** The Regional Water Board's August 6, 2001, letter titled *Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (hereinafter referred to as the August 6, 2001, Letter, Attachment G), formally required the Discharger to initiate or continue monitoring for the priority pollutants using analytical methods that provide the best detection limits reasonably feasible. Regional Water Board staff analyzed these effluent data and the nature of the discharge to determine if the discharge has Reasonable Potential. The RPA was based on the effluent monitoring data collected by the Discharger from February 2005 through January 2008 for most inorganic pollutants, and from November 2003 through January 2008 for most organic pollutants.

c. **Ambient Background Data.** Ambient background values are typically used to determine reasonable potential and to calculate effluent limitations, when necessary. For the RPA, ambient background concentrations are the observed maximum detected water column concentrations. The SIP states that, for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations or, for criteria intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations.

The background data used in the RPA were generated at the Dumbarton Bridge RMP station, except for ammonia, for which the maximum ambient concentration at the San Jose Slough RMP station was used.

Not all the constituents listed in the CTR have been analyzed by the RMP. These data gaps are addressed by the Regional Water Board's August 6, 2001, Letter, which formally required dischargers to conduct ambient background monitoring and effluent monitoring for those constituents not currently monitored by the RMP and to provide this technical information to the Regional Water Board.

On May 15, 2003, a group of several San Francisco Bay Region Dischargers (known as the Bay Area Clean Water Agencies, or BACWA) submitted a collaborative receiving water study, entitled the San Francisco Bay Ambient Water Monitoring Interim Report (2003). This study includes monitoring results from sampling events in 2002 and 2003 for the remaining priority pollutants not monitored by the RMP. The study included the Dumbarton Bridge monitoring station. Additional data were provided from the BACWA Ambient Water Monitoring: Final CTR Sampling Update Report, dated June 15, 2004.

The RPA was conducted and the WQBELs were calculated using RMP data from 1993 through 2006 at the Dumbarton Bridge RMP station, and additional data from the BACWA receiving water study.

d. **RPA Determination.** The MECs, most stringent applicable WQC, and background concentrations used in the RPA are presented in Table F-10, along with the RPA results (yes or no) for each pollutant. Reasonable Potential was not determined for all pollutants because there are not applicable WQC for all pollutants, or monitoring data were not available for others. The RPA determines that cyanide, dioxin-TEQ, tributyltin, and heptachlor exhibit Reasonable Potential by Trigger 1. Mercury exhibits reasonable potential by Trigger 2. Copper, nickel, and ammonia have reasonable potential by Trigger 3 as explained below under specific basis for each pollutant.

Table F-10. Summary of RPA Results

CTR #	Priority Pollutants	MEC or Minimum DL[1,2] (µg/L)	Governing WQC (µg/L)	Maximum Background or Minimum DL[1,2] (µg/L)	RPA Results[3]
1	Antimony	0.81	4300	1.3	No
2	Arsenic	2.3	36	5.1	No
3	Beryllium	2.3	No Criteria	0.11	No
4	Cadmium	0.23	7.3	0.17	No
5a	Chromium (III)	3.0	644	14.7	No
5b	Chromium (VI)	3.0	200	15	No
6	**Copper**	**9.5**	**13**	**8.6**	**Yes**
7	Lead	1.4	116	4.2	No
8	**Mercury (303 d listed)**	**0.02**	**0.051**	**0.068**	**Yes**
9	**Nickel**	**12**	**27**	**16**	**Yes**
10	Selenium (303 d listed)	1.2	5	0.63	No
11	Silver	0.12	2.2	0.12	No
12	Thallium	0.74	6.3	0.16	No
13	Zinc	69	170	21	No
14	**Cyanide**	**31**	**1.0**	**< 0.4**	**Yes**
15	Asbestos	Not Available	No Criteria	Not Available	No
16	2,3,7,8-TCDD (303 d listed)	< 1.3E-07	1.4E-08	2.4E-08	No
	Dioxin TEQ (303 d listed)	**1.27E-08**	**1.4E-08**	**2.6E-07**	**Yes**
17	Acrolein	< 0.5	780	< 0.5	No
18	Acrylonitrile	< 0.33	0.66	< 0.02	No
19	Benzene	< 0.03	71	< 0.05	No

CTR #	Priority Pollutants	MEC or Minimum DL[1,2] (µg/L)	Governing WQC (µg/L)	Maximum Background or Minimum DL[1,2] (µg/L)	RPA Results[3]
20	Bromoform	0.5	360	< 0.5	No
21	Carbon Tetrachloride	< 0.04	4.4	0.07	No
22	Chlorobenzene	< 0.03	21000	< 0.5	No
23	Chlorodibromomethane	4	34	0.057	No
24	Chloroethane	< 0.03	No Criteria	<0.5	No
25	2-Chloroethylvinyl Ether	< 0.1	No Criteria	< 0.5	No
26	Chloroform	7.1	No Criteria	< 0.5	No
27	Dichlorobromomethane	6	46	< 0.05	No
28	1,1-Dichloroethane	< 0.04	No Criteria	< 0.05	No
29	1,2-Dichloroethane	< 0.04	99	0.04	No
30	1,1-Dichloroethylene	< 0.06	3.2	< 0.5	No
31	1,2-Dichloropropane	< 0.03	39	< 0.05	No
32	1,3-Dichloropropylene	< 0.03	1700	Not Available	No
33	Ethylbenzene	< 0.04	29000	< 0.5	No
34	Methyl Bromide	< 0.05	4000	< 0.5	No
35	Methyl Chloride	< 0.04	No Criteria	< 0.5	No
36	Methylene Chloride	0.8	1600	< 0.5	No
37	1,1,2,2-Tetrachloroethane	< 0.04	11	< 0.05	No
38	Tetrachloroethylene	< 0.04	8.9	< 0.05	No
39	Toluene	0.6	200000	< 0.3	No
40	1,2-Trans-Dichloroethylene	< 0.05	140000	< 0.5	No
41	1,1,1-Trichloroethane	< 0.03	No Criteria	< 0.5	No
42	1,1,2-Trichloroethane	< 0.05	42	< 0.05	No
43	Trichloroethylene	< 0.05	81	< 0.5	No
44	Vinyl Chloride	< 0.05	525	< 0.5	No
45	Chlorophenol	< 0.21	400	< 1.2	No
46	2,4-Dichlorophenol	< 0.18	790	< 1.5	No
47	2,4-Dimethylphenol	< 0.14	2300	< 1.3	No
48	2-Methyl-4,6-Dinitrophenol	< 0.6	765	< 1.2	No
49	2,4-Dinitrophenol	< 0.6	14000	< 0.7	No
50	2-Nitrophenol	< 0.17	No Criteria	< 1.3	No
51	4-Nitrophenol	< 0.31	No Criteria	< 1.6	No
52	3-Methyl-4-Chlorophenol	< 0.17	No Criteria	< 1.1	No
53	Pentachlorophenol	< 0.15	7.9	< 1	No
54	Phenol	< 0.27	4600000	< 1.3	No
55	2,4,6-Trichlorophenol	< 0.16	6.5	< 1.3	No
56	Acenaphthene	< 0.03	2700	0.0026	No
57	Acenephthylene	< 0.02	No Criteria	0.0026	No
58	Anthracene	< 0.01	110000	0.0023	No
59	Benzidine	< 1	0.00054	< 0.0015	No
60	Benzo(a)Anthracene	< 0.01	0.049	0.011	No
61	Benzo(a)Pyrene	< 0.01	0.049	0.045	No
62	Benzo(b)Fluoranthene	< 0.02	0.049	0.057	No
63	Benzo(ghi)Perylene	< 0.02	No Criteria	0.015	No
64	Benzo(k)Fluoranthene	< 0.02	0.049	0.021	No
65	Bis(2-Chloroethoxy)Methane	< 0.14	No Criteria	< 0.3	No
66	Bis(2-Chloroethyl)Ether	< 0.16	1.4	< 0.32	No
67	Bis(2-Chloroisopropyl)Ether	< 0.17	170000	Not Available	No
68	Bis(2-Ethylhexyl)Phthalate	2	5.9	0.93	No
69	4-Bromophenyl Phenyl Ether	< 0.11	No Criteria	< 0.23	No
70	Butylbenzyl Phthalate	< 0.14	5200	0.0055	No
71	2-Chloronaphthalene	< 0.17	4300	< 0.3	No
72	4-Chlorophenyl Phenyl Ether	< 0.16	No Criteria	< 0.31	No
73	Chrysene	< 0.02	0.049	0.022	No

CTR #	Priority Pollutants	MEC or Minimum DL[1,2] (µg/L)	Governing WQC (µg/L)	Maximum Background or Minimum DL[1,2] (µg/L)	RPA Results[3]
74	Dibenzo(a,h)Anthracene	< 0.02	0.049	0.0088	No
75	1,2-Dichlorobenzene	< 0.03	17000	< 0.3	No
76	1,3-Dichlorobenzene	< 0.03	2600	< 0.3	No
77	1,4-Dichlorobenzene	0.7	2600	< 0.3	No
78	3,3-Dichlorobenzidine	< 0.18	0.077	< 0.001	No
79	Diethyl Phthalate	< 0.34	120000	0.3	No
80	Dimethyl Phthalate	< 0.045	2900000	< 0.21	No
81	Di-n-Butyl Phthalate	< 0.32	12000	2.2	No
82	2,4-Dinitrotoluene	< 0.08	9.1	< 0.27	No
83	2,6-Dinitrotoluene	< 0.1	No Criteria	< 0.29	No
84	Di-n-Octyl Phthalate	< 0.15	No Criteria	< 0.38	No
85	1,2-Diphenylhydrazine	< 0.13	0.54	0.0053	No
86	Fluoranthene	< 0.02	370	0.039	No
87	Fluorene	< 0.02	14000	0.0055	No
88	Hexachlorobenzene	< 0.1	0.00077	0.00048	No
89	Hexachlorobutadiene	< 0.18	50	< 0.3	No
90	Hexachlorocyclopentadiene	< 0.06	17000	< 0.3	No
91	Hexachloroethane	< 0.16	8.9	< 0.2	No
92	Indeno(1,2,3-cd) Pyrene	< 0.02	0.049	0.078	No
93	Isophorone	< 0.15	600	< 0.3	No
94	Naphthalene	< 0.02	No Criteria	0.011	No
95	Nitrobenzene	< 0.17	1900	< 0.25	No
96	N-Nitrosodimethylamine	< 0.18	8.1	< 0.3	No
97	N-Nitrosodi-n-Propylamine	< 0.17	1.4	< 0.001	No
98	N-Nitrosodiphenylamine	< 0.15	16	< 0.2	No
99	Phenanthrene	< 0.02	No Criteria	0.014	No
100	Pyrene	< 0.017	11000	0.056	No
101	1,2,4-Trichlorobenzene	< 0.17	No Criteria	< 0.3	No
102	Aldrin	< 0.0014	0.00014	1.37E-6	No
103	alpha-BHC	0.0046	0.013	0.00066	No
104	beta-BHC	< 0.003	0.046	0.00061	No
105	gamma-BHC	< 0.002	0.063	0.0017	No
106	delta-BHC	< 0.002	No Criteria	0.00013	No
107	Chlordane (303 d listed)	< 0.004	0.00059	0.00057	No
108	4,4-DDT (303 d listed)	< 0.002	0.00059	0.00020	No
109	4,4-DDE	< 0.0018	0.00059	0.00068	No
110	4,4-DDD	< 0.002	0.00084	0.00077	No
111	Dieldrin (303d)	< 0.002	0.00014	0.00029	No
112	alpha-Endosulfan	< 0.002	0.0087	0.000027	No
113	beta-Endosulfan	< 0.002	0.0087	0.000046	No
114	Endosulfan Sulfate	0.016	240	0.00016	No
115	Endrin	< 0.001	0.0023	0.00012	No
116	Endrin Aldehyde	< 0.002	0.81	Not Available	No
117	**Heptachlor**	**0.038**	**0.00021**	**0.000022**	**Yes**
118	Heptachlor Epoxide	< 0.002	0.00011	0.00017	No
119-125	PCBs sum (303 d listed)	< 0.02	0.00017	0.0040	No
126	Toxaphene	< 0.03	0.0002	Not Available	No
	Tributyltin	**0.013**	**0.0074**	**0.003**	**Yes**
	Total PAHs	< 0.01	15	0.38	No
	Total Ammonia (as N)	**900**	**1480**	**890**	**Yes**

Footnote for Table F-10:

(1) The MEC and maximum background concentration are the actual detected concentrations unless preceded by a "<" sign, in which case the value shown is the minimum detection level (DL).

(2) The MEC or maximum background concentration is "Not Available" when there are no monitoring data for the constituent.

(3) RPA Results = Yes, if MEC > WQO/WQC, B > WQO/WQC and MEC is detected, or Trigger 3;
= No, if MEC and B are < WQO/WQC or all effluent data are undetected;
= Undetermined (Ud), if no criteria have been promulgated or there are insufficient data.

e. **Constituents with limited data.** In some cases, Reasonable Potential cannot be determined because effluent data are limited, or ambient background concentrations are not available. The Dischargers will continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further RPA will be conducted to determine whether to add numeric effluent limitations to this Order or to continue monitoring.

f. **Pollutants with no Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate Reasonable Potential; however, monitoring for those pollutants is still required. If concentrations of these constituents are found to have increased significantly, the Dischargers are 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.

The previous Order included effluent limits for 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene; however, effluent limitations for these pollutants are not retained by this Order because these pollutants do not have Reasonable Potential. This elimination of these effluent limits is consistent with anti-backsliding requirements in accordance with State Water Board Order WQ 2001-16.

4. WQBEL Calculations.

a. **Pollutants with Reasonable Potential.** WQBELs were developed for the toxic and priority pollutants that were determined to have reasonable potential to cause or contribute to exceedances of the WQOs or WQC. The WQBELs were calculated based on appropriate WQOs/WQC and the appropriate procedures specified in Section 1.4 of the SIP. The WQOs or WQC used for each pollutant with Reasonable Potential are discussed below.

b. **Shallow Water Discharge.** The Discharger's effluent is discharged to a shallow water slough, the Artesian Slough. Due to the tidal nature of the Slough, and limited upstream freshwater flows, the discharge is classified by the Regional Water Board as a shallow water discharge.

c. Dilution Credit. Due to the biologically sensitive and critical habitats present in shallow waters, it is generally inappropriate to allocate dilution credits when calculating effluent limitations for discharges to shallow waters. This shallow water discharge therefore does not qualify for a dilution credit (D=0) for calculating WQBELs for most pollutants, with the exception of cyanide, which is a non-persistent pollutant that readily degrades to a non-toxic state.

Cyanide attenuates in receiving waters due to both degradation and dilution. Dilution credits for cyanide for shallow water discharges are established by Regional Water Board Resolution No. R2-2006-0086, which amends the Basin Plan by establishing SSOs for cyanide in San Francisco Bay. The SSOs and the dilution credit account for attenuation of cyanide in the receiving water. A dilution ratio of 3:1 (dilution credit D = 2.0) for the discharge has been applied in calculating effluent limitations for cyanide.

The Discharger submitted the *South Bay Dilution Study* (September 1990), prepared by CH2M Hill for the City of San Jose, with its ROWD. The study included a Rhodamine WT fluorescent dye study and a hydrodynamic model. Regional Water Board staff reviewed this study to evaluate whether granting a dilution credit for ammonia, another non-persistent pollutant, would be appropriate. The nearest dilution ratio reported was at the mouth of Artesian Slough at its confluence with Coyote Creek, which is approximately two miles from the discharge point. However, this does not represent initial dilution. Moreover, the limited duration dye release did not provide time to build up a steady-state concentration of dye, resulting in non-conservative results. Because of the lack of near-field results, Regional Water Board determined that granting a dilution credit for ammonia is not appropriate at this time. However, the Discharger may update its dilution study during the permit term to justify an appropriate dilution credit for ammonia.

d. Development of WQBELs for Specific Pollutants

(1) Copper

i. *Copper WQC*. The most stringent copper chronic and acute marine WQC of 6.9 and 10.8 µg/L are the Basin Plan SSOs for Lower South San Francisco Bay, expressed as dissolved metal. Regional Water Board staff converted these WQC to total recoverable metal using the Basin Plan SSTs of 0.53. The resulting chronic WQC of 13 µg/L and acute WQC of 20 µg/L were used in the RPA.

ii. *RPA Results.* Copper historically has been a pollutant of concern in South San Francisco Bay. To ensure that ambient levels of copper in South San Francisco Bay do not increase as a result of POTW discharges, the Basin Plan requires NPDES permits to include copper effluent limits for Lower South San Francisco Bay dischargers.

iii. *Copper WQBELs*. WQBELs for copper, calculated according to SIP procedures, with an effluent data coefficient of variation (CV) of 0.37, are an AMEL of 11 µg/L and an MDEL of 19 µg/L. The previous Order included an AMEL of 12 µg/L and an MDEL of 18 µg/L. Although the newly calculated MDEL is slightly higher than the previous Order's MDEL, the new WQBELs are considered to be more protective of water quality because the new, lower AMEL will limit the discharge to a lower long-term average (LTA) concentration than the previous AMEL. Therefore, the new WQBELs established by this Order are considered to be more stringent.

iv. *Immediate Compliance Feasible.* Statistical analysis of the effluent data for copper, collected over the period of February 2005 through January 2008, shows

that the 95th percentile (5.0 µg/L) is less than the AMEL (11 µg/L); the 99th percentile (6.2 µg/L) is less than the MDEL (19 µg/L); and the mean (3.1 µg/L) is less than the LTA (8.6 µg/L) of the effluent data set after accounting for effluent variability. The Regional Water Board concludes, therefore, that immediate compliance with these WQBELs is feasible.

v. *Antibacksliding*. The copper WQBELs are more stringent than those in the previous Order; therefore, antibacksliding requirements are met.

(2) Nickel

i. *Nickel WQC.* The most stringent chronic and acute marine WQC of 11.9 and 62.4 µg/L are the Basin Plan SSOs for Lower South San Francisco Bay, expressed as dissolved metal. Regional Water Board staff converted these WQC to total recoverable metal using the Basin Plan SSTs of 0.44. The resulting chronic WQC of 27 µg/L and acute WQC of 142 µg/L were used in the RPA.

ii. *RPA Results.* Nickel has historically been a pollutant of concern in South San Francisco Bay. To ensure that ambient levels of nickel in South San Francisco Bay do not increase as a result of POTW discharges, the Basin Plan requires NPDES permits to include nickel effluent limits for Lower South San Francisco Bay dischargers. .

iii. *Nickel WQBELs.* WQBELs for nickel, calculated according to SIP procedures, with an effluent CV of 0.19, are an AMEL of 25 µg/L and an MDEL of 33 µg/L.

iv. *Immediate Compliance Feasible.* Statistical analysis of the effluent data for nickel over the period of February 2005- January 2008 shows that the 95th percentile (8.6 µg/L) is less than the AMEL (25 µg/L); the 99th percentile (10 µg/L) is less than the MDEL (33 µg/L); and the mean (6.4 µg/L) is less than the LTA (22 µg/L). The Regional Water Board concludes that immediate compliance with these WQBELs is feasible.

v. *Antibacksliding.* Antibacksliding requirements are satisfied as limitations for nickel established by this Order are more stringent than the limitations established by the previous Order, which were an AMEL of 25 µg/L and an MDEL of 34 µg/L.

(3) Cyanide

i. *Cyanide WQC*. The most stringent applicable WQC for cyanide are from the Basin Plan SSOs for marine waters, which are 2.9 µg/L as a four-day average (chronic objective), and 9.4 µg/L as a one-hour average (acute objective).

ii. *RPA Results.* This Order finds reasonable potential and thus establishes effluent limitations for cyanide because the MEC of 31 µg/L exceeds the governing WQC of 2.9 µg/L, demonstrating Reasonable Potential by Trigger 1.

iii. *Cyanide WQBELs*. Final WQBELs for cyanide, calculated according to SIP procedures with an effluent CV of 1.0 and a dilution credit of 2.0, are an AMEL of 5.7 µg/L and an MDEL of 14 µg/L.

iv. *Immediate Compliance .feasible*. The cyanide effluent data contain too many non-detected values; therefore, it is not possible to perform a meaningful statistical analysis to determine compliance feasibility. Although there is one data point (MEC=31 µg/L) above the MDEL of 14 µg/L, and one monthly average concentration above the AMEL, the Discharger believes that it can comply with these WQBELs for cyanide because it believes the observed MEC was related to a dumping incident, which can be prevented by enforcing its pretreatment program.

v. *Antibacksliding*. Antibacksliding requirements are satisfied because the previous Order did not include final effluent limitations for cyanide. .

(4) Dioxin-TEQ

i. *Dioxin-TEQ WQC*. The Basin Plan narrative WQO for bioaccumulative substances states "[M]any pollutants can accumulate on particulates, in sediments, or bioaccumulate in fish and other aquatic organisms. 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."

Because it is the consensus of the scientific community that dioxins and furans associate with particulates, accumulate in sediments, and bioaccumulate in the fatty tissue of fish and other organisms, the Basin Plan's narrative bioaccumulation WQO is applicable to these pollutants. Elevated levels of dioxins and furans in fish tissue in San Francisco Bay demonstrate that the narrative bioaccumulation WQO is not being met. USEPA has therefore included the South San Francisco Bay as impaired by dioxin and furan compounds in the current 303(d) listing of receiving waters where WQOs are not being met after imposition of applicable technology-based requirements.

The CTR establishes a numeric WQO for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) of 1.4×10^{-8} µg/L for the protection of human health, when aquatic organisms are consumed. When the CTR was promulgated, USEPA stated its support of the regulation of other dioxin and dioxin-like compounds through the use of toxicity equivalencies (TEQs) in NPDES permits. For California waters, USEPA stated specifically, "if the discharge of dioxin or dioxin-like compounds has reasonable potential to cause or contribute to a violation of a narrative criterion, numeric WQBELs for dioxin or dioxin-like compounds should be included in NPDES permits and should be expressed using a TEQ scheme." [65 Fed. Reg. 31682, 31695 (2000)] This procedure, developed by the World Health Organization (WHO) in 1998, uses a set of toxicity equivalency factors (TEFs) to convert the concentration of any congener of dioxin or furan into an equivalent concentration of 2,3,7,8-TCDD. The CTR criterion is used as a criterion for dioxin-TEQ because dioxin-TEQ represents a toxicity weighted concentration equivalent to 2,3,7,8-TCDD, thus translating the narrative bioaccumulation objective into a numeric criterion appropriate for the RPA.

To determine if the discharge of dioxin or dioxin-like compounds from the discharge has reasonable potential to cause or contribute to a violation of the

Basin Plan's narrative bioaccumulation WQO, Regional Water Board staff used TEFs to express the measured concentrations of 16 dioxin congeners in effluent and background samples as 2,3,7,8-TCDD. These "equivalent" concentrations were then compared to the CTR numeric criterion for 2,3,7,8-TCDD (1.4×10^{-8} µg/L). Although the 1998 WHO scheme includes TEFs for dioxin-like PCBs, they are not included in this Order's version of the TEF procedure. The CTR has established a specific WQS for dioxin-like PCBs, and they are included in the analysis of total PCBs.

ii. *RPA Results.* This Order establishes WQBELs for dioxin-TEQ because the MEC (1.7×10^{-8} µg/L) exceeds the applicable WQC (1.4×10^{-8} µg/L), demonstrating Reasonable Potential by Trigger 1. The average background concentration of dioxin-TEQ at Dumbarton Bridge (1.1×10^{-7} µg/L) also exceeds the applicable WQC.

iii. *Dioxin-TEQ WQBELs*. WQBELs for dioxin-TEQ, calculated using SIP procedures as guidance, with a SIP default CV of 0.6 (for a data set with fewer than 10 data points), are an AMEL of 1.4×10^{-8} µg/L and an MDEL of 2.8×10^{-8} µg/L.

iv. *Immediate Compliance Infeasible*. The Discharger's Infeasibility Study dated July 2, 2008, asserts that the facility cannot immediately comply with WQBELs for dioxin-TEQ. With insufficient effluent data to determine the distribution of the effluent data set or to calculate a mean and standard deviation, feasibility to comply with final effluent limitations is determined by comparing the MEC (1.7×10^{-8} µg/L) to the AMEL (1.4×10^{-8} µg/L) and the MDEL (2.8×10^{-8} µg/L). The Regional Water Board concurs with the Discharger's assertion of infeasibility to comply because the MEC exceeds the AMEL.

v. *Need for a Compliance Schedule*. Because the previous Order did not include final effluent limitations for dioxin-TEQ, and there is insufficient data to statistically determine a performance-based interim limitation, no interim effluent limitation is proposed. Further, because the dioxin-TEQ effluent limit implements the Basin Plan's narrative bioaccumulation WQO, it is not subject to the SIP's requirement for an interim limit. Instead, this Order requires further monitoring for dioxin-TEQ in effluent to support the development of a meaningful interim limitation in the future. This Order contains a compliance schedule based on the Basin Plan to allow time for the Discharger to comply with these effluent limits based on new interpretation of a narrative objective. These final effluent limits will become effective on XXXX, 2019. The Regional Water Board may amend these limits based on new information or a TMDL for dioxin-TEQ.

vi. *Antibacksliding*. Antibacksliding requirements are satisfied because the previous Order did not include an effluent limitation for dioxin-TEQ.

(5) Heptachlor

i. *Heptachlor WQC.* The most stringent applicable WQC for heptachlor is the CTR criterion for protection of human health of 0.00021 µg/L.

ii. *RPA Results.* This Order finds reasonable potential and thus establishes effluent limitations for heptachlor because the MEC (0.038 µg/L) exceeds the most stringent applicable criterion (0.00021 µg/L), demonstrating reasonable potential by Trigger 1.

iii. *Heptachlor WQBELs.* WQBELs for heptachlor, calculated according to SIP procedures, with a SIP default CV of 0.60, are an AMEL of 0.00021 µg/L and an MDEL of 0.00042 µg/L.

iv. *Immediate Compliance Feasible.* There are not enough heptachlor effluent data to perform a meaningful statistical analysis to determine compliance feasibility. Although the only detected value (0.038 µg/L) is above the AMEL of 0.00021 µg/L, the Discharger believes that it can comply with these WQBELs. The Discharger suspects the only detected concentration was a bad data or related to a dumping incident because heptachlor was banned for use in killing insects in homes, buildings, and on food crops in 1988. Its current use is limited to fire ant control in underground power transformers.

v. *Antibacksliding.* Antibacksliding requirements are satisfied because the previous Order did not include an effluent limit for heptachlor.

(6) Tributyltin

i. *Tributyltin WQC.* The Basin Plan contains a narrative WQO for toxicity which states "[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." This narrative WQO applies to tributyltin, an anti-fouling agent which is extremely toxic to aquatic organisms. USEPA has developed fresh- and salt- WQC for tributyltin by authority under Section 304(a) of the Clean Water Act, found at *Ambient Aquatic Life Water Quality criteria for Tributyltin (TBT) – Final* EPA-822-031, December 2003. The most stringent of these criteria are the chronic and acute criteria for saltwater, 0.0074 µg/L and 0.42 µg/L, respectively.

ii. *RPA Results.* This Order finds reasonable potential and thus establishes effluent limitations for tributyltin because the MEC (0.013 µg/L) exceeds the most stringent applicable criterion (0.0074 µg/L), demonstrating reasonable potential by Trigger 1.

iii. *Tributyltin WQBELs.* WQBELs for tributyltin, calculated according to SIP procedures, with a SIP default CV of 0.60, are an AMEL of 0.0061 µg/L and an MDEL of 0.012 µg/L.

iv. *Immediate Compliance Feasible.* The tributyltin effluent data contain too many non-detected values; therefore, it is not possible to perform a meaningful statistical analysis to determine compliance feasibility. Although the only detected value (0.013 µg/L) is above the AMEL of 0.0061 µg/L, the Discharger believes that it can comply with these WQBELs because of tributyltin's restricted use in California.

(e) *Antibacksliding.* Antibacksliding requirements are satisfied because the previous Order did not include an effluent limit for tributyltin.

(7) Total Ammonia

i. *Ammonia WQC.* The Basin Plan contains WQOs for un-ionized ammonia of 0.025 milligrams per liter (mg/L) as an annual median and 0.4 mg/L as a maximum for Lower San Francisco Bay. Regional Water Board staff translated these WQOs from un-ionized ammonia concentrations to equivalent total ammonia concentrations (as nitrogen) since (1) sampling and laboratory methods are not available to analyze for un-ionized ammonia; and (2) the fraction of total ammonia that exists in the toxic un-ionized form depends on the pH, salinity, and temperature of the receiving water. To translate the Basin Plan un-ionized ammonia objective, Regional Water Board staff used pH, salinity, and temperature data from 1994 through 2002 from the nearest RMP station to the outfall, the San Jose Slough station (C-3-0). Regional Water Board staff used the following equations to determine the fraction of total ammonia that would exist in the toxic un-ionized form in the estuarine receiving water. [*Ambient Water Quality Criteria for Ammonia* (saltwater) – 1989, EPA Publication 440/5-88-004, USEPA, 1989]:

$$\text{For salinity} > 10 \text{ ppt: fraction of } NH_3 = \frac{1}{1+10^{(pK-pH)}}$$

Where:

pK = 9.245 + 0.116*(I) + 0.0324*(298-T) + 0.0415*(P)/(T+273)
I = the molal ionic strength of saltwater = 19.9273*(S)/(1000-1.005109*S)
S = Salinity (parts per thousand)
T = temperature in degrees Celsius
P = Pressure (one atmosphere)

To convert the Basin Plan's chronic un-ionized ammonia WQO to an equivalent total ammonia concentration, the median un-ionized ammonia fraction at the San Jose Slough monitoring station was used. To convert the Basin Plan's acute un-ionized ammonia WQO to an equivalent total ammonia concentration, the 90th percentile un-ionized ammonia fraction at the San Jose Slough RMP station (C-3-0 and SB04) was used. Using the 90th percentile and median to express the acute and chronic un-ionized ammonia WQOs as equivalent total ammonia concentrations is consistent with USEPA guidance, as expressed by USEPA in The Metals Translator: Guidance for Calculating a Total Recoverable Limit from a Dissolved Criterion (EPA Publication Number 823-B-96-007, 1996). The equivalent total ammonia acute and chronic WQOs are 8.6 mg/L and 1.7 mg/L, respectively.

ii. *RPA Results.* Regional Water Board staff has determined that the discharge has a reasonable potential for ammonia by Trigger 3. The SIP allows reasonable potential to be determined on other information, such as facility type, lack of dilution, critical habitat, etc. The discharge is from a POTW, therefore, it may potentially contain ammonia above WQOs. San Francisco Bay south of the Dumbarton Bridge is a unique water body and critical habitat with a limited capacity to assimilate wastewater. Due to limited circulation, waste discharges to this area may take several months to reach the ocean. RMP data near the

discharge during 1993-2002 show that the dissolved oxygen in the receiving water consistently fell below the Basin Plan receiving water objective of 5.0 mg/L, which may have been due in part to BOD and ammonia from different sources, including this discharge. Therefore, there is reasonable potential for ammonia based on the above information.

iii. *WQBELs*. The Basin Plan (section 4.5.5.2) indicates that WQBELs for toxic pollutants shall be calculated according to the SIP. The Basin Plan (section 3.3.20) refers to ammonia as a toxic pollutant; therefore, it is consistent with the Basin Plan to use SIP methodology to determine and establish effluent limitations for ammonia. The total ammonia WQBELs, calculated according to SIP procedures (with an effluent CV of 0.52) are an AMEL of 1.9 mg/L and an MDEL of 4.4 mg/L. No dilution credit was used in the calculation. The Discharger, however, may perform a special study during the permit term to justify an appropriate dilution credit for total ammonia.

To calculate total ammonia effluent limits, some statistical adjustments were made because the Basin Plan's chronic WQO for un-ionized ammonia is based on an annual median, while chronic criteria are usually based on a 4-day average; also, the SIP assumes a monthly sampling frequency of 4 days per month to calculate effluent limitations based on chronic criteria. To use SIP methodology to calculate effluent limits for a Basin Plan objective that is based on an annual median, an averaging period of 365 days and a monitoring frequency of 30 days per month (the maximum daily sampling frequency in a month since the averaging period for a chronic criterion is longer than 30 days) were used. These statistical adjustments are supported by USEPA's *Water Quality Criteria; Notice of Availability; 1999 Update of Ambient Water Quality Criteria for Ammonia*; published on December 22, 1999, in the Federal Register.

iv. *Immediate Compliance Feasible*. Regional Water Board staff could not find a good statistical distribution fit to the ammonia data, but the MEC (0.9 mg/L) is lower than the AMEL of 1.9 mg/L. Therefore, immediate compliance with newly established final effluent limitations for ammonia is anticipated to be feasible.

v. *Antibacksliding.* Antibacksliding requirements are satisfied the effluent limitations in this Order are more stringent than the effluent limitations for ammonia established in the previous Order.

e. **Effluent Limit Calculations.** The following table shows the derivation of WQBELs for copper, nickel, cyanide, dioxin-TEQ, heptachlor, tributyltin, and total ammonia.

Table F-11. Effluent Limit Calculations

PRIORITY POLLUTANTS	Copper	Nickel	Cyanide	Dioxin TEQ	Heptachlor	Tributyltin	Total Ammonia (acute)	Total Ammonia (chronic)
Units	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**		**mg/L N**	**mg/L N**
Basis and Criteria type	Basin Plan SSOs	Basin Plan SSOs	Basin Plan SSOs	BP Narrative	CTR HH	Basin Plan narrative SW	Basin Plan Aquatic Life	Basin Plan Aquatic Life

PRIORITY POLLUTANTS	Copper	Nickel	Cyanide	Dioxin TEQ	Heptachlor	Tributyltin	Total Ammonia (acute)	Total Ammonia (chronic)
Criteria -Acute	10.8	62.4	9,4	-----	0.053	0.42	-----	-----
Criteria -Chronic	6.9	11.9	2.9	-----	0.0036	0.0074	-----	-----
Water Effects Ratio (WER)	1	1	1	1	1	1	1	1
Lowest WQO	6.9	11.9	2.9	1.4E-08	0.0036	0.0074	8.6	1.7
Site Specific Translator - MDEL	0.53	0.44	-----	-----	-----	-----	-----	-----
Site Specific Translator - AMEL	0.53	0.44	-----	-----	-----	-----	-----	-----
Dilution Factor (D) (if applicable)	0	0	2.0	0	0	0	0	0
No. of samples per month	4	4	4	4	4	4	4	30
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	N	Y	Y	Y	Y
HH criteria analysis required? (Y/N)	N	Y	Y	Y	Y	N	N	N
Applicable Acute WQO	20	142	9.4	-----	0.053	0.42	8.6	-----
Applicable Chronic WQO	13	27	2.9	-----	0.0036	0.0074	-----	1.7
HH criteria	-----	4,600	220000	1.4E-08	0.00021	-----	-----	-----
Background (Maximum Conc for Aquatic Life calc)	8.6	16	0.4	2.6E-07	0.000022	0.003	0.89	0.89
Background (Average Conc for Human Health calc)	-----	5.8	0.4	1.1E-07	0.0000061	-----	-----	-----
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg)	N	N	N	Y	N	N	N	N
ECA acute	20	142	27	-----	0.053	0.42	8.6	-----
ECA chronic	13	27	8	-----	0.0036	0.0074	-----	1.7
ECA HH	-----	4600	659999	1.4E-08	0.00021	-----	-----	-----
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	Y	Y	Y	N	N
Avg of effluent data points	3.1	6.4	2.8	-----	-----	-----	0.361	0.361
Std Dev of effluent data points	1.1	1.2	2.8	-----	-----	-----	0.188	0.188
CV calculated	0.37	0.19	1.00	N/A	N/A	N/A	0.52	0.52
CV (Selected) - Final	0.37	0.19	1.00	0.60	0.60	0.60	0.52	0.52
ECA acute mult99	0.46	0.66	0.20	-----	0.32	0.32	0.361	-----
ECA chronic mult99	0.66	0.81	0.37	-----	0.53	0.53	-----	0.939
LTA acute	9.4	93.6	5.6	-----	0.017	0.135	3.10	-----
LTA chronic	8.6	21.9	2.9	-----	0.0019	0.0039	-----	1.60
minimum of LTAs	8.6	21.9	2.9	-----	0.0019	0.0039	1.61	1.60
AMEL mult95	1.3	1.2	1.9	1.6	1.6	1.6	1.47	1.16
MDEL mult99	2.2	1.5	4.9	3.1	3.1	3.1	2.77	2.77
AMEL (aq life)	11.5	25.4	5.7	-----	0.0029	0.0061	2.37	1.86
MDEL(aq life)	18.6	33.1	14.4	-----	0.0059	0.0122	4.46	4.42
MDEL/AMEL Multiplier	1.62	1.30	2.52	2.01	2.0	2.0	1.9	2.38
AMEL (human hlth)	-----	4600	659999	1.4E-08	0.00021	-----	-----	-----
MDEL (human hlth)	-----	6000	1663604	2.8E-08	0.00042	-----	-----	-----
minimum of AMEL for Aq. life vs HH	11.5	25.38	5.73	1.4E-08	0.00021	0.00606	2.37	1.86
minimum of MDEL for Aq. Life vs HH	18.6	33.1	14.4	2.8E-08	0.00042	0.01216	4.46	4.42

PRIORITY POLLUTANTS	Copper	Nickel	Cyanide	Dioxin TEQ	Heptachlor	Tributyltin	Total Ammonia (acute)	Total Ammonia (chronic)
Current limit in permit (30-day average)	12	25	None	None	None	None	3	3
Current limit in permit (daily)	18	34	None	None	None	None	8	8
Final limit - AMEL	11	25	5.7	1.4E-08	0.00021	0.0061	-----	1.9
Final limit - MDEL	19	33	14	2.8E-08	0.00042	0.012	-----	4.4
Max Effl Conc (MEC)	9.5	12	31	1.7E-08	0.038	0.013	0.9	0.9

5. Whole Effluent Acute Toxicity

a. **Permit Requirements.** This Order includes effluent limits for whole-effluent acute toxicity that are based on Basin Plan Table 4-3 and are unchanged from the previous permit for Discharge Point 001. All bioassays are to be performed according to the USEPA approved method in 40 CFR 136, currently "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition."

b. **Compliance History.** The Discharger's acute toxicity monitoring data show that bioassay results from November 2003 – March 2008 ranged from 93.3% to 100.0% survival. There have been no acute toxicity effluent limit violations.

c. **Ammonia Toxicity.** If the Discharger can demonstrate to the satisfaction of the Executive Officer that toxicity exceeding the limits in this Order is caused by ammonia and that the ammonia in the discharge does not exceed the effluent limitations, then such toxicity does not constitute a violation of the effluent limitations for whole effluent toxicity. If ammonia toxicity is verified by a Toxicity Identification Evaluation (TIE), the Discharger may use an adjustment protocol approved by the Executive Officer for the routine bioassay testing.

6. Whole Effluent Chronic Toxicity

a. **Permit Requirements.** This Order includes requirements for chronic toxicity monitoring based on the Basin Plan narrative toxicity objective. This permit includes the Basin Plan narrative toxicity objective as a monitoring "trigger," which, when exceeded, initiates accelerated monitoring requirements, including in some circumstances a chronic toxicity reduction evaluation (TRE). These permit requirements for chronic toxicity are consistent with the CTR and SIP requirements.

b. **Chronic Toxicity Triggers.** This Order includes chronic toxicity triggers of 1.0 chronic toxicity unit (TUc) as a three sample median, and a single sample maximum of 2.0 TUc or greater. These triggers are based on Basin Plan Table 4-5.

c. **Monitoring History.** The Discharger's chronic toxicity monitoring data from November 2003 – March 2008 show that out of 71 chronic toxicity tests, only one chronic toxicity monitoring result exceeded the monitoring trigger, with a result of 2.4 TUc (May 2007). The chronic toxicity tests were conducted in duplicate by two contract laboratories; one

laboratory reported a chronic toxicity testing result of 2.4 TUc and the other reported a chronic toxicity testing result of <1.0 TUc. Chemical testing for priority pollutant organics and metals did not indicate any elevated concentration of concern, and repeated testing did not identify any further chronic toxicity.

d. **Screening Phase Study.** The Discharger is required to conduct a chronic toxicity screening phase study, as described in Appendix E-1 of the MRP (Attachment E), prior to the next permit issuance.

E. Interim Effluent Limitations

1. Feasibility Evaluation and Interim Effluent Limits

The Discharger submitted an Infeasibility Analysis on July 2, 2008, demonstrating that it cannot immediately comply with final WQBELs for dioxin-TEQ.

As stated in the previous findings in D.4.(d)(4), the Regional Water Board staff concurred with the Discharger's infeasibility assertion.

For dioxin-TEQ, because the previous permit did not include an effluent limitation for dioxin-TEQ and there is insufficient data to statistically determine a performance based interim limitation, no interim limit is proposed. Further, because the dioxin-TEQ limit implements the Basin Plan's narrative bioaccumulation WQO, it is not subject to the SIP's requirement for an interim limit. Instead, this Order requires further monitoring for dioxin-TEQ in effluent to support the development of a meaningful interim limitation. This monitoring requirement will remain in effect for ten years following the effective date of this Order or until the Regional Water Board adopts a limitation based on additional data.

2. SIP and Basin Plan Compliance Schedule Requirements

The SIP and the Basin Plan authorize compliance schedules in a permit if an existing discharger cannot immediately comply with new and more stringent objectives. Compliance schedules for limitations derived from CTR WQC are based on section 2.2 of the SIP, and compliance schedules for limitations derived from Basin Plan narrative objectives are based on the Basin Plan. Both the SIP and the Basin Plan require the discharger to demonstrate the infeasibility of achieving immediate compliance with the new limitation to qualify for a compliance schedule. The SIP and Basin Plan require the following documentation to be submitted to the Regional Water Board to justify a compliance schedule:

- Descriptions of diligent efforts the Discharger has made to quantify pollutant levels in the discharge, sources of the pollutant in the waste stream, and the results of those efforts.
- Descriptions of source control and/or pollutant minimization efforts currently under way or completed.
- A proposed schedule for additional or future source control measures, pollutant minimization, or waste treatment.
- A demonstration that the proposed schedule is as short as practicable.

The State Water Board adopted Resolution No. 2008-0025 on April 15, 2008, which includes compliance schedule policies for pollutants that are not addressed by the SIP. This Policy will become effective after the USEPA and OAL's approval. At that time, this Policy will supercede the Basin Plan's compliance policy. While this Policy is not yet effective, this Order grants a compliance schedule for dioxin-TEQ in a manner that is consistent with the policy.

3. Compliance Schedule for Dioxin-TEQ

The compliance schedules and the requirements to submit reports on further measures to reduce concentrations to ensure compliance with final limits are based on the Basin Plan section 4.7.6 for dioxin-TEQ. As previously described, the Discharger submitted an Infeasibility Report, and the Regional Water Board staff confirmed their assertions. Based on this, a compliance schedule is appropriate for dioxin-TEQ because the Discharger has made good faith and reasonable efforts towards characterizing the sources. However, time to allow additional efforts is necessary to achieve compliance.

Maximum allowable compliance schedules are granted to the Discharger for these pollutants because of the considerable uncertainty in determining effective measures (e.g., pollution prevention, treatment upgrades) that should be implemented to ensure compliance with final limits. It is appropriate to allow the Discharger sufficient time to first explore source control measures before requiring it to propose further actions, such as treatment plant upgrades, that are likely to be much more costly. This approach is supported by the Basin Plan section 4.13, which states; "In general, it is often more economical to reduce overall pollutant loadings into the treatment systems than to install complex and expensive technology at the plant."

Dioxin-TEQ WQBELs are based on Basin Plan narrative objectives for bioaccumulation; therefore, the discharge qualifies for a 10-year compliance schedule from the date this Order becomes effective, which is XXXX, 2019. This Basin Plan compliance schedule policy is consistent with the State Water Board's new compliance schedule policy as described above except that an interim limit is not included in this Order. Finally, because of the ubiquitous nature of the sources of dioxin-TEQ, this provision allows the Discharger to address compliance with calculated WQBELs through other strategies such as mass offsets.

F. Land Discharge Specifications

Not Applicable.

G. Reclamation Specifications

Water reclamation requirements for this Discharger are established by Regional Water Board Order No. 95-117.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. Receiving Water Limitations V.A.1 and V.A.2 are based on the narrative and numeric objectives contained in Chapter 3 of the Basin Plan. The receiving water limits for total ammonia are no longer required because there are effluent limits to ensure compliance with the receiving water limits.

2. Receiving Water Limitations V.A.3 is in the previous permit, requires compliance with Federal and state law, and is self-explanatory.

B. Groundwater

Not applicable.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The MRP, **Attachment E**, establishes monitoring and reporting requirements to implement federal and state requirements.

The principal purposes of a MRP are to:

- Document compliance with waste discharge requirements and prohibitions established by the Regional Water Board,

- Facilitate self-policing by the Discharger in the prevention and abatement of pollution arising from waste discharge,

- Develop or assist in the development of limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and to

- Prepare water and wastewater quality inventories.

The MRP is a standard requirement in almost all NPDES permits issued by the Regional Water Board, including this Order. It contains definitions of terms, specifies general sampling and analytical protocols, and sets out requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the CWC, and the Regional Water Board's policies. The MRP also defines sampling stations and monitoring frequencies, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs.

The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this Facility.

A. Influent Monitoring

Influent monitoring requirements for flow, $CBOD_5$ and TSS are not changed from the previous permit and allow determination of compliance with this Order's 85 percent removal requirement. Influent monitoring for cyanide is required under the Basin Plan cyanide SSOs. However, the requirement is not new because the Discharger has been sampling cyanide according to its pretreatment requirements**.**

B. Effluent Monitoring

The MRP retains most effluent monitoring requirements from the previous permit. Changes in effluent monitoring are summarized as follows.

Monitoring for settleable matter is no longer required, as this Order does not retain the effluent limitation for this parameter.

Routine effluent monitoring is required for copper, nickel, cyanide, dioxin-TEQ, heptachlor, tributyltin, and total ammonia because this Order establishes effluent limitations for these pollutants. Monitoring for all other priority toxic pollutants must be conducted in accordance with frequency and methods described in the Regional Water Board's August 6, 2001, Letter for major dischargers.

Semiannual monitoring for benzo(b)flouranthene, indeno(1,2,3-cd)pyrene, aldrin, 4,4'-DDE, heptachlor epoxide, and dieldrin is no longer required because these pollutants no longer demonstrate reasonable potential.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Monthly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Chronic toxicity testing is required monthly in order to demonstrate compliance with the Basin Plan's narrative toxicity objective. The Discharger conducted an effluent toxicity screening study prior to the expiration of the previous permit, which indicated *Ceriodaphnia dubia* is the most sensitive species for chronic toxicity testing. The Discharger shall re-screen during the anticipated term of this Order.

D. Receiving Water Monitoring

On April 15, 1992, the Regional Water Board adopted Resolution No. 92-043 directing the Executive Officer to implement the RMP for the San Francisco Bay. Subsequent to a public hearing and various meetings, Regional Water Board staff requested major permit holders in this Region, under authority of section 13267 of CWC, to report on the water quality of the estuary. These permit holders responded to this request by participating in a collaborative effort, through the San Francisco Estuary Institute. This effort has come to be known as the San Francisco Bay RMP for Trace Substances. This Order specifies that the Discharger shall continue to participate in the RMP, which involves collection of data on pollutants and toxicity in water, sediment, and biota of the estuary.

E. Other Monitoring Requirements

1. **Pretreatment Requirements.** Pretreatment monitoring requirements for the influent, effluent, and biosolids are retained from the previous permit, and are required to assess compliance with the Discharger's USEPA approved pretreatment program.

2. **Sludge Monitoring.** Sludge monitoring is required pursuant to 40 CFR Part 503.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions (Provision VI.A)

Standard Provisions, which, in accordance with 40 CFR 122.41and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachments D and G to this Order. The Discharger must comply with all standard provisions and with those additional conditions that apply under 40 CFR 122.42.

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 122.41(j)(5) and (k)(2) because the enforcement authority under CWC is more stringent. In lieu of these conditions, this Order incorporates by reference CWC section 13387(e).

B. Monitoring and Reporting Requirements (Provision VI.B)

The Discharger is required to monitor the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are contained in the MRP (Attachment E), the Regional Water Board Standard Provisions, and SMP Part A (Attachment G) of this Order. This provision requires compliance with these documents and is based on 40 CFR 122.63.

C. Special Provisions (Provision VI.C)

1. Reopener Provisions

These provisions are based on 40 CFR 123 and allow modification of this Order and its effluent limitations, as necessary, to respond to updated information.

2. Special Studies and Additional Monitoring Requirements

a. **Effluent Characterization Study.** This Order does not include effluent limitations for priority pollutants that do not demonstrate Reasonable Potential, but this provision requires the Discharger to continue monitoring for these pollutants as described in the August 6, 2001, Letter and as specified in the MRP. 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

reasonable potential to cause or contribute to an excursion above the applicable WQC. This provision is based on the SIP and is retained from the previous Order.

b. **Ambient Background Receiving Water Study.** This provision is based on the Basin Plan, the SIP, and the August 6, 2001, Letter for priority pollutant monitoring. As indicated in this Order, this requirement may be met by participating in the collaborative BACWA study. This provision is retained from the previous Order.

c. **Avian Botulism Control Program.** This provision is retained from the previous Order. The requirement to monitor nearby sloughs for the presence of avian botulism and to control any outbreaks is based on State Water Board Order No. WQ 90-5. In that Order, the State Water Board found that discharges of wastewater promote conditions in the receiving waters conducive to fostering avian botulism. Exceptions to the Basin Plan discharge prohibitions granted to the Discharger are conditioned, in part, upon continued efforts by the Discharger to control avian botulism. The Discharger's previous studies indicated that there were no cases avian botulism in the vicinity of the discharge areas.

d. **Salt Marsh Vegetative Assessment.** The provision to continue to document changes in marsh habitat is retained from the previous Order and is based on State Water Board Order No. WQ 90-5. That Order requires the Regional Water Board to evaluate the impacts of the Discharger's effluent on the potential conversion of salt marsh habitat to fresh water or brackish habitat when issuing or re-issuing permits to the Discharger. Order No. WQ 90-5 also requires the Discharger to submit a plan of study prior to conducting each salt marsh vegetative assessment, and it requires the Discharger to provide for the creation or restoration of 380 acres of wetlands.

Salt marsh was historically the predominant marsh type in South San Francisco Bay and important habitat for a number of rare and endangered species, particularly the salt marsh harvest mouse and the California clapper rail. Regional Water Board Order No. 93-117 (which re-issued NPDES WDRs) required the Discharger to either acquire or make funds available to acquire 380 acres of land for mitigation by June 30, 2004, and to establish a salt marsh bank containing sufficient acreage to mitigate any potential future conversion of salt marsh due to future discharge. The Regional Water Board, by Resolution 96-152, and the State Water Board, by letter dated October 10, 1996, accepted a salt marsh mitigation proposal for Moseley and Baumberg Tracts, which would provide for 380 acres of mitigated land and 10 acres of bank to satisfy the requirements of Order No. 93-117.

By 2004, the Discharger had been unable to restore the Moseley Tract, and in an alternate agreement, contributed to the Peninsula Open Space Trust to assist in restoration of Bair Island. This action satisfied the wetland mitigation requirements of Order No. 93-117. The Discharger also purchased salt pond A18 from Cargill in 2005 for future marsh mitigation projects.

Regional Water Board Order No. 98-052, which again re-issued NPDES WDRs, required the Discharger to submit a plan for mitigation of wetland losses not previously covered. To satisfy this requirement, the Discharger contributed to the purchase of Bair Island.

In issuing the previous Order, the Regional Water Board determined that no salt marsh conversions occurred during the period of 1998 – 2002. The Discharger's most recent salt marsh vegetative assessment (2007) indicates that, since the previous assessment, a large scale conversion of brackish marsh to salt marsh occurred across the Main Study Area, and also in the study Reference Area. The assessment indicated that this favorable conversion was related to a number of factors, but was unrelated to the discharge from the plant. Factors included low wet season rains, increased tidal prism related to passive restoration of nearby island salt ponds, and low mean sea level.

e. **California Clapper Rail and Salt Marsh Harvest Mouse Surveys.** This provision is retained from the previous Order and arises from the requirements of State Water Board Order No. WQ 90-5 regarding the restoration of salt marsh habitat. The surveys provide information regarding the populations of California clapper rail and salt marsh harvest mouse, two species listed as endangered or threatened under the federal Endangered Species Act. Results of the synoptic survey conducted in 2006 indicate changes in the distribution of California clapper rail populations from previous studies conducted in 1989 and 1990. The proportion of California clapper rail detected at one transect significantly increased from that of the previous study (1990), while populations previously detected at three other locations were not detected during the 2006 study. The study suggests that increases in avian predators and changes in habitat quality in the sixteen years since the previous study may be factors influencing the relative distribution of the California clapper rail.

The salt marsh harvest mouse survey used a trapping method at three locations to indicate population densities. The number of the salt marsh harvest mouse trapped during the 2006 survey did not significantly differ from the number trapped in the 1990 survey, despite significant changes in vegetation in the marshes in the intervening 16 years. A portion of the study was conducted during high tide and indicated that the salt marsh harvest mouse preferentially utilizes alkali bulrush to a greater extent than previously thought during high tides.

f. **Optional Mass Offset Plan.** This option is provided to encourage the Discharger to further implement aggressive reduction of mass loadings of pollutants to South San Francisco Bay. If the Discharger wishes to pursue a mass offset program, it must submit a mass offset plan for reducing 303(d) listed pollutants to the same receiving water body for Regional Water Board approval. The Regional Water Board will consider any proposed mass offset plan and amend this Order accordingly.

g. **Optional Near-Field Site Specific Translator (SSTs) Study.** This provision is newly established by this Order. SSTs were calculated for this Order for zinc, lead, and chromium (VI), using data collected from the Dumbarton Bridge RMP station. USEPA guidance for developing SSTs requires that SSTs be developed using data collected at near-field stations. The Discharger has the option to conduct a receiving water study to develop a data set for dissolved and total zinc, chromium (VI), and lead concentrations in the receiving water in the vicinity of the discharge for SST development in future permit reissuances.

3. Best Management Practices and Pollution Minimization Program

This provision for a Pollutant Minimization Program is based on Chapter 4 (section 4.13.2) of the Basin Plan and Chapter 2 (section 2.4.5) of the SIP.

4. Construction, Operation, and Maintenance Specifications

a. **Wastewater Facilities, Review and Evaluation, and Status Reports.** This provision is based on the Basin Plan and is retained from the previous Order.

b. **Operations and Maintenance Manual, Review and Status Reports.** This provision is based on the Basin Plan, the requirements of 40 CFR 122 and is retained from the previous Order.

c. **Reliability Report.** This provision is retained from the previous Order and is required as part of reviewing requests for exceptions to the Basin Plan discharge prohibitions.

d. **Contingency Plan, Review and Status Reports.** This provision is based Regional Water Board Resolution 74-10 and is retained from the previous Order.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Pretreatment Program**. This provision is based on 40 CFR Part 403 (General Pretreatment Regulations for Existing and New Sources of Pollution) and is retained from the previous Order.

b. **Sludge Management Practices Requirements.** This provision is based on the Basin Plan (Chapter 4) and 40 CFR Parts 257 and 503 and is retained from the previous Order.

c. **Sanitary Sewer Overflows and Sewer System Management Plan.** This provision is to explain the Order's requirements as they relate to the Discharger's collection system, and to promote consistency with the State Water Board adopted General Collection System WDRs (General Order, Order No. 2006-0003-DWQ).

The General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows, among other requirements and prohibitions.

Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. Inasmuch that the Discharger's collection system is part of the system that is subject to this Order, certain standard provisions are applicable as specified in Provisions, section VI.C.5. For instance, the 24-hour reporting requirements in this Order are not included in the General Order. The Discharger must comply with both the General Order and this Order. The Discharger and public agencies that are discharging wastewater into the facility were required to obtain enrollment for regulation under the General Order by December 1, 2006.

The State Water Board amended the General Order on February 20, 2008 in Order No. WQ 2008-0002-EXEC, to strengthen the notification and reporting requirements for sanitary sewer overflows. The Regional Water Board issued a 13267 letter on May 1, 2008, requiring dischargers to comply with the new notification requirements for sanitary sewer overflows, and to comply with similar notification and reporting requirements for spills from wastewater treatment facilities.

6. Other Special Provisions

a. **South Bay Action Plan (SBAP).** This provision is retained from the previous Order and is based on Regional Water Board Resolution No. 91-152. In State Water Board Order No. WQ 90-5, the State Water Board ordered that a condition be added to the San Jose/Santa Clara permit limiting effluent flows discharged to South San Francisco Bay to an average dry weather flow of not more than 120 MGD, or to those flows which would not further adversely impact rare and endangered species. On March 6, 1991, the San Jose/Santa Clara WPCP submitted an "Action Plan" with a request that the Action Plan be accepted by the Regional Water Board as a fulfillment of this State Water Board requirement. In Resolution No. 91-152, the Regional Water Board stated that the Action Plan, revised as of September 30, 1991, fulfilled the intent of the State Water Board Order No. WQ 90-5, but also stated the Regional Water Board would conduct a hearing to consider adopting a 120 MGD average dry weather effluent flow (ADWEF) discharge limitation if the ADWEF exceeds 120 MGD, or if delays occur in completing and implementing reclamation projects. The State Water Board concurred with this resolution by letter dated November 26, 1991.

In 1996, an ADWEF of 136 MGD triggered the requirement in Resolution No. 91-152 for the Regional Water Board to conduct a hearing, and led to adoption of Regional Water Board Order No. 97-111. This Order required the Discharger to propose an alternate solution to limiting effluent flows to below 120 MGD by June 1997. The Discharger responded by submitting a South Bay Action Plan (SBAP) to the Regional Water Board, which proposed near- and long-term solutions to reduce effluent flow. Proposed projects included public education for water conservation and on-site reuse; indoor water conservation; water recycling; industrial water recycling; and environmental enhancement projects.

The requirement to continue updating and implementing a South Bay Action Plan is necessary for compliance with Regional Water Board Resolution No. 91-152. During the term of Order No. R2-2003-0085, the Discharger consistently maintained an ADWEF below 120 MGD. The ADWEFs in 2004 through 2007 were 97.5, 100.0, 102.2, and 95.9 MGD, respectively. The Discharger utilizes a mathematical model for facility inflows and effluent flows, which considers changes in residential population, employment, and ongoing flow reduction programs. The most recent update of the City's flow model indicates that the dry weather effluent flow will rise at a rate of 1 percent or less per year, but will remain below 120 MGD throughout the anticipated term of this Order. This Order continues the requirement of a South Bay Action Plan in lieu of an effluent flow limitation of 120 MGD; and it continues the requirement to maintain a Contingency Plan within the SBAP in the event ADWEF flows increase above 120 MGD.

This Order also requires the Discharger to continue its efforts in industrial recycle and reuse and continue to implement new industry requirements as required by the SBAP. These requirements are retained from the previous Order.

b. **Action Plan for Cyanide.** This provision is based on the Basin Plan Amendment that establishes SSOs for cyanide for San Francisco Bay (Regional Water Board Resolution R2-2006-0086). The cyanide SSO Basin Plan amendment also requires an action plan for source control to ensure compliance with State and federal antidegradation policies. Additionally, because a dilution credit has been granted in establishing effluent limitations for cyanide, source control efforts are necessary for the continued exception to the Basin Plan prohibition regarding shallow water dischargers. The Discharger will need to comply with this provision upon the effective date of the permit.

c. **Action Plan for Copper.** This provision is based on the proposed Basin Plan Amendment that will adopt the SSOs for copper for San Francisco Bay (Resolution No. R2-2007-0042). South San Francisco Bay was listed in 1998 on the 303(d) impaired water body list as impaired by copper. Subsequent studies concluded that impairment of beneficial uses of the Lower South Bay due to ambient copper concentrations was unlikely. The Regional Water Board previously adopted a Basin Plan amendment that included copper SSOs and a Water Quality Attainment Strategy (WQAS) for copper in Lower South San Francisco Bay. Its purpose was to prevent water quality degradation and ensure ongoing maintenance of the SSOs. The four elements of the WQAS were: (1) measures to minimize copper and nickel releases to Lower South San Francisco Bay (baseline actions); (2) a receiving water monitoring program with statistically based water quality triggers for additional control measures if the triggers are exceeded; (3) a proactive framework for addressing increases to future copper and nickel concentrations in Lower South Bay, if they should occur; (4) and metal translators for calculating copper and nickel effluent limitations for the Lower South Bay municipal wastewater treatment plant dischargers. The previous Order required the Discharger to implement a Watershed Management Initiatives to comply with these Basin Plan requirements. Recently, the Regional Water Board and State Water Board approved another Basin Plan amendment (Resolution No. R2-2007-0042) that updated these requirements for South San Francisco Bay dischargers, which includes a copper action plan that applies to all San Francisco Bay dischargers and which is the basis of this provision. The Discharger will need to comply with this provision upon the effective date of this Order.

d. **Compliance Schedule for Dioxin-TEQ.** This provision is based on Basin Plan (Compliance Schedules), 40 CFR 122.47(a)(3), and SIP 2.2.1. Maximum compliance schedules are allowed because of the considerable uncertainty in determining effective measures (e.g., pollution prevention, treatment upgrades) that should be implemented to ensure compliance with final limits. It is appropriate to allow the Discharger sufficient time to first explore source control measures before requiring it to propose further actions, such as treatment plant upgrades, that are likely to be much more costly. This approach is supported by the Basin Plan (section 4.13), which states, "In general, it is often more economical to reduce overall pollutant loading into treatment systems than to install complex and expensive technology at the plant

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, the San Francisco Bay Regional Water Board, is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for Cities of San Jose and Santa Clara WPCP. As a step in the WDRs adoption process, Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Dischargers and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the following <Describe Notification Process (e.g., newspaper name and date)>

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order, Attention: Tong Yin.

To receive full consideration and a response from Regional Water Board staff, written comments should be received at the Regional Water Board offices by 5:00 p.m. on _____, 2008.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: _____, 2008

Time: _____

Location: Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612

Contact: Tong Yin, (510) 622-2418, email tyin@waterboards.ca.gov

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is http://www.waterboards.ca.gov/sanfranciscobay where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge (ROWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., except from noon to 1:00 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling 510-622-2300.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Tong Yin at 510-622-2418 (e-mail at TYin@waterboards.ca.gov).

ATTACHMENT H

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 Regional Water 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 Water Board and the Regional Water 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 Water Board and the Regional Water Board describing the status of its significant industrial users (SIUs). The report shall contain, but is not 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 Water 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 H-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 Water 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 Water 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 U.S. EPA, the State Water Board and the Regional Water 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 H-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 Regional Water 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 Water Board letter, Official Implementation of Electronic Reporting System (ERS). The Discharger shall contact the Regional Water 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 U.S. EPA, the State Water Resources Control Board and the Regional Water 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 H-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 E-5 of the Monitoring and Reporting Program (MRP).

The monitoring and reporting requirements of the POTW's Pretreatment Program are in addition to those specified in Tables E-3 and E-4 of the MRP. Any subsequent modifications of the requirements specified in Tables E-3 and E-4 shall be adhered to and shall not affect the requirements described in this Appendix unless written notice from the Regional Water 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 Tables E-3 and E-4 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 E-1 of the MRP. Any test method substitutions must have received prior written Regional Water Board approval. Influent and effluent sampling locations shall be the same as those sites specified in the MRP.

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 Water 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 Water 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 Water 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 Water 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 I – ACTIONS TO MEET THE REQUIREMENTS OF STATE WATER BOARD ORDER NO. WQ 90-5

In response to the State Water Board's Water Quality Control Policy for the Enclosed Bays and Estuaries of California (the Bays and Estuaries Policy, adopted in May 1974), which includes a general prohibition against the discharge of municipal and industrial wastewaters to enclosed bays and estuaries, the Regional Water Board has included the following discharge prohibitions in Table 4-1 of the Basin Plan.

> It shall be prohibited to discharge any wastewater which has particular characteristics of concern to beneficial uses at any point at which the wastewater does not receive a minimal initial dilution of at least 10:1, or into any non-tidal water, dead-end slough, similar confined waters, or any immediate tributaries thereof.
>
> It shall be prohibited to discharge any wastewater which has particular characteristics of concern to San Francisco Bay south of the Dumbarton Bridge.

Due to locations south of the Dumbarton Bridge and discharges to receiving waters where 10:1 minimum initial dilution is not achieved, these prohibitions essentially preclude discharges of treated wastewater from the wastewater treatment plants of San Jose/Santa Clara, Palo Alto, and Sunnyvale. In 1973, these dischargers formed the South Bay Dischargers Authority to address the possibility of relocating their outfalls to a location north of the Dumbarton Bridge, and gave attention to an exception to the discharge prohibitions allowed by the Basin Plan, and consistent with the *Bays and Estuaries Policy*, when a net environmental benefit is realized as a result of the discharge. Based on results of studies conducted between1981 through 1986 showing net environmental benefit, in 1987, with applications for reissuance of their discharge permits, the three South Bay dischargers petitioned the Regional Water Board for exceptions to the discharge prohibitions.

In the same time period that the South Bay dischargers were addressing the discharge prohibitions, the Regional Water Board was establishing water quality objectives for many toxic pollutants in San Francisco Bay. An amendment of the Basin Plan in 1986 established several such water quality objectives, which corresponded to then current EPA recommended water quality criteria. Due to the unique hydrodynamic environment of South San Francisco Bay and implications of non-point pollution sources, however, the 1986 Basin Plan amendment exempted South San Francisco Bay from the newly adopted water quality objectives and required development of site-specific water quality objectives.

In reissuing permits to Sunnyvale (Order No. 88-176) and Palo Alto (Order No. 88-175) in 1988, the Regional Water Board found that discharges from these wastewater treatment facilities would provide a net environmental benefit and water quality enhancement. Exceptions to the Basin Plan discharge prohibitions were therefore granted provided that the dischargers conduct several studies, addressing salt marsh conversion, development of site-specific water quality objectives and effluent limitations for metals, ammonia removal, and avian botulism control. The Regional Water Board found that discharges from the San Jose/Santa Clara WPCF did not provide a net environmental benefit and water quality enhancement, and in particular cited the conversion, caused by the discharge, of extensive salt marsh habitat to brackish and freshwater marsh. The Regional Water Board concluded, however, that a finding of "net environmental benefit" could be made if the Discharger provided mitigation for the loss of salt marsh habitat; and if such mitigation was accomplished, then an exception, like that granted to Sunnyvale and Palo Alto, would be appropriate. On January 18, 1989, a Cease and Desist Order (Order No. 89-013), establishing a time schedule for either compliance with the Basin Plan prohibitions or

mitigation for the loss of salt marsh habitat, was adopted concurrently with the reissued discharge permit (Order No. 89-012) for the San Jose/Santa Clara facility.

In addition to addressing the exceptions to the Basin Plan's discharge prohibitions, the three reissued permits established a process to develop site-specific water quality objectives and effluent limitations for metals. Interim limitations, based on objectives in the 1982 Basin Plan, were established and were to be replaced by performance based interim limitations after one year. Ultimately, final effluent limitations would be established based on objectives from the 1986 Basin Plan or based on site-specific studies, which were mandated by the permits.

Responding to objections from environmental groups regarding the resissued permits for the three South Bay dischargers, on October 4, 1990, the State Water Board adopted Order No. WQ 90-5 to address three issues: (a) the conditional exceptions granted to Sunnyvale and Palo Alto and denied to San Jose/Santa Clara regarding the Basin Plan discharge prohibitions, (b) regulation of toxic pollutants, and (c) mitigation for the loss of salt marsh habitat.

As described by Order No. WQ 90-5, the State Water Board concluded that all three South Bay dischargers had failed to demonstrate that exceptions to the Basin Plan discharge prohibitions should be granted on the basis of net environmental benefit. The State Water Board explained that impacts of nutrient loading in South San Francisco Bay remained unresolved, that avian botulism was negatively impacting wildlife and estuarine habitat, and that discharges of metals were contributing or threatening to contribute to impairment of San Francisco Bay. In addition, discharges from the San Jose/Santa Clara facility, specifically, had a substantial adverse impact on rare and endangered species resulting from the loss of salt marsh habitat.

Through Order No. WQ 90-5, the State Water Board did acknowledge that relocation of the discharges to a location north of the Dumbarton Bridge was not an economically or environmentally sound solution to the issues associated with the South Bay discharges; although if the discharges were, in fact, located north of the Dumbarton Bridge, they would need to comply with water quality objectives for toxic pollutants, which were incorporated into the Basin Plan in 1986. The State Water Board "strongly encouraged" the Regional Water Board and the South Bay Dischargers Authority to pursue wastewater reclamation projections as a means to reduce discharges to San Francisco Bay, and it also concluded that exceptions to the Basin Plan discharge prohibitions could be granted on the basis of "equivalent protection" (i.e., protection equivalent to relocating the discharges to a location north of the Dumbarton Bridge), provided that certain conditions were met. In Order No. WQ 90-5, the State Water Board stated that exceptions to the Basin Plan discharge prohibitions could be granted in the South Bay permits, on the basis of "equivalent protection," (a) if the discharge permits include numeric, water quality based limitations for toxic pollutants; (b) if the dischargers continue efforts to control avian botulism; and (c) if the dischargers properly protect rare and endangered species by limiting flows discharged to San Francisco Bay to not more than 120 MGD (average dry weather flow) or to flows which would not further adversely impact rare or endangered species, and by providing for the creation or restoration of 380 acres of wetlands.

The following text briefly describes, chronologically, actions taken by the State and Regional Water Boards and the Cities of San Jose and Santa Clara shortly before and after adoption of State Water Board Order No. WQ 90-05. This summary also clarifies the origin of some provisions that appear in this Order.

Regional Water Board Order No. 90-033 (February 21, 1990) amended Order No. 89-012.

- Established interim performance based limits, at the 95 percent confidence level, for As, Cd, Cr+6, Cu, Pb, Hg, Ni, Ag, Zn, CN, phenolic compounds, PAHs, and Se. Interim limits were to remain effective while SSOs were being developed, and site-specific limits had to be in place by December 31, 1991. [Basin Plan had not established WQ objectives for metals in South San Francisco Bay, and the Discharger was obligated to assist in gathering data for development of SSOs and effluent limitations.]

- Interim mass based limits were established for the same pollutants to maintain ambient conditions in South San Francisco Bay until SSOs and site-specific limits were in place by December 31, 1991. [Interim limits were needed for metals because of the lack of assimilative capacity in San Francisco Bay, although loadings of metals to San Francisco Bay had diminished since 1975.]

Regional Water Board Order No. 90-054 (April 18, 1990) amended Cease and Desist Order No. 89-013.

- Previous work did not support a finding of "net environmental benefit," and the Discharger's request for exceptions to the Basin plan prohibitions must be denied because the discharge adversely affects rare/endangered species habitat, a designated use in South San Francisco Bay.

Regional Water Board Order No. 90-068 (May 16, 1990) amended Order No. 89-012.

- By August 1, 1991, required implementation of additional source control measures to reduce toxic pollutants in influent wastewater

- By December 1, 1990 required submittal of an interim report regarding progress of implementing additional source control measures.

State Water Board Order No. WQ 90-05 was adopted on October 4, 1990.

Regional Water Board Resolution No. 91-152 (1991).

- The Regional Water Board found that the San Jose Action Plan, completed by the Discharger on September 30, 1991, fulfilled the intent of the State Water Board Order No. 90-5 requirement to limit flows from the San Jose/Santa Clara WPCF to a level that will prevent any further loss or degradation of endangered species habitat.

  The Regional Water Board also stated that it will hold a hearing to consider a 120 MGD flow cap, if delays occur that threaten timely completion or implementation of reclamation projects or if flows exceed 120 MGD (average dry weather effluent flow – ADWEF) [In 1996, the ADWEF was 132 MGD, and on December 18, 1996, the Regional Water Board held a public hearing and directed the Discharger to propose an alternative to amending its NPDES permit to include a flow limit of 120 MGD. The Discharger submitted another revision to the San Jose Action Plan (May 28, 1997, then described as the "South Bay Action Plan"), and the Regional Water Board included tasks described by the Action Plan in Order No. 97-111, which amended Order No. 93-117.]

- By letter, dated November 26, 1991, the State Water Board concurred that Resolution No. 91-152 was consistent with the requirements of Order No. WQ 90-5.

Regional Water Board Order No. 91-066 (April 17, 1991) amended Order No. 89-012 to comply with State Water Board Order No. 90-5.

- Previous work did not support a finding of "net environmental benefit" and "water quality enhancement." Exceptions to the Basin Plan prohibitions could be granted, however, based on "equivalent protection," if certain conditions can be satisfied: (1) WQBELs for toxic pollutants must be included in the facility's discharge permit, (2) the discharge permit must include mass limits for toxic pollutants, (3) the avian botulism control program must be continued, and (4) the Discharger must mitigate for the loss of 380 acres of endangered species (salt marsh) habitat.

- The permit was amended to state that "water quality objectives for South San Francisco Bay exist, and are appropriate to use when developing water quality based effluent limitations. The Discharger is currently conducting studies which may lead to development of SSOs for copper, lead, mercury, and nickel. Those proposed objectives, and any subsequent changes in effluent limitations, will be considered at the next permit reissuance. Effluent limitations for arsenic, cadmium, chromium, silver, zinc, and selenium that are contained in this Order and will likely not be revised at the next permit reissuance." Order No. 91-066 states that "[o]n April 11, 1991, the State Board adopted water quality objectives for the State in its Bays and Estuaries Plan. Those objectives are applicable to San Francisco Bay below Dumbarton Bridge." [Note that the State Water Board's Bays and Estuaries Plan, as well as an Inland Surface Waters Plan, which was also adopted in 1991, were rescinded in 1994.]

- Order No. 91-066 established new, interim, concentration based limits for As, Cd, Cr+6, Cu, Pb, Hg, Ni, Ag, Zn, and Se; and new, interim, mass-based limitations for As, Cd, Cr+6, Cu, Pb, Hg, Ni, Ag, Zn, Se, CN, phenols, and PAHs.

Regional Water Board Order No. 93-117 (October 20, 1993) reissued NPDES/Waste Discharge Requirements for the Cities of San Jose and Santa Clara.

- Consistent with the requirements of State Water Board Order No. 90-5, this Order contained water quality based effluent limits for toxics, mass loadings limits for metals, and a requirement to continue avian botulism control efforts.

- Conditional exceptions to the Basin Plan discharge prohibitions were granted by the Order provided that the Discharger complies with the avian botulism control requirements and the San Jose Action Plan (September 30, 1991), prepared by the Discharger and accepted by the Regional Water Board in Resolution No. 91-152. The Action Plan required implementation of a water conservation and reclamation program in lieu of a 120 MGD average dry weather effluent flow (ADWEF) cap and mitigation for the loss and degradation of endangered species habitat.

- Order No. 93-117 rescinded Cease and Desist Order No. 89-013 (January 18, 1989), which addressed mitigation requirements for salt marsh conversion. Cease and Desist Order No. 89-013 had been modified by Order No. 89-140 (August 16, 1989), Order No. 89-188 (December 13, 1989), and Order No. 90-054 (April 18, 1990). Order No. 93-117 incorporated updated tasks concerning salt marsh conversion.

Regional Water Board Cease and Desist Order No. 93-118 (October 20, 1993).

- The Cease and Desist Order addressed significant violations of effluent limitations established by Order No. 93-117 for copper, nickel, silver, and cyanide and included compliance schedules to come into full compliance with the requirements of Order No. 93-118.

Regional Water Board Order No. 97-111 (September 17, 1997) amended certain provisions of Order No. 93-117 regarding wetlands mitigation and wastewater reclamation.

- Resolution No. 91-152 had required the Regional Water Board to hold a hearing to consider a 120 MGD flow cap, if delays occurred, threatening timely completion or implementation of reclamation projects, or if flows exceeded 120 MGD (average dry weather effluent flow – ADWEF). In 1996, the ADWEF was 132 MGD, and on December 18, 1996, the Regional Water Board held a public hearing and directed the Discharger to propose an alternative to amending its NPDES permit to include a flow limit of 120 MGD. The Discharger submitted another revision to the San Jose Action Plan on May 28, 1997 (then referred to as the South Bay Action Plan); and Order No. 97-111 included tasks described by that revision to amend Order No. 93-117.

Regional Water Board Order No. 98-052 (June 17, 1998) reissued NPDES/Waste Discharge Requirements for the Cities of San Jose and Santa Clara.

- Effluent limitations for copper and nickel were based on (then) current performance of the treatment plant to ensure that ambient conditions in South San Francisco Bay would be maintained. These limitations reflected the 99.7th percentile of plant performance from 1995 through 1997. For all other toxic pollutants with limitations established by the Order, limitations were based on the 1995 Basin Plan or USEPA criteria (tributyltin and mercury).

- Continued exceptions to the Basin Plan discharge prohibitions were granted, as "effluent limitations which are substantially equivalent to the effluent limitations contained in the Discharger's October 20, 1993 NPDES permit," and requirements to continue efforts to control avian botulism are retained, and "the Discharger has implemented a reclamation program."

- The Regional Water Board expected SSOs for copper and nickel to be developed during the anticipated term of Order No. 98-052; and it established requirements in the Order for the Discharger to participate in special studies which were needed by the Regional Water Board to develop SSOs.

- Order No. 98-052 retained requirements which implemented the South Bay Action Plan, including those including those established by Order No. 97-111. At the time of adoption of Order No. 98-052, the Regional Water Board noted that the ADWEF in 1997 had been 134 MGD and stated that, if in 1998 or subsequent years the ADWEF exceeds 120 MGD, a public hearing may be held to consider adoption of a permit amendment or enforcement order imposing a flow limit of 120 MGD.

Regional Water Board Order No. 00-109 (October 18, 2000) amended provisions of Order No. 98-052, which required the discharger to participate in studies to develop SSOs for copper and nickel in South San Francisco Bay.

- In 1999 and 2000, the Santa Clara Watershed Management Initiative, which included participation by the Cities of San Jose and Santa Clara, produced several reports, including an Impairment Assessment Report and Copper and Nickel Action Plans. The Impairment Assessment Report concluded that impairment of South San Francisco Bay by copper and nickel was unlikely, and it recommended the establishment of SSOs for those metals in specific concentration ranges. Based on this report, the Regional Water Board stated its intention to remove the Lower South Bay as impaired by copper and nickel from the CWA 303 (d) list of impaired waters.

- The Copper and Nickel Action Plans proposed monitoring to determine if copper and nickel concentrations were increasing in South San Francisco Bay (and thereby investigate anti-degradation concerns), and they proposed triggers for pollution prevention steps if monitoring revealed increases in copper or nickel levels.

- Order No. 00-109 amended Order No. 98-052 to include the requirements of the Copper and Nickel Action Plans and to require the participation of the Cities of San Jose and Santa Clara with the Santa Clara Watershed Management Initiative to assist the Regional Water Board in selecting and adopting SSOs for copper and nickel.

Regional Water Board Resolution No. R2-2003-0077 (August 20, 2003).

- Resolution No. 96-137 (1996) implemented the requirements of State Water Board Order No. WQ 90-5 regarding mitigation for the loss of salt marsh habitat by accepting two proposals from the Discharger for restoration and/or acquisition of specific tracts of land. Due to circumstances beyond the Discharger's control, a portion of the agreed upon mitigation could not be undertaken; and Resolution No. R2-2003-0077 acknowledged the Regional Water Board's consent for an alternate salt marsh mitigation project.

- The Resolution required completion of a Memo of Agreement among the Discharger, the Regional Water Board, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game, and it established specific components that must be addressed in an alternate mitigation project.

State Water Board Resolution No. 2002-0151 (October 17, 2002) granted State Water Board approval of SSOs for copper and nickel for the South San Francisco Bay, which were subsequently approved by USEPA on January 21, 2003.

Regional Water Board Order No. R2-2003-0085 (September 17, 2003) reissued NPDES/Waste Discharge Requirements for the Cities of San Jose and Santa Clara.

- The Order retained requirements for the Discharger to comply with the Copper and Nickel Action Plans.

- The Order did not automatically carryover mass-based limitations for metals from the previous permit, as water quality based effluent limitations of the Order were established based on guidance of the California Toxics Rule and the Policy for Implementation of Toxics Standards

for Inland Surface Waters, Enclosed Bays, and Estuaries of California (the CTR and the SIP, which both became effective on May 18, 2000).

- The Order retained requirements for the Discharger to implement an avian botulism control program.

- The Order retained requirements to fully implement the South Bay Action Plan, including water conservation and water reclamation efforts. [In the five year period preceding adoption of Order No. R2-2003-0085, from 1998 through 2002, the Discharger had maintained an ADWEF below 120 MGD.]

- In accordance with Resolution No. R2-2003-0077, the Order required the Discharger to either (1) within 6 months following adoption of Order No. R2-2003-0077, establish a wetlands mitigation agreement among the U.S. Fish and Wildlife Service, the California Department of Fish and Game, and Regional Water Board staff for restoration of a site equivalent to the Mosely Tract, or (2) by August 2004, restore such a site equivalent to the Mosely Tract.

- Based on its findings regarding the establishment of water quality based effluent limitations, including mass-based limitations; the retention of requirements for an avian botulism control program; and a favorable assessment of salt marsh conversion between 1998 and 2002, the Regional Water Board, in Order No. R2-2003-0077, continued to grant exceptions to the Basin Plan discharge prohibitions for the Cities of San Jose and Santa Clara.

APPENDIX C – EXISTING AND POTENTIAL HABITAT FOR SPECIAL-STATUS SPECIES

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. R2-2005-0003
WASTE DISCHARGE REQUIREMENTS FOR:
CARGILL INCORPORATED
POND A18 LOW SALINITY SALT POND
SANTA CLARA COUNTY

FINDINGS

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

1. ***Discharger and Permit Application***. Cargill Incorporated (Discharger) owns an 856-acre salt pond (Pond A18) in south San Francisco Bay (South Bay). It submitted a Report of Waste Discharge (ROWD) to the Board for discharge of low salinity waters from this pond to waters of the State. Once Cargill obtains permits and commences discharge from Pond A18, it expects to transfer ownership and operational responsibility to the City of San Jose.

Facility Description

2. Pond A18 is located near Alviso in the City of San Jose, south of Coyote Slough, east of Artesian Slough, west of BFI's Newby Island Landfill, and north of the Zanker Road landfill and the San Jose/Santa Clara Water Pollution Control Plant (Plant). The location of Pond A18 is shown in Attachment A.

3. Pond A18 used to be part of Cargill's concentrator system; however, the ponds adjacent to Pond A18 were sold in 2003 to the U.S. Fish and Wildlife Service (Service). Order No. R2-2004-0018 permits the Service to discharge saline waters from eight systems that consist of 22 ponds in the Alviso Complex (i.e., Pond Systems A2W, A3W, A7, A14, A16, A19, A20, and A21) to the South Bay and tributaries to the Bay. In July 2004, the Service commenced discharging from Pond Systems A2W, A3W, and A7. The Service intends to begin discharging from Pond Systems A14 and A16 in April 2005, but will not initiate discharge from Pond Systems A19, A20, and A21 (also referred to as the Island Ponds) until 2006 at the earliest.

4. The ROWD indicates that Pond A18 will be managed in a similar manner (circulating Bay water through the pond to control salinity) to those regulated by Order No. R2-2004-0018. The goals of the Pond A18 Management Plan are to: (a) cease salt production, (b) circulate Bay water through the pond and introduce tidal hydrology, (c) maintain existing open water habitat and avoid seasonal pond formation, (d) minimize pond management costs, and (e) meet water quality standards.

5. In implementing the Pond A18 Management Plan, the Discharger proposes to initially release brines within the pond to Artesian Slough, and then circulate Bay water through the pond at a rate that ensures discharge salinities remain near Bay water salinity. The control structures have the ability to close off all flow, allow inflow only, or outflow only, which offers flexibility in management to control salinity and/or water levels. Because of the elevation of tide and pond water levels, water intake must occur at high tide, and discharge must occur at low tide. The initial release of brines from Pond A18 to Artesian Slough should take about two months. Once discharge salinity levels fall below 44 parts per thousand (ppt), the Discharger will operate Pond A18 under continuous circulation conditions.

6. ***Initial Release Scenarios.*** The ROWD proposes that the initial release from Pond A18 commence in March 2005, cease for the month of April, and resume in May 2005 with salinity levels falling below 40 ppt by June 2005. The reason for this staggered initial release is that the Service will commence discharge from Pond A14 to Coyote Creek and from Pond A16 to Artesian Slough in April 2005. As the initial release of saline waters from these two pond systems will increase salinity levels in receiving waters near the Pond A18 discharge point, the Discharger needs to coordinate with the Service to ensure that the most saline discharges from Ponds A14 and A16 do not coincide with those from Pond A18. There are two scenarios for an initial release from Pond A18, which are as follows:

   a. **South Initial Release.** The south initial release would intake water from lower Artesian Slough near Coyote Creek, and discharge in upper Artesian Slough.
   b. **North Initial Release.** The north initial release would intake water from upper Artesian Slough, and discharge to lower Artesian Slough near Coyote Creek.

   The South Initial Release will result in larger salinity increases than the North Initial Release. This is because ambient salinity levels in upper Artesian Slough (near the Plant) are much lower than those in lower Artesian Slough near Coyote Creek. This salinity differential between upper Artesian Slough and Pond A18 salinities will result in a larger salinity increase under the South Initial Release. While the North Initial Release will not cause a significant increase in receiving water salinity levels, it has a greater potential than the South Initial Release to cause dissolved oxygen depressions in the receiving water. This is because under the North Initial Release, Pond A18 would intake water from upper Artesian Slough (predominantly effluent from the Plant) that is high in nutrient content, and therefore, has the potential to significantly increase the amount of algal growth in Pond A18.

7. ***Continuous Circulation Period.*** After salinity levels fall below 44 ppt, the Discharger will operate Pond A18 under continuous circulation conditions. The ROWD indicates that Pond A18 will have the ability to intake water by gravity through a north culvert structure from Artesian Slough near Coyote Creek, circulate water through the pond, and discharge by gravity through a south culvert to Artesian Slough near the Plant's weir. Additionally, the control structures offer the flexibility to close, allow inflow only, allow outflow only, and the ability to reverse the direction of inflows and outflows when necessary to control salinity and/or water levels. The flow rates will vary over the tidal cycle depending on the difference in water level in the pond and water level in the Bay and associated sloughs where culverts are located. The ROWD indicates that the hydraulic residence time will vary as tidal conditions vary, but will typically range from 15 to 50 days. Table 1 below indicates that the average residence for May through November may be slightly higher than 50 days.

Table 1: Average Summer Hydraulic Residence Time (May through November) for A18 South Discharge

Pond	Area (acres)	Depth (ft)	Volume (acre-ft)	Outlet Flow (ft^3/s)	Residence Time (days)
A18	856	1.8	1540.8	12.6	61.7

While the hydraulic residence time indicated in Table 1 reflects average discharge flows and will likely change based on management practices employed by the Discharger, it does illustrate the management constraint of using flow management as a corrective measure to reduce salinities or increase dissolved oxygen levels.

Applicable Plans, Policies, and Regulations

8. ***Basin Plan.*** The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21,1995. This updated and consolidated plan represents the Board's master water quality

control planning document. The revised Basin Plan was approved by the State Water Resources Control Board (State Board) and the Office of Administrative Law on July 20, 1995 and November 13, 1995, respectively. A summary of the regulatory changes 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 groundwater. The Basin Plan also identifies discharge prohibitions intended to protect beneficial uses. The Board amended the Basin Plan on January 21, 2004, to adopt California Toxics Rule criteria for eight metals in lieu of existing Basin Plan objectives. The State Board and Office of Administrative Law approved this amendment on July 22, 2004, and October 4, 2004, respectively. This Order implements the Basin Plan.

9. Existing and potential beneficial uses for the South Bay and its tributaries, as identified in the Basin Plan and based on known uses of the receiving waters in the vicinity of the discharges, are:

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

10. ***California Toxics Rule***. 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). These standards are generally referred to as the CTR. The CTR specified water quality criteria (WQC) for numerous pollutants, of which some are applicable to the discharges covered by this Order.

Other Regulatory Bases

11. WQOs/WQC and limitations in this permit are based on the plans, policies and WQOs and criteria of the Basin Plan; California Toxics Rule (Finding 10); *Quality Criteria for Water* (U.S. EPA 440/5-86-001, 1986 and subsequent amendments, "U.S. EPA Gold Book"); 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); "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" (Thermal Plan); and Best Professional Judgment (BPJ) as defined in the Basin Plan. Discussion of the specific bases and rationale for limits in this Order are given in the associated Fact Sheet, which is incorporated as part of this Order.

12. ***Basin Plan Receiving Water Salinity Definitions.*** The Basin Plan states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than one 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 water 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 latter calculated based on ambient hardness) for each substance.

Receiving Water Salinity and Hardness

13. a. Salinity. The receiving water for the subject discharge is Artesian Slough. This is a tidally influenced waterbody, mostly with significant fresh water inflows during the wet weather season. This Order conservatively assumes that this water body is estuarine under both the Basin Plan and CTR definitions. Therefore, the applicable WQOs and WQC considered in this Order for all these discharges are based on the lower of the marine and freshwater Basin Plan WQOs, and CTR and NTR WQC.

    b. Hardness. Some freshwater WQOs and WQC are hardness dependent. Hardness data collected through the Regional Monitoring Program (RMP) are available for water bodies in the San Francisco Bay Region. In determining the WQOs and WQC for this Order, the Board conservatively used a hardness of 400 mg/L. The minimum observed hardness at the RMP San Jose Slough Station (C-3-0) from 1994-2002 was 510 mg/L. However, the CTR states that if the hardness is over 400 mg/L, criteria are calculated using a hardness of 400 mg/L in the hardness equation. The data from the RMP San Jose Slough Station represents the best available information for the hardness of the receiving water after it has mixed with the discharge.

Receiving Waters

14. ***South San Francisco Bay***. The South Bay is a complex and dynamic estuarine system influenced by ocean tides, winds, and freshwater flows. The ROWD explains that currents in the South Bay are predominately tidal driven and that wind and density driven currents are less important. The salinity levels in the South Bay are dependent on salinity in the Central Bay and its exchange of water with the South Bay, freshwater input, and evaporation. Of these three, freshwater input into the South Bay is the most variable during the year and between different years. Therefore, freshwater input primarily drives salinity variations in the South Bay.

15. ***Tidal Sloughs near Pond A18***. Tidal sloughs that border Pond A18 include Coyote Creek, the Coyote Creek Bypass Channel, and Artesian Slough. Coyote Creek and the Coyote Bypass Channel border Pond A18 to the north. Coyote Creek is a large tidal slough and a significant source of freshwater to the South Bay in the winter and spring. Artesian Slough borders ponds A16, A17, and A18, and is a tributary to Coyote Creek. The San Jose/Santa Clara Water Pollution Control Plant (Plant) discharges approximately 120 million gallons per day (mgd) (~190 ft^3/s) at the upstream end of Artesian Slough. The ROWD indicates that Coyote Creek and Artesian Slough both contain strong salinity gradients and frequently contain vertical salinity stratifications. Typically, Coyote Creek is stratified during the winter and Artesian Slough is stratified year round.

Overview of Pond A18 Discharge

16. This Order permits discharge from Pond A18 under an initial release scenario where high salinities will likely impact beneficial uses in the short term, but impacted areas are expected to fully recover within one year. This Order also permits subsequent discharge from Pond A18 as waters from Artesian Slough are taken into Pond A18 and then discharged more or less continuously (continuous circulation). For the continuous circulation period, the Discharger must manage Pond A18 to ensure beneficial uses remain protected. The initial release refers to the time expected to substantially empty Pond A18 of its current contents. Modeling performed by the Discharger indicates that the duration of the initial release will be about eight weeks or less. As described in further detail in later findings, it is the position of the Board that the long-term water quality benefits of this project (i.e., cessation of salt-making and maintaining open water habitat) outweigh potential short-term impacts associated with the initial release.

17. There are two types of discharge associated with the Pond A18 Management Plan: (a) initial release of saline waters already in Pond A18, and (b) continuous circulation of water in and out of Pond A18. The main

parameters of concern for this discharge include salinity, metals, dissolved oxygen, pH, and temperature. The initial release section focuses on salinity and metals since dissolved oxygen, pH, and temperature will be more of a concern during the late summer months of the continuous circulation period. The initial release is proposed to commence in March 2005 and end by June 2005.

18. ***Hydrological Modeling***. To determine the spatial extent and duration of salinity and metals increases under various planning scenarios, the Discharger performed hydraulic modeling to predict salinity and water elevation changes under conditions expected under the Pond A18 Management Plan. The model used recorded tides, evaporation, and rainfall for the period from spring 1994 through the fall of 1995. For the initial release, 1994 represents a dry year, and therefore, illustrates a worst-case scenario. The ROWD indicates that computer models were used to estimate water surface elevations, velocities, and salinity within Pond A18 and its receiving waters. The pond model estimates inflows to the Pond, water evaporated from the pond, water added by precipitation, and flow rates from the Pond to Artesian Slough. To estimate conditions in the South Bay and Artesian Slough, a three-dimensional hydrodynamic model was used. The pond model assumes (a) complete mixing, (b) uniform bottom elevation, and (c) unidirectional flow from the intake to the outlet.

19. ***Maximum Salinities for Initial Release***. In developing salinity standards for the initial release, the Discharger indicates that Pond A18 will not contain salinity levels above 135 ppt since gypsum (calcium sulfate) begins to precipitate in water with salinities above 146 ppt. As calcium sulfate does not readily dissolve in water and the precipitation of which may cause the toxicity of saline waters above this threshold to increase significantly, the Discharger needs to ensure that salinity levels remain below this level. To ensure that the effect of the initial release is consistent with those presented in the ROWD, this Order includes constraints on the timing of the initial release from Pond A18 and contains a salinity limit that is equal to that modeled.

20. ***Significance of Salinity Increases and the Initial Release***. In determining the significance of salinity increases in Artesian Slough from the initial release, the Discharger used two thresholds: a) the magnitude and duration of salinity increases, and b) the spatial extent of those increases. To determine the level of salinities that would likely result in a significant impact, the ROWD developed levels that were likely to cause acute or chronic effects on aquatic life (these levels are described in detail in the Fact Sheet). The ROWD concluded that significant acute effects would likely occur if salinities exceeded 41 ppt for 2 hours and that significant chronic effects would likely occur if salinities exceeded 38 ppt for 24 hours. It also concluded that potentially significant acute effects might occur if salinities exceeded 38 ppt for 2 hours and that potentially significant chronic effects might occur if salinities exceeded 35 ppt for 24 hours. The ROWD considered acute and chronic effects to be significant or potentially significant, if pond waters would result in more than 10% of a receiving water exceeding these criteria.

21. ***Salinity Increases***. During the initial release period, the ROWD indicates that salinity levels in Artesian Slough and Coyote Creek will be elevated under both the North and South Initial Release scenarios. For the North Initial Release scenario, the Discharger predicts relatively small increases in salinity, and indicates adverse affects on aquatic life are unlikely. For the South Initial Release scenario the ROWD predicts that salinity increases in Artesian Slough may be high enough to cause a temporary impact to some resident aquatic species near the discharge point, but expects recovery from such impacts to occur in less than one year. During the continuous circulation period, the ROWD predicts that salinity increases in Artesian Slough and Coyote Creek should be localized and not exceed 1 to 2 ppt, which should not present a risk to resident aquatic life.

    a. <u>South Initial Release</u>: The highest salinity elevations in Artesian Slough and Coyote Creek are predicted to occur during the first week of March. On a depth-averaged basis, the ROWD predicts salinity increases

of 10-20 ppt in most of Artesian Slough, and 1-5 ppt in portions of Coyote Creek. Salinity increases near the bottom of Artesian Slough up to 25 ppt are expected. During the initial release, the highest depth-averaged salinity predicted in Artesian Slough is 34 ppt near the Pond A18 discharge point.

b. North Initial Release: The highest salinity elevations in Artesian Slough and Coyote Creek are predicted to occur during the month of March with a maximum bottom salinity increase of about 5 ppt. The ROWD indicates that most of Artesian Slough should experience salinity increases of about 2-3 ppt, and portions of Coyote Creek should experience salinity increases of about 1-3 ppt. The highest depth-average salinity should be about 23 ppt near the confluence of Artesian Slough and Coyote Creek.

c. Continuous Circulation Before Island Pond Breaching: Modeling efforts indicate that on September 15 (worst-case scenario), salinity increases in Artesian Slough will be in the range of 1-2 ppt for continuous discharges from the southern structure.

d. Continuous Circulation After Island Pond Breaching: Modeling efforts indicate that on September 15 (worst-case scenario), salinity increases in Artesian Slough will be about 1 ppt for continuous discharges from the southern structure.

22. ***Salinity as a Surrogate for Metals***. If only evaporation affected metals concentrations, they would increase proportionately with salinity. However, other factors within Pond A18, such as biological uptake and adsorption to fine sediments, reduce metals concentrations. Accordingly, using salinity as a surrogate for metals concentrations should be more protective, as it will only consider evaporation, which is the mechanism by which metals concentrations increase. Besides offering more protection, the use of salinity will give the Discharger immediate feedback on conditions at discharge points and within Pond A18, and thereby, enable it to implement corrective measures in a timely manner based on monitoring results.

23. ***Salinity and Metals Concentrations for Initial Release.*** To determine expected metals concentrations for different salinity ranges, the Discharger (a) collected samples from the salt ponds in October 2002 along a salinity gradient (salinities ranged from 31.6 to 279 ppt), and (b) used RMP data from the South Bay and Dumbarton Bridge (salinities ranged from 12 to 20 ppt). Table 2 below show the modeled salinity in ppt for Pond A18 and the corresponding estimated maximum metals concentration in µg/L (except for mercury which is in ng/L). Metal concentrations in the discharge that are expected to exceed the minimum applicable receiving water quality objective or criterion are shown in italics.

Table 2: Proposed Maximum Salinities and Metals for Initial Discharge from Pond A18

Pond System	Modeled Salinity	Cr	Ni	Cu	Zn	As	Se	Ag	Cd	Hg	Pb
A18	135	2.36	21.8	3.39	4.49	*56.2*	0.31	0.15	0.119	49.7	1.37
WQO[1]		11.4	27	13	86	36	5.0	2.2	0.76	50	8.5

[1] The water quality objectives south of Dumbarton Bridge apply to discharges from the Alviso Ponds. The water quality objectives for chromium and cadmium are freshwater driven and are based on a hardness of 400 mg/L. The initial release of highly saline waters from Alviso Ponds may cause some receiving waters to contain salinity and arsenic in excess of water quality objectives for a short duration.

As shown in Table 2 above, the initial release from Pond A18 has the potential to cause Artesian Slough to exceed the water quality objective for arsenic. However, modeling efforts by the Discharger indicate that if this exceedance occurs it is expected to be short-lived (i.e., less than one month) and would only occur near the discharge point since waters from Pond A18 mixed with Artesian Slough arsenic concentrations would quickly fall well below the water quality objective.

24. ***Calculation of Discharge Limits for Initial Release***. In estimating maximum salinities for the initial release, the Discharger considered salinity values from Pond A18 for the whole calendar year. The ROWD indicates that salinity values have varied from 100 to 200 ppt. To ensure that salinity levels are below the level at which calcium sulfate precipitates (i.e., 146 ppt), the Discharger proposed a salinity limit of 135 ppt. Since this proposed limit is below historical levels in the pond, performance-based limits for the initial release were not considered as was done for certain ponds associated with Order No. R2-2004-0018.

25. ***Timing of Initial Release***. During the late summer and early fall, the salinity levels in the South Bay are near uniform and may be close to oceanic (31-33 ppt). This is because freshwater inputs to the South Bay during the summer months are almost exclusively from wastewater treatment plants and evaporation nearly offsets these inputs. In the winter months, salinity levels in the South Bay are often stratified and variable due to large freshwater inputs and the resulting density-driven exchange between the Central Bay and the South Bay. The ROWD includes the variability of salinities measured by the U.S. Geological Service in the main channel of the South Bay between 1988 and 2000. This shows that the lower salinity values typically occur between February and April. As the discharge of high salinity waters from Pond A18 has the potential to cause salinity increases that may be toxic to aquatic life, it is appropriate to require relatively higher salinity discharges during a time-period that has the smallest potential to adversely affect aquatic life in the South Bay. The ROWD indicates that late February/early March was proposed for the commencement of the initial release since it would (a) take advantage of higher assimilative capacity for saline waters, and (b) be during the period when few bay shrimp are present.

26. ***Migration of Salmonids***. The ROWD indicates that steelhead trout and Chinook salmon migrate in areas in Coyote Creek, which is near the Pond A18 discharge. The ROWD also indicates that salt pond discharges will not affect spawning areas for both of these species. The table below describes the upstream and downstream migration periods when saline waters have the potential to affect migrating salmonids.

Table 3: Migration Periods for Salmonids

Species	Upstream Migration	Downstream Migration
Steelhead Trout	January-March	March-April
Chinook Salmon	September-November	March-April

For the March initial release, modeling efforts by the Discharger show minimal increases in salinity in Coyote Creek. For adult salmonids migrating upstream, the circulation of water through Pond A18 is not expected to interfere with the signal adults use to find their spawning grounds (i.e., natal-stream water gradients in Coyote Creek will remain intact during upstream migration periods). On entrainment, the ROWD indicates that juvenile salmonids migrating downstream should not be substantially affected by the Pond A18 intake. This is because the migration corridor for salmonids is Coyote Creek, and hydrodyanmic modeling indicates that only about two percent of Coyote Creek water should enter the Pond A18 intake structure, which is in Artesian Slough.

27. ***Bay Shrimp***. Bay shrimp are present in the South Bay and adjoining tributaries and sloughs throughout the entire year. The density and age structure of the bay shrimp population exhibits considerable temporal variability. The ROWD indicates that the amount of bay shrimp in the main channel of the South Bay (the prime fishing area) varies considerably over the course of a year, with the high point occurring in September and October and the low point occurring in March and April. For the proposed March 2005 initial release, the ROWD indicates that no significant decreases in bay shrimp habitat should occur from May through August 2005. Since bay shrimp are not normally present in sloughs in March or April, the beginning of the initial

release should not adversely affect them. For continuous discharges, the ROWD indicates that no loss of bay shrimp habitat should occur due to the Pond A18 discharge. To minimize potential impacts to bay shrimp from the initial release, this Order requires that it commence between mid-February and mid-March.

28. ***Initial Release and Recovery***. During the initial release, Pond A18 may adversely affect aquatic life in zones near the discharge point. The ROWD explains that such effects would be short-lived and that the aquatic community would recover quickly. For the North Initial Release, the ROWD does not predict impacts to benthic organisms since salinity increases should be small, but for the South Initial Release, the ROWD predicts that salinity increases in Artesian Slough may be high enough to cause a temporary impact to some resident aquatic species near the discharge point, but expects recovery from such impacts to occur in less than one year. To support this position, the ROWD cites studies that describe quick recovery times for benthic communities subject to perturbations that significantly reduced their numbers. The Fact Sheet summarizes a number of these studies and describes the effect of the initial release on benthic communities in more detail.

29. ***Providing Open Water Habitat and Cessation of Salt-Making Outweighs Short-Term Exceedances***. To maintain open water conditions in Pond A18, the ROWD indicates that the Discharger must provide circulation of Bay water. This is because the hydrologic connection between Pond A17 and A18 is being severed due to the implementation of the Initial Stewardship Plan (ISP) (historically, a siphon under Artesian Slough transferred brine from Pond A17 to A18). Without the introduction of Bay water, Pond A18 would dry out during the summer and become a seasonal pond in the winter, which would significantly reduce open water habitat. The finding of net environmental benefit is also based on timely cessation of salt-making operations and the avoidance of the negative consequences of project delays on buildup of salt in the former salt pond and the associated water quality risks and management costs, as historically experienced by the dischargers with the North Bay salt ponds.

30. ***Lagoon Management and Ultimate Use of Pond A18:*** The continuous circulation phase is considered by the Board to be a transitional phase between salt-making and future uses. This transitional lagoon management phase benefits the environment in the near term by avoiding the consequences of maintaining Pond A18 as a seasonal pond. In order to provide water quality and ecosystem benefit to offset potential low dissolved oxygen conditions associated with lagoon management, the Discharger shall commit to a long-term planning effort for the ultimate uses of Pond A18. The planning effort must include analysis of benefits to water quality and beneficial uses.

Continuous Circulation Period

31. After the eight-week period of initial release, Bay waters will be taken into Pond A18 and discharged based on tidal flows. The continuous circulation period refers to the long-term operation of Pond A18 after the initial release. Since Cargill intends to transfer ownership of Pond A18 to the City of San Jose, the long-term management/restoration efforts are unknown at this time. As ponds will concentrate waters from the South Bay and/or sloughs, the main concern with discharges from these systems is for pollutants that have the potential to adversely affect aquatic life. The main parameters of concern for the continuous circulation period include salinity, metals, dissolved oxygen, pH, and temperature.

32. ***Design and Operation of Water Control Structures for Continuous Circulation.*** After the initial release of brines, the discharge is designed to provide adequate circulation and water quality control to operate at 40 ppt. Additionally, the ROWD indicates that control structures offer the flexibility to close, allow inflow only, allow outflow only, and the ability to reverse the direction of inflows and outflows when necessary to control salinity and/or water levels. Intake of Bay water into Pond A18 will occur at high tide and discharge will occur at low tide. While the Discharger designed Pond A18 to ensure that salinity levels remain below 40 ppt, to ensure a factor of safety, it modeled salinity levels near 44 ppt to be conservative in determining

impacts. The Discharger based pond operations described in its ROWD on modeling results. As such, the Discharger indicates that it may need to modify the operation of Pond A18 based on the results of wildlife and water quality monitoring.

33. ***Salinity Increases from Continuous Circulation***. To evaluate potential impacts to receiving waters from increases in salinity, the Discharger used hydrodynamic modeling and the criteria it developed for determining impacts during the initial release (described in Finding No. 21). In this evaluation, the Discharger showed that continuous circulation of pond waters would not cause any significant or potentially significant impacts to any receiving waters. The Fact Sheet describes the rationale of this conclusion in detail.

34. ***Continuous Circulation Salinity***. The ROWD indicates that under the continuous circulation period, water control structures at Pond A18 are designed to maintain year-round discharge levels below 40 ppt, but to account for operational issues the Discharger evaluated salinity peaks up to 44 ppt. Pond A18 will discharge saline waters to Artesian Slough, which flows to Coyote Creek, and eventually to the South Bay. To predict increases in salinity under the initial release and continuous circulation periods, the Discharger conducted hydrodyanmic modeling. To evaluate the potential effect of stratification on benthic organisms, the ROWD explains that the Discharger performed a sensitivity analysis for Artesian Slough and Coyote Creek to compare the extent and intensity of bottom salinities to depth-averaged salinities. This analysis showed no difference in daily average conditions and larger difference in intensity for daily maximum values. The differences in intensity for daily maximum salinity values are expected to occur near the pond discharge due to stratification at low tide.

35. ***Metals Concentrations during Continuous Circulation.*** During the continuous circulation period, metals concentrations in the discharge should not exceed applicable water quality objectives provided the Discharger operates the pond system to maintain salinities below 44 ppt. The table below shows the estimated maximum salinity of 44 ppt for the pond system and the corresponding estimated maximum metals concentration in µg/L (except for mercury which is in ng/L). This indicates that during continuous discharges from Pond A18, water quality objectives for metals will be met.

Table 4: Estimated Maximum Salinities and Metals Levels for Continuous Circulation for Pond A18[1]

Maximum Salinity	Cr	Ni	Cu	Zn	As	Se	Ag	Cd	Hg	Pb
44 (ROWD)	6.94	11.8	5.92	10.45	11.9	0.42	0.02	0.108	23.9	1.52
WQO[2]	11.4	27	13	86	36	5.0	2.2	0.76	50	8.5

[1] To estimate the maximum metals concentrations from Pond A18 for continuous discharges, the ROWD considered an average of RMP data from 1997-1999 at the South Bay Station and salt ponds with salinities of 31.6 and 42 ppt.

[2] The Basin Plan only specifies water quality objectives south of Dumbarton Bridge for copper and nickel. For the other inorganics, water quality objectives are from the California Toxics Rule. Since the Board must express limits for metals in the total recoverable form, Board staff used default translators to convert dissolved water quality objectives to total. The water quality objectives for chromium and cadmium are freshwater driven and based on a hardness of 400 mg/L as $CaCO_3$.

36. ***Salinity and Metals Limits for Continuous Circulation***. Modeling performed by the Discharger indicates that, provided salinities remain below 44 ppt, salinity levels will not adversely affect receiving waters. To support this position, the ROWD documents the magnitude and spatial scale of salinity increases and shows that these increases are unlikely to adversely affect aquatic organisms. The Fact Sheet describes the results of this analysis in more detail. Additionally, analytical data shows that ponds with salinity levels below 44 ppt should result in discharges of metals that do not exceed water quality objectives. To ensure that salinity levels from the discharge do not pose a threat to aquatic life, the Discharger will operate Pond A18 in a manner that

ensures the maximum discharge salinity does not exceed 44 ppt. Since this Order uses salinity as a surrogate to regulate the concentrations of metals discharged, the Discharger needs to ensure through monitoring that evaporation does not concentrate metals to a point where they could be toxic to aquatic life. Accordingly, this Order includes monitoring for salinity and metals to ensure the Discharger has data to adaptively manage Pond A18. This will ensure corrective measures if increases in salinity and metals concentrations from evaporation pose a threat to water quality. If self-monitoring data shows that the salinity limitations do not offer adequate protection, this Order will be reopened.

37. ***Downstream Migration of Salmonids during Continuous Circulation***. The ROWD explains that one concern with the circulation of pond water was that it could potentially interfere with the signal migrating salmonids follow to reach their spawning grounds. To address this concern, the ROWD indicates that the Discharger performed 3-dimensional modeling to show that "natal-stream water" gradients will remain intact in migration corridors during upstream migration periods. On entraining outmigrating juvenile salmonids, the ROWD indicates that the percentage of Coyote Creek water expected to enter the intake of Pond A18 would be 2.33% under average flow conditions, and 1.34% under peak winter flow conditions. This would be indicative of the likelihood for juveniles to be entrained in Pond A18 (assuming juveniles were floating in the water, and not actively swimming downstream towards the Bay). Once the Island Ponds are breached, the ROWD indicates that these percentages decrease to 1.61% and 1.07%, respectively.

38. ***Dissolved Oxygen and pH***. In lower salinity ponds, dissolved oxygen and pH may present water quality concerns. Studies of salt ponds conducted in the 1980s[1] indicate that dissolved oxygen concentrations in low salinity ponds (less than 30 ppt) have ranged from 1.4 to 20.0 mg/L and that pH levels in these ponds have ranged from 7.2 and 9.5. Observed low dissolved oxygen levels and high pH values in low salinity ponds are likely a result of excessive algal growth. According to the Restoration Report[1], these low salinity ponds are likely conducive to algal growth because (a) more algal species can tolerate salinities in this range, and (b) they tend to have elevated nitrogen and phosphorus concentrations from local urban sources, and warm temperatures.

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[1] A report by Stuart Siegel and Philip Bachand: *Feasibility Analysis: South Bay Salt Ponds Restoration* (referred to in this Order as the Restoration Report) cites two studies conducted in the 1980s: *The Causes and Control of Hydrogen Sulfide Emissions in the Leslie Salt Company Alviso Evaporation Ponds* and *Algal Proliferation in Salt Ponds of the South San Francisco Bay*.

39. ***Dissolved Oxygen***. In evaluating the potential for dissolved oxygen depressions (or sags) in Artesian Slough and Coyote Creek, the ROWD indicates that the Discharger (a) evaluated dissolved oxygen conditions in receiving waters associated with the pond discharges, (b) reviewed dissolved oxygen monitoring data collected during the initial release period from the Initial Stewardship Plan (ISP) ponds during the summer of 2004, and (c) performed a laboratory study to evaluate the potential for dissolved oxygen sags in Artesian Slough from Pond A18 discharges. Based on these analyses (described below), the Discharger indicates that the potential for dissolved oxygen sags in Artesian Slough from Pond A18 discharges is less than significant.

a. ISP Analysis: This evaluation involved evaluating oxygen demand and dissolved oxygen dynamics in ponds. The Discharger determined that increased oxygen demand or low dissolved oxygen levels is due to the presence and respiration of algae in pond water, and with minimal ambient light conditions (~8 hrs) no net loss of dissolved oxygen should occur in sloughs or the Bay over a 24-hour period. As described in a later finding, the results of a September 2003 study on dissolved oxygen dynamics showed that dissolved oxygen levels drop below 5.0 mg/L in many of the ponds near dawn, but that levels recover in the afternoon hours.

b. Review of ISP Data: In the summer of 2004, the Service commenced the initial release of pond waters from Ponds A2W, A3W, and A7. Monitoring efforts showed that dissolved oxygen levels in Ponds A2W and A7 exhibited a strong diurnal pattern (low dissolved oxygen near dawn), but that receiving water monitoring in the South Bay and Alviso Slough did not detect reductions in dissolved oxygen levels from these discharges. The discharge from Pond A3W showed consistently low dissolved oxygen levels, and monitoring of Guadalupe Slough indicates that Pond A3W may have caused dissolved oxygen depressions. To evaluate why dissolved oxygen levels in Pond A3W were severely depressed on a consistent basis, the Discharger performed two surveys and learned the low dissolved oxygen levels in the Pond A3W discharge were the result of a mat of decaying algae, and were not representative of the general state of the pond. Since the discharge point for Pond A3W is located on the edge of this algae mat, it contains depressed dissolved oxygen levels. The ROWD indicates that salt ponds should exhibit a diurnal dissolved oxygen pattern, with supersaturated conditions during the day, and low levels during the night and predawn hours. The ROWD explains that this should not cause significant dissolved oxygen depression in sloughs. In situations where the discharge point is near accumulating dead algae, the discharge could produce a significant dissolved oxygen sag in receiving waters. For the Pond A18 discharge, the ROWD explains that accumulation of dead algae near the discharge point should not occur because the discharge structures are on the upwind side of the Pond.

c. Laboratory Study: To evaluate the potential for dissolved oxygen sags in Artesian Slough from Pond A18 discharges, the Discharger performed laboratory simulations in which algal populations developed densities similar to those expected in Pond A18 during a later-summer continuous circulation period. The laboratory simulation formulated estimated compositions of water (i.e., Bay water, Artesian Slough water, Pond A18 discharge water, and Pond A16 discharge water), and tested oxygen demand. The ROWD indicates that circulating water through Pond A18 (under both scenarios) should not reduce dissolved oxygen levels in Artesian Slough to a point where adverse affects to aquatic life would occur. However, the ROWD explains that Pond A18 discharges would remain higher in dissolved oxygen when discharging through the south structure because intake water at the north structure will contain less effluent from the Plant. The ROWD indicates that the laboratory study showed that for simulations using intake water from the south structure, algae levels were significantly higher than those found in simulations using water from the north structure or the control (all Bay water). This indicates that Pond A18 would have a higher potential to discharge waters low in dissolved oxygen should it intake water from the south structure (i.e., near the Plant's discharge point).

40. ***Diurnal Variations in Dissolved Oxygen, and pH***. Algal growth in salt ponds could cause dissolved oxygen and pH levels to vary significantly over the course of a day. This is because during daylight hours, photosynthesis will produce oxygen and consume dissolved carbon dioxide (which behaves similar to carbonic acid). During nighttime hours, respiration will produce dissolved carbon dioxide and consume oxygen. Therefore, any significant algal growth will cause dissolved oxygen and pH levels to peak during the late afternoon and to be at their lowest levels in pre-dawn. As described in Finding 38, studies conducted in the 1980s indicate that dissolved oxygen and pH values could be at levels of concern. To determine the diurnal and spatial variation of dissolved oxygen and pH levels in low salinity ponds, the Discharger collected a number of samples from ponds A2E, A3W, B2, B4, and A13. These results, summarized in Table 5 below, show a diurnal variation in dissolved oxygen, but not pH.

Table 5: Dissolved Oxygen and pH Ranges

Pond	Salinity	Dissolved Oxygen Range		pH Range
		At Dawn (mg/L)	At Midday (mg/L)	
A2E	32.9	2.9 to 9.2	7.8 to 12.6	9.68 to 10.03

Pond	Salinity	Dissolved Oxygen Range		pH Range
		At Dawn (mg/L)	At Midday (mg/L)	
A3W	40.8	4.3 to 5.5	6.6 to 7.4	9.47 to 9.68
B2	39.3	3.8 to 5.9	7.1 to 10.5	8.07 to 8.27
B4	42.0	0.3 to 5.4	6.8 to 13.3	8.44 to 9.04
A13	63.3	2.5 to 3.4	6.5 to 8.0	8.47 to 8.57

The above results indicate that some pond waters may not meet the receiving water objectives in the Basin Plan of 5.0 mg/L for dissolved oxygen, and 6.5 to 8.5 for pH at the discharge point. However, it is difficult to collect data that will be fully representative of continuous circulation discharges for these parameters. This is because the amount of algal growth will relate to how quickly Bay waters flow through pond systems. To address potential exceedances of receiving water objectives in the Basin Plan for dissolved oxygen and pH, this Order requires that the Discharger document in its Operation Plan how it will ensure that mitigation measures can be readily implemented (e.g., increasing flow-through, installing portable aerators, harvesting algae, and/or temporarily ceasing discharge).

41. ***Temperature***. Due to shallow water depths and limited tidal exchange, water temperature in the salt ponds becomes elevated and varies widely throughout the day. Annual water temperatures within salt ponds generally range from 40 to 80°F and generally track with air temperature. The State's Thermal Plan indicates that discharges shall not exceed the natural temperature of receiving waters by 20°F, and discharges shall not cause temperatures to rise greater than 4°F above the natural temperature of the receiving water at any time or place. The ROWD indicates that temperatures collected in the salt ponds on August 26 and 27, 2002, showed values ranging from 19.5 to 32.8°C (67.1 to 91.0°F), and values in the Bay ranging from 26.7 and 28.1°C (80.1 to 82.6 °F). These results indicate that salt pond discharges, including Pond A18, should comply with the Thermal Plan.

42. ***Dissolved Oxygen, pH, and Temperature Limits***. As Pond A18 is of shallow depth (one to three feet), near the Plant outfall, and will be subject to significant heating and potentially excessive algal growth in the late summer months, the Discharger needs to ensure that pond circulations are adequate to comply with Basin Plan objectives for pH, dissolved oxygen, and temperature. Compliance with these limits may be dependent on a number of factors beyond the Discharger's control. Factors that influence dissolved oxygen levels both in the pond and in the receiving waters include strength and level of tides, other inflows into receiving waters (such as pond discharges from ISP ponds), rainfall, wind direction, temperature, time of day, amount of sunlight, and seasonal effects. Sloughs, creeks, lagoons, and other shallow areas of the Bay also experience significant variability in dissolved oxygen levels as a result of a combination of these factors. Therefore, this Order requires that the Discharger make a timely report to the Board, and implement corrective measures (e.g., increase flow-through rates, daily restrictions on discharge, and/or aeration), as appropriate, if monitoring data suggests that salt pond discharges have the potential to adversely affect receiving waters. To ensure that dissolved oxygen levels in the receiving water are not adversely affected, this Order requires that the receiving water or discharge contain at least 5 mg/L of dissolved oxygen at any time Pond A18 is discharging, or that the Discharger document that if the receiving water dissolved oxygen upstream of the discharge point is below 5 mg/L, that the discharge will not further depress dissolved oxygen levels.

To ensure that dissolved oxygen levels from the discharge are not adversely affecting receiving waters, this Order also includes a trigger value for the continuous circulation period. If dissolved oxygen levels fall below a 10^{th} percentile of 3.3 mg/L (calculated on a weekly basis) at the point of discharge, the Discharger shall make a timely report to the Board, and implement Best Management Practices described in its Operations Plan, as appropriate. These adaptive management techniques may include aeration, controlling the flow rate of the intake or discharge, reversing direction of flow, controlling the timing of the discharge, or temporarily

suspending the discharge until this trigger is met. The dissolved oxygen trigger is based on levels found in Artesian Slough near the Heron Rookery in July 1997. These values are the most relevant representation of natural dissolved oxygen variations in sloughs or lagoon systems currently available. Once the Discharger has collected sufficient data to establish a connection between discharge monitoring and receiving water data, it may be possible for the Discharger to develop more relevant performance criteria. Therefore, this Order provides the Discharger with the opportunity to develop alternative trigger values subject to Executive Officer or Board approval.

For pH, this Order requires that discharges contain a level between 6.5 and 8.5 or that the Discharger document that receiving waters near the point of discharge meet this limit. For temperature, this Order requires that discharges comply with the State's Thermal Plan (i.e., discharges shall not exceed the natural temperature of receiving waters by 20°F and shall not cause temperatures to rise greater than 4°F above the natural temperature of the receiving water at any time or place). The Operations Plan will describe receiving water monitoring for pH, dissolved oxygen, and temperature. The Fact Sheet discusses the rationale for dissolved oxygen and pH limits in further detail.

43. ***Toxic Organic Pollutants***. To evaluate the potential for toxic organic pollutants to be present, the Discharger sampled five ponds with salinities ranging from 16 to 185 ppt. The results showed that only one pollutant (bis(2-ethylhexyl) phthalate) was detected at a trace level (1.93 µg/L) that could not be quantified. The ROWD also indicates that dioxins and furans were analyzed from three ponds, and were nondetect or found at concentrations below the method calibration limit. For the most toxic organic pollutants, the primary concern is the mass discharged, as their water quality objectives are driven by bioaccumulation in aquatic organisms. Since Pond A18 will be circulating waters from the South Bay or sloughs, the mass of toxic organic pollutants discharged will be the same as that taken in by the Pond.

Sediments

44. ***Summary of Sediment Data***. Based on sediment data collected by the Discharger, this Order concludes that pollutants have not accumulated in Pond A18 to levels that (a) exceed ambient conditions in the South Bay, and (b) could be toxic to wildlife. Findings 47-54 provide the basis for this conclusion.

45. ***Collection of Pond Sediment Samples.*** Based on topographical maps, the ROWD indicates that Pond A18 was first operated for salt production between 1929 and 1947. In the area of Pond A18, sediments have historically been subject to significant sources of contamination from mining, which resulted in the mobilization of large amounts of mercury-rich sediment to downstream areas. Since Pond A18 was diked for salt-making operations, the source of contaminant input has been restricted to intake water. In 2002, 14 sediment samples were collected as cores to a depth of 5 feet with subsamples taken at 0.5 and 5 feet to be analyzed for pH, sulfate, sulfide, chloride, and 17 metals. In conjunction with the ISP, the Discharger also collected samples for inorganics and toxic organic pollutants from several salt ponds.

46. ***Screening Values***. To determine if sediments in salt ponds contain elevated levels of inorganics, the Discharger compared available sediment data with screening values. Screening values include: San Francisco Bay Ambient Values developed by the Board in 1998, Effects Range-Low and Effects Range-Median toxicity based thresholds developed by the National Oceanic and Atmospheric Administration (NOAA) in 1995, and ambient data from the Guadalupe River and other areas near the Pond A18.

47. ***Ambient Levels***. A Board staff report entitled *Ambient Concentrations of Toxic Chemicals in San Francisco Bay Sediments* (hereafter Sediment Report) summarizes ambient concentrations of chemical compounds found in San Francisco Bay sediments. It recommends setting the ambient threshold at the 85th percentile and explains that sediment concentrations above this threshold would be considered evidence of

contamination. In developing the ambient threshold, the Sediment Report explains that (a) samples were collected in the upper 5 cm at sampling stations away from point and nonpoint sources of pollution to represent the cleanest sediments in the Bay, (b) a statistical approach was used to remove outliers, and (c) the 85th percentile was established with a 95% confidence level.

48. The Sediment Report indicates that establishing background conditions for metals was difficult, as the concentration of metals in sediment was dependent upon grain size. Additionally, the Sediment Report explains that the relationship between chemical concentration of metals and percent fines is a complex function of differences in surface area, ion exchange capacity, organic carbon content, and minerology. To account for different background concentrations based on grain size, the Sediment Report established two bounds: one for 40% fines and one for 100% fines for coarse grain and fine grain sediments. The ROWD indicates that for wetland and floodplain environments, natural sedimentation predominately involves fine-grained sediments, and therefore, it compared the concentrations of pollutants in pond sediments with the background concentrations established for 100% fines.

49. The Sediment Report indicates that there would be little environmental benefit to insist that sediment concentrations in a restored pond or wetland fall below ambient concentrations, as the new pond or wetland substrate will be comprised of sediment deposited by re-suspension from surrounding sources.

50. NOAA in 1995 published effect-ranges that relate to the potential toxic effects of pollutants. The cutoff points corresponding to the effect ranges are the low (ER-L) and median (ER-M). NOAA calculated these values by examining a range of chemical concentrations associated with adverse biological affects. Further, the ER-L values represent the lower 10^{th} percentile concentration of the data; concentrations near these values should rarely cause adverse biological effects, while the ER-M values represent the 50^{th} percentile of the data; concentrations above these values are likely to cause adverse biological effects.

51. ***Data Evaluation***: In analyzing inorganics, the Board compared the median of Pond A18 values to ambient values contained in the Sediment Report and to the ER-L values published by NOAA. Table 6 below summarizes the results of this analysis:

Table 6: Summary of Inorganics in Pond A18 and Screening Levels

Constituent	Pond A18 Value[1]	Ambient	ER-Low	Above Ambient and ER-Low?
Arsenic	Nondetect	15.3	8.2	No
Cadmium	Nondetect	0.33	1.2	No
Chromium	82	112	81	No
Copper	36	68.1	34	No
Lead	Nondetect	43.2	46.7	No
Mercury	0.11	0.43	0.15	No
Nickel	102	112	20.9	No
Selenium	Nondetect	0.64	N/A	No
Silver	Nondetect	0.58	1	No
Zinc	86	158	150	No

[1] These values are in mg/kg dry weight.

As shown in the Table 6, the Discharger did not detect any inorganics above ambient levels in the Bay. Therefore, it does not appear sediments contain inorganics at levels that could be toxic to wildlife.

52. ***Toxic Organic Pollutants***. Salt ponds are not expected to contain toxic organic pollutants above background levels, as the mechanism by which salt ponds would accumulate toxic organic pollutants is through the intake of Bay water. This is because suspended solids are the transport mechanism for toxic organic pollutants, and according to the Restoration Report, the current hydraulic regime results in muted flows that minimize the amount of suspended solids that enter the ponds. To confirm that salt pond sediments do not contain elevated levels of toxic organic pollutants, the ISP indicates that the Discharger collected samples from several ponds. The ISP indicates that toxic organic pollutants were either nondetect or similar to ambient concentrations found in the Bay.

Mercury Methylation. Mobilization of Inorganics, and Baseline Sampling

53. While this Order finds that concentrations of inorganics in pond sediments are not elevated over background levels, one area of concern is the potential for mercury methylation. Additionally, it is possible that changes in the hydraulic regime could cause inorganics in the sediment to mobilize if pH levels decrease.

54. ***Inorganic Mobilization.*** The ROWD indicates that very shallow water depths or sediment exposure to air can result in oxidation of sulfides and organic matter that strongly bind to inorganic contaminants. The oxidation of sulfides ultimately creates sulfuric acid, which has the potential to significantly reduce pH levels in the sediment. Released heavy metals from this process will bind with clays and iron hydroxides provided the pH of the system remains near neutral. However, if the pH drops below 6.0, heavy metals will stay in the dissolved form, as they do not readily bind with solids under acidic conditions. Accordingly, the Discharger should continually assess the potential for exposed sediment or extremely shallow water levels to depress pH.

55. ***Mercury Methylation***. The ecological and health effects of mercury are greatly affected by the transformation of the less toxic form (e.g., Hg^{2+}) to the extremely toxic form (methyl mercury or MeHg) that bioaccumulates in the food chain. Methyl mercury is primarily formed by microorganisms, but the rate of methylation is also affected by other factors that include: redox potential, pH, sulfides, clays, iron hydroxides, and salinity. The ROWD concludes that at: (a) very low redox potentials, mercury is bound in highly insoluble HgS and is relatively unavailable to methylating organisms, (b) moderately low redox potentials (-220mV), Hg^{2+} levels rise, and with adequate organic matter and sulfate, sulfate-reducing bacteria can methylate appreciable amounts of mercury; and (c) high redox potentials, mercury methylation ceases and demethylation predominates.

56. ***Mitigation for Mercury Methylation***. The ROWD indicates that to minimize mercury methylation, systems with low redox potential should be left flooded. This is because if the redox potential in flooded systems is very low and if the systems become dry, the redox potential will increase, which may allow Hg^{2+} to become more available to methylating bacteria. If the system is then subsequently flooded, sulfate-reducing bacteria may increase MeHg production.

57. ***Mercury Methylation and Pond A18.*** To ensure that mercury methylation does not accelerate in Pond A18, the Discharger should manage water levels to prevent drying/wetting cycles. The ROWD indicates that the flow into and out of Pond A18 on a daily basis will be relatively small compared to the volume of the Pond, and that typically the daily water surface elevation would fluctuate by less than 0.1 feet. This suggests that the proposed management scheme for Pond A18 should not enhance mercury methylation.

Pond A18 Operations

58. The proposed initial release conditions are based on discharges from Pond A18 commencing between February 16 and March 16, 2005, and Ponds A14 and A16 commencing in March or April 2005. If neither system can begin as planned, then there may be a need to extend the initial release period or increase the flow rates to speed up the initial release process. While the proposed initial release commencement dates are

considered reasonable, actual commencement may be delayed due to unforeseen events, such as weather conditions, equipment failure, and complications with ISP ponds. Adaptive management of the initial release plans to meet unknown contingencies may be necessary based on additional initial release studies and with prior approval from Board staff.

59. ***Pond A18 Water Depths and Bird Habitat.*** The ROWD indicates that under the Pond A18 Management Plan, open water habitat and adjacent levees will continue to provide roosting and nesting habitat for waterbird species since water depths will be similar to current operations. Due to its high salinity, it is unlikely that Pond A18 supports fish habitat or any benthic invertebrates. The ROWD indicates that the major invertebrate inhabitants in the pond are brine shrimp and brine flies. Once salinity levels in Pond A18 are reduced below 40 ppt, it is expected that a benthic invertebrate and fish community will become established.

60. ***Operational Constraints***. This Order recognizes that there are constraints in managing Pond A18 that do not relate to protection of water quality. Those identified in the ROWD include:

    a. Direction of water flow (typically unidirectional);
    b. Salt pond levees (limit pond elevations);
    c. Flood control levees (the north levee at Pond A18 is a Santa Clara Valley Water District flood control levee);
    d. Bottom elevations within ponds (high pond bottom elevations require high water surface elevations, which reduces gravity-driven inflow; where as low pond bottoms require low water surface elevations to minimize erosion, which reduces gravity-driven outflows);
    e. Infrastructure effects (passive design makes it subject to natural variations in pond water levels from rainfall and tidal cycles); and
    f. Seasonal conditions (greater circulation necessary in the summer to maintain low salinity levels).

61. ***Operations Plan.*** To ensure that water quality objectives are met and beneficial uses are protected during continuous circulation periods, this Order requires the Discharger to develop an Operations Plan for Pond A18. The Operations Plan should describe operational constraints pertinent to Pond A18 and indicate corrective measures available to the Discharger should it find itself in threatened violation of discharge limits (e.g., salinity, dissolved oxygen, pH) during the initial release and continuous circulation periods.

62. ***Pond A18 Management Goals***. The ROWD indicates that Pond A18 will require limited active management, and that adjustment of the control gates may need to occur monthly or seasonally. The management goals for Pond A18 are to (a) allow adequate freeboard to prevent overtopping of levees during storm events, and (b) manage intake and outflows to achieve an adequate turnover of pond waters throughout the year to reduce excessive buildup of algae and other odor producing materials.

63. ***Adaptive Management***. As mentioned in an earlier finding, the Discharger proposes to iteratively modify Pond A18 operations, as necessary to meet objectives for protecting water quality and beneficial uses. To clarify the adaptive management strategies, the Discharger should update the Operations Plan annually, and should describe measures it can implement to improve flow-through (e.g., flexibility for allowing greater inflows and outflows and/or portable pumps).

64. ***Avian Botulism***. By reducing salinity levels, Pond A18 may create conditions that are more favorable to avian botulism. This is because the microorganism that produces the toxin causing avian botulism prefers lower salinities. It also requires warm temperatures and anaerobic conditions to become active. The cycle for an avian botulism outbreak is as follows: Invertebrates within ponds may consume the toxin, but tend to store it in their bodies without any adverse affects. Birds that consume these invertebrates may have their nervous

systems impacted to the point of death. Signs of an avian botulism outbreak include dead birds or birds that have certain portions of their bodies paralyzed. Birds that die from avian botulism can pass the disease along, as maggots that consume their carcasses become concentrated with the toxin. To prevent nuisance conditions and to reduce the likelihood of an avian botulism outbreak, the Discharger needs to ensure that dissolved oxygen levels in Pond A18 do not fall below 1.0 mg/L. Additionally, the Discharger should burn or bury dead bird carcasses that it finds to reduce the likelihood of a severe outbreak of this disease.

Monitoring Requirements

65. ***Water Quality Monitoring***. This Order requires water quality monitoring within Pond A18, at the Pond A18 discharge point, and in the receiving waters for salinity, metals, dissolved oxygen, pH, and temperature. It also requires receiving water monitoring for benthic organisms. Additionally, this Order requires the Discharger to monitor water levels within Pond A18.

66. ***Sediment Monitoring***. This Order requires sediment monitoring within Pond A18 for pH, redox potential, selenium, and mercury (including speciation of mercury to determine the proposed management of Pond A18 creates conditions that enhance mercury methylation).

CEQA Exemption and Public Hearing

67. *Waste Discharge Requirements.* This Order serves as Waste Discharge Requirements, 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.

68. *Notification.* The Discharger and interested agencies and persons have been notified of the Board's intent to issue requirements for the proposed discharges and have been provided an opportunity to submit their written views and recommendations.

69. *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, regulations, and plans and policies 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 PROHIBITION

The commencement of the initial discharge from Pond A18 at a time any other than February 16 through March 16, 2005, is prohibited, unless the Discharger satisfies Provision D.4.

B. DISCHARGE LIMITATIONS

1. For the initial discharge, Pond A18 shall not discharge waters that exceed a salinity limit of 135 ppt.

2. Pond A18 waters discharging to Artesian Slough shall meet the following limits:

Constituent	Instantaneous Maximum	Instantaneous Minimum	Units
Salinity for continuous circulation	44		ppt
Dissolved Oxygen[1]		5.0	mg/L
pH[2]	8.5	6.5	

[1] The Discharger may select discharge station A-A18-D, or receiving water station A-A18-5 to evaluate compliance with the dissolved oxygen limitation. In cases where receiving waters do not meet the Basin Plan objective, the Discharger must show, as described in its Operations Plan, that pond discharges do not further depress the dissolved oxygen level in the receiving water.

[2] The Discharger may select discharge station A-A18-D, or receiving water monitoring A-A18-5 to evaluate compliance with the pH limitation.

3. Pond waters discharging to Artesian Slough shall not exceed the natural temperature of the receiving waters by 20°F, or more.

4. Dissolved Oxygen Trigger. The Discharger shall monitor, report, and take corrective action measures, in accordance with the Operations Plan required by Provision D.2, if dissolved oxygen levels in Pond A18 at station A-A18-M fall below 1.0 mg/L during the continuous circulation period.

C. RECEIVING WATER LIMITATIONS

1. The discharges 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 in concentrations that cause nuisance or adversely affect beneficial uses;

   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 discharges shall not cause nuisance, or adversely affect the beneficial uses of the receiving water.

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

   a. Dissolved Oxygen: 5.0 mg/L, minimum

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

   b. Dissolved Sulfide: 0.1 mg/L, maximum

   c. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary 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.

4. The discharges 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 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 more stringent standards.

D. PROVISIONS

1. **Permit Compliance**
The Discharger shall comply with all sections of this Order beginning on the date of its adoption, except for Discharge Limitation B.4, which does not become effective until after Pond A18 has completed the initial release of pond waters.

2. **Operations Plan and Adaptive Management**
The Discharger shall develop an Operations Plan for Pond A18 **before it initiates discharge** to ensure that beneficial uses remain protected under the continuous circulation period. The Operations Plan shall describe operational constraints pertinent to Pond A18, indicate corrective measures available to the Discharger should it find itself in threatened violation of discharge limits and triggers (e.g., salinity, dissolved oxygen, pH), and how the Discharger proposes to adaptively manage Pond A18 during the initial release and continuous circulation periods. The Discharger shall update the Operations Plan **annually** (as necessary) to reflect any modifications in operation (e.g., increased flow-through) that it might need to implement in order to protect water quality and beneficial uses. Additionally, the Operations Plan shall prevent and control avian botulism control, mercury methylation and inorganic mobilization. To document avian botulism efforts, the Discharger shall monitor Pond A18 and nearby receiving waters for the presence of avian botulism, and control outbreaks through the prompt collection and disposal of sick and dead vertebrates. To demonstrate that it is managing Pond A18 to minimize conditions that could result in the mobilization of inorganics and/or the methylation of mercury, the Discharger shall describe how it manages water levels within Pond A18 and recommend corrective measures should data show that it is enhancing inorganic mobilization and/or mercury methylation. The Discharger shall submit an annual report documenting the above to the Board **by February 1 of each year**. The Operations Plan and each annual report are subject to the written approval of the Executive Officer.

3. **Compliance with Dissolved Oxygen Trigger**
If dissolved oxygen levels at the discharge fall below a 10^{th} percentile of 3.3 mg/L (calculated on a weekly basis) during the continuous circulation period, the Discharger shall make a timely report to the Board (in accordance with Standard Provisions), and implement Best Management Practices described in its Operations Plan, as appropriate. These adaptive management practices may include aeration, controlling the flow rate of the intake or discharge, reversing direction of flow, controlling the timing of the discharge, or temporarily suspending the discharge until this trigger value is met. In order to establish a new trigger value, the Discharger shall submit a technical report that documents that alternative values are protective of beneficial uses, and satisfy Resolution No. 68-16. For alternative trigger values at the discharge point to become effective, the Discharger must receive approval from the Executive Officer or the Board.

4. **Timing Variance**
In the event the Discharger cannot meet the timing requirement for initial release (Prohibition A), it may apply to the Executive Officer for a variance by submitting a technical report that demonstrates that there is an equivalent level of protection for the proposed alternative discharge. The Fact Sheet describes parameters that, at a minimum, the Discharger must address in showing that there is equivalent protection. The Executive Officer may grant a variance administratively. All variances must be in writing.

5. **Initial Release from Ponds A14 and A16**
The Discharger shall coordinate with the U.S. Fish and Wildlife Service to ensure that the initial release from Pond A18 does not commence at the same time as the initial release of saline waters from Ponds A14 and A16. The staggering of these initial releases must be consistent with hydrologic modeling (i.e., the first month of the initial release from Pond A18 should not coincide with the first month of the initial release from Pond A16).

6. **Status Report on Long-Term Operations**
Within three years of the adoption of this Order, the Discharger shall submit a status report that describes how it proposes to modify operating Pond A18. The status report shall describe the planning effort for potential uses of Pond A18, as well as a timeline for implementing the transition from lagoon management to future uses of Pond A18. The status report will also describe how the potential uses for Pond A18 will achieve protection of water quality and beneficial uses. Based on the review of the report, the Executive Officer may recommend to the Board that this Order be modified or rescinded, as appropriate.

7. **Self-Monitoring Program**
The Discharger shall comply with the Self-Monitoring Program (SMP) for this Order as adopted by the Board. The Discharger shall submit an annual self-monitoring report **by February 1 of each year**. The SMP may be amended by the Executive Officer in response to a written request by the Discharger, or as necessary to assure collection of information to demonstrate compliance with this Order.

8. **Standard Provisions and Reporting Requirements**
The Discharger shall comply with all applicable items of the Standard Provisions and Reporting Requirements for Non-NPDES Wastewater Discharge Permits, August 1993 (attached), or any amendments thereafter with the exception of General Provisions A.4, A.5, and A.10; Treatment Reliability B.2 and B.3; and General Reporting Requirements C.5, as these requirements are not relevant to this discharge. 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.

9. **Change in Control or Ownership**
   a. In the event of any change in control or ownership of land or 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. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.

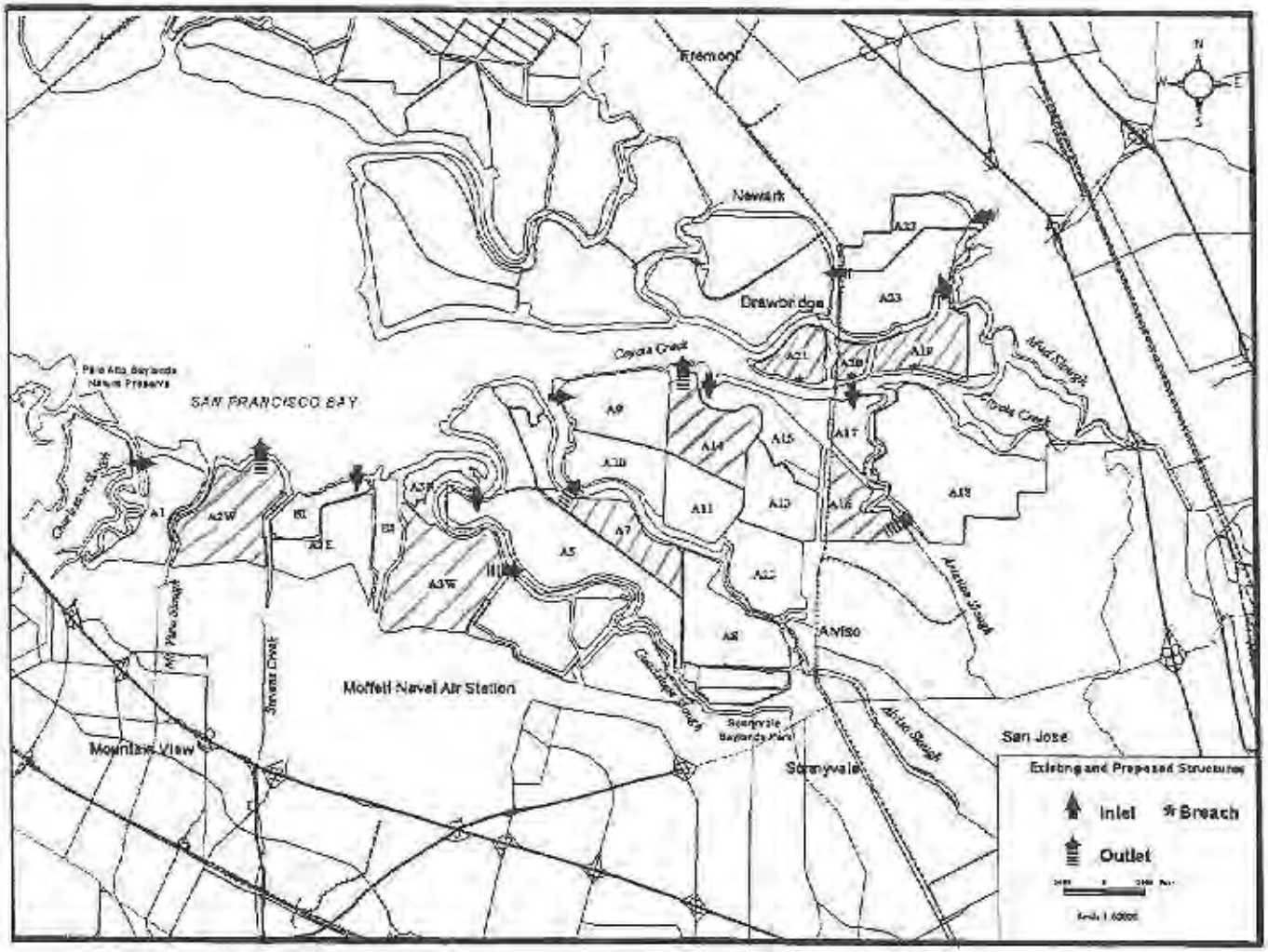
10. **Review and Modification of Requirements**
The Board shall review the waste discharge requirements in this Order periodically, and may modify this Order under, but not limited to, any of the following circumstances:

a. If present or future investigations demonstrate that the discharge(s) governed by this Order might have adverse impacts on water quality and/or beneficial uses of the receiving waters; and
a. 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, discharge limitations in this Order will be modified as necessary to reflect updated WQOs.

I, Bruce H. Wolfe, 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 February 16, 2005.

_____
BRUCE H. WOLFE
Executive Officer

Attachments:
A. Discharge Facility Location Map
B. Self-Monitoring Program
C. Fact Sheet
D. Standard Provisions and Reporting Requirements for Non-NPDES WDR (August 1993)



Attachment A
Discharge Facility Location Map

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

CARGILL INCORPORATED

POND A18 LOW SALINITY SALT POND
SANTA CLARA COUNTY

ORDER NO. R2-2005-0003

WDID No. 2 438629001

Adopted: [February 16, 2005]
Effective: [February 16, 2005]

A. BASIS AND PURPOSE

Reporting responsibilities of waste dischargers are specified in Sections 13225(a),13267(b), 13268, 13383 and 13387(b) of the California Water Code and this Board's Resolution No. 73-16.

The principal purposes of a monitoring program by a waste discharger, also referred to as self-monitoring program, are: (1) to document compliance with waste discharge requirements and prohibitions established by this Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of discharge or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, or other methods approved and specified by the Executive Officer of this Board.

Water and waste analyses shall be performed by a laboratory approved for these analyses by the State Department of Health Services (DOHS) or a laboratory waived by the Executive Officer from obtaining a certification for these analyses by DOHS. The director of the laboratory whose name appears on the certification or his/her laboratory supervisor who is directly responsible for analytical work performed shall supervise all analytical work including appropriate quality assurance/quality control procedures in his or her laboratory and shall sign all reports of such work submitted to the Board.

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

C. SPECIFICATIONS FOR SAMPLING AND ANALYSES

The Discharger is required to perform sampling and analyses according to the schedule in Tables 1 and 2, and in accordance with the following conditions:

Receiving Waters

1. Receiving water samples shall be collected on days coincident with discharge sampling.

2. Samples shall be collected within one foot below the surface of the receiving water body, unless otherwise stipulated.

Bottom Sediment Samples and Sampling and Reporting Guidelines

Bottom sediment sample means: (1) a separate grab sample taken at each sampling station for the determination of selected physical-chemical parameters, or (2) four grab samples collected from different locations in the immediate vicinity of a sampling station while the boat is anchored and analyzed separately for macroinvertebrates. Physical-chemical sample analyses include as a minimum:

1. pH

2. TOC (Total Organic Carbon)

3. Selected metals mg/kg dry weight (and soluble metals in mg/l)

4. Particle size distribution, i.e. , % sand, % silt-clay

5. Depth of water at sampling station in feet

6. Water salinity and temperature in the water column within one foot of the bottom.

D. STANDARD OBSERVATIONS

1. Receiving Water

a. Floating and suspended materials of waste origin (to include oil, grease, algae, and other macroscopic particulate matter, presence or absence, source, and size of affected area).

b. Discoloration and turbidity: description of color, source, and size of affected area.

c. Odor: presence or absence, characterization, source, distance of travel, and wind direction.

d. Evidence of beneficial water use: presence of water–associated waterfowl or wildlife, fisherpeople, and other recreational activities in the vicinity of the sampling stations.

e. Hydrographic condition:

1) Time and height of corrected high and low tides (corrected to nearest NOAA location for the sampling date and time of sample and collection).

2) Depth of water columns and sampling depths.

f. Weather conditions:

1) Air temperatures.

2) Wind – direction and estimated velocity.

3) Total precipitation during the previous five days and on the day of observation.

2. Pond A18 Discharge

a. Floating and suspended material of waste origin (to include algae, and other macroscopic particulate matter): presence or absence.

b. Odor: presence or absence, characterization , source, distance of travel and wind direction.

E. RECORDS TO BE MAINTAINED

1. Written reports, strip charts, calibration and maintenance records, and other records shall be maintained by the Discharger and accessible for a minimum of three years. This period of retention

shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board. Such records shall show the following for each sample:

a. Identity of sampling and observation stations by number.

b. Date and time of sampling and/or observations.

c. Method of sampling (e.g., grab, composite, or continuous)

d. Date and time that analyses are started and completed, and name of personnel performing the analyses.

e. Complete procedure used, including method of preserving sample and identity and volumes of reagents used. A reference to specific section of Standard Methods is satisfactory.

f. Calculations of results.

g. Results of analyses and/or observations.

F. REPORTS TO BE FILED WITH THE BOARD

Self–Monitoring Reports

Annual self-monitoring report: The purpose of the report is to document performance, discharge 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 year, 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 February 1 to:

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
ATTN: Executive Officer

2. *Letter of Transmittal:* Each report shall be submitted with a letter of transmittal. This letter shall include the following:
   a. Order Number and WDID number (see cover sheet of this SMP);
   b. Identification of all violations of discharge limits or other discharge requirements found during the monitoring period;
   c. Details of the violations: parameters, magnitude, test results, frequency, and dates;
   d. The cause of the violations;
   e. 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;
   f. 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 discharge limits are specified in the Order, the number of samples taken during the monitoring period, and the number of samples in violation of applicable discharge 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 Tables 1 and 2 are monitored more frequently than required by this 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 discharge limits that require averaging of measurements shall utilize an arithmetic mean, unless specified otherwise in this SMP.

5. *Data Reporting for Results Not Yet Available*: The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in a 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.

6. *Electronic Submittals:* The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit SMRs electronically, it 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).

G. DEFINITION OF TERMS

1. A grab sample is defined as an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may or may not be during hydraulic peaks. It is used primarily in determining compliance with daily maximum limits. Grab samples represent only the condition that exists at the time the water is collected.

2. A composite sample is defined as a sample composed of individual grab samples mixed in proportions varying not more than plus or minus five percent from the instantaneous rate (or highest concentration) of waste flow corresponding to each grab sample collected at regular intervals not greater than one hour, or collected by the use of continuous automatic sampling devices capable of attaining the proportional accuracy stipulated above throughout the period of discharge for 8 consecutive or of 24 consecutive hours, whichever is specified in the tables of this SMP.

3. A flow sample is defined as the accurate measurement of the average daily flow volume using a properly calibrated and maintained flow measuring device.

4. Duly authorized representative is one whose:

   a. Authorization is made in writing by a principal executive officer or ranking elected official;

   b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as general partner in a partnership, sole proprietor in a sole proprietorship, the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

5. Average values for daily and monthly values is obtained by taking the sum of all daily values divided by the number of all daily values measured during the specified period.

6. Median of an ordered set of values is that value below and above which there is an equal number of values, or which is the arithmetic mean of the two middle values, if there is no one middle value.

7. Daily Maximum limit is the total discharge in a calendar day for pollutants measured by mass or the average measurement obtained for other pollutants.

8. A depth-integrated sample is defined as a water or waste sample collected by allowing a sampling device to fill during a vertical traverse in the waste or receiving water body being sampled and shall be collected in such a manner that the collected sample will be representative of the waste or water body at that sampling point.

9. Bottom sediment sampling and reporting guidelines mean those guidelines developed by Board staff to provide for standard bottom sampling, laboratory, and reporting procedures.

H. Description of Monitoring or Sampling and Observation Stations

Figure 1 (attached) shows the location of each monitoring or sampling station within Pond A18, at the discharge points, and in receiving waters. The location of continuous monitoring in the receiving waters will be selected by the Discharger and approved by the Executive Officer at a point downstream of the discharge. Tables 1 and 2 (attached) indicate the sampling stations for Pond A18, constituents to sample, and the sample function.

The Discharger may need to operate the intake point as a discharge structure in order to comply with limits in this Order (e.g., salinity, dissolved oxygen). In such a case, the Discharger should monitor for parameters required for the discharge point, as indicated in Tables 1 and 2.

I. Sediment Monitoring

The Discharger shall collect annual samples for mercury and methyl mercury in August or September of each year from Pond A18. In collecting mercury samples, the Discharger shall follow the guidelines in Section C of the SMP, and monitor for pH, TOC, sulfides, and redox potential. Further, the Discharger shall report concentrations of mercury in mg/kg dry weight.

J. Self-Monitoring Program Certification

I, Bruce H. Wolfe, 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. R2-2005-0003.

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 February 16, 2005.

_____

BRUCE H. WOLFE
Executive Officer

Attachments:
Table 1 – Initial Release Monitoring for Pond A18
Table 2 – Continuous Circulation Monitoring for Pond A18
Figure 1 – Pond A18 Monitoring for South Discharge
Figure 2 – Pond A18 Monitoring for North Discharge

TABLE 1 – INITIAL RELEASE MONITORING FOR POND A18

Sampling Station:	D.O.	pH	Temp	Salinity	Turbidity	Benthos	Sample Function
A-A18-M	A	A	A	A			Management
A-A18-D	B	B	B	B			Discharge
A-A18-1	D	D	D	D	D	C	Receiving Water
A-A18-2	D	D	D	D	D	C	Receiving Water
A-A18-3	D	D	D	D	D	C	Receiving Water
A-A18-4	D	D	D	D	D	C	Receiving Water
A-A18-5	E	E	E	E			Receiving Water

LEGEND FOR TABLE 1

A = Monitoring shall be conducted within Pond A18 at least twice per month for at least the previous 2 months before discharge commences. Dissolved oxygen monitoring shall be conducted between 0800 and 1000 hours. Time of monitoring shall be reported.

B = Once discharge begins, discharge monitoring shall be conducted before pond water mixes with receiving water using a continuous monitoring device. Downtime of continuous monitoring devices shall be minimized to the maximum extent feasible, and addressed annually in the Discharger's Operations Plan.

C = Samples for benthos shall be collected from discrete locations at the convenient stage of tide at the following frequency: within one week before initiating discharge, 14 days (±2 days) after the initial discharge, 28 days (±2 days) after, once in the late summer (August/September), and then once in the late summer of the following year.

D = Receiving water monitoring shall be conducted at discrete locations from downstream to upstream at the following frequency: within one week before initiating discharge, one day (± 1 day) after the initial discharge, 3 days (± 1 day) after, 7 days (± 1 day) after, then weekly until the Discharger documents that discharge salinity levels are below 44 ppt. For days it monitors receiving waters, the Discharger shall also (1) document if it monitors at flood tide, ebb tide, or slack tide, (2) monitor receiving water for dissolved oxygen, pH, temperature, salinity, and turbidity near the water surface and bottom, and (3) report standard observations, as described in Section D of the SMP.

E = Receiving water continuous monitoring for the purposes of determining compliance with the dissolved oxygen and pH limits shall be conducted at a location selected by the Discharger and approved by the Executive Officer at a point downstream of the discharge. Downtime of continuous monitoring devices shall be minimized to the maximum extent feasible, and addressed annually in the Discharger's Operations Plan.

TABLE 2 – CONTINUOUS CIRCULATION MONITORING FOR POND A18

Sampling Station:	D.O.	pH	Temp	Salinity	Turbidity	Chlorophyll a	Metals/Water Column	Sample Function
A-A18-M	A	A	A	A		A		Management
A-A18-D	B	B	B	B			C	Discharge
A-A18-1	D	D	D	D	D			Receiving Water
A-A18-2	D	D	D	D	D			Receiving Water
A-A18-3	D	D	D	D	D			Receiving Water
A-A18-4	D	D	D	D	D			Receiving Water
A-A18-5	E	E	E	E				Receiving Water

LEGEND FOR TABLE 2

A = Monitoring shall be conducted within Pond A18 monthly from May through October. Dissolved oxygen monitoring shall be conducted between 0800 and 1000 hours. Time of monitoring shall be reported.

B = Discharge monitoring shall be conducted before pond water mixes with receiving water using a continuous monitoring device from May through October. Downtime of continuous monitoring devices shall be minimized to the maximum extent feasible, and addressed annually in the Discharger's Operations Plan.

C = Water column samples for total and dissolved arsenic, chromium, nickel, copper, zinc, selenium, silver, cadmium, lead, and mercury shall be collected annually in August or September. When collecting metals samples, the Discharger shall also monitor for salinity, and total suspended solids.

D = Receiving water monitoring shall be conducted at discrete locations from downstream to upstream monthly from May through October. The positions indicated on Figures 1 should be considered approximate. For days it monitors receiving water, the Discharger shall also (1) document if it monitors at flood tide, ebb tide, or slack tide (samples shall be collected as close to low tide as practicable), (2) monitor receiving water for dissolved oxygen, pH, temperature, salinity, and turbidity near the water surface and bottom, and (3) report standard observations, as described in Section D of the SMP.

E = Receiving water continuous monitoring for the purposes of determining compliance with the dissolved oxygen and pH limits shall be conducted from May through October at a location selected by the Discharger and approved by the Executive Officer at a point downstream of the discharge. Downtime of continuous monitoring devices shall be minimized to the maximum extent feasible, and addressed annually in the Discharger's Operations Plan.

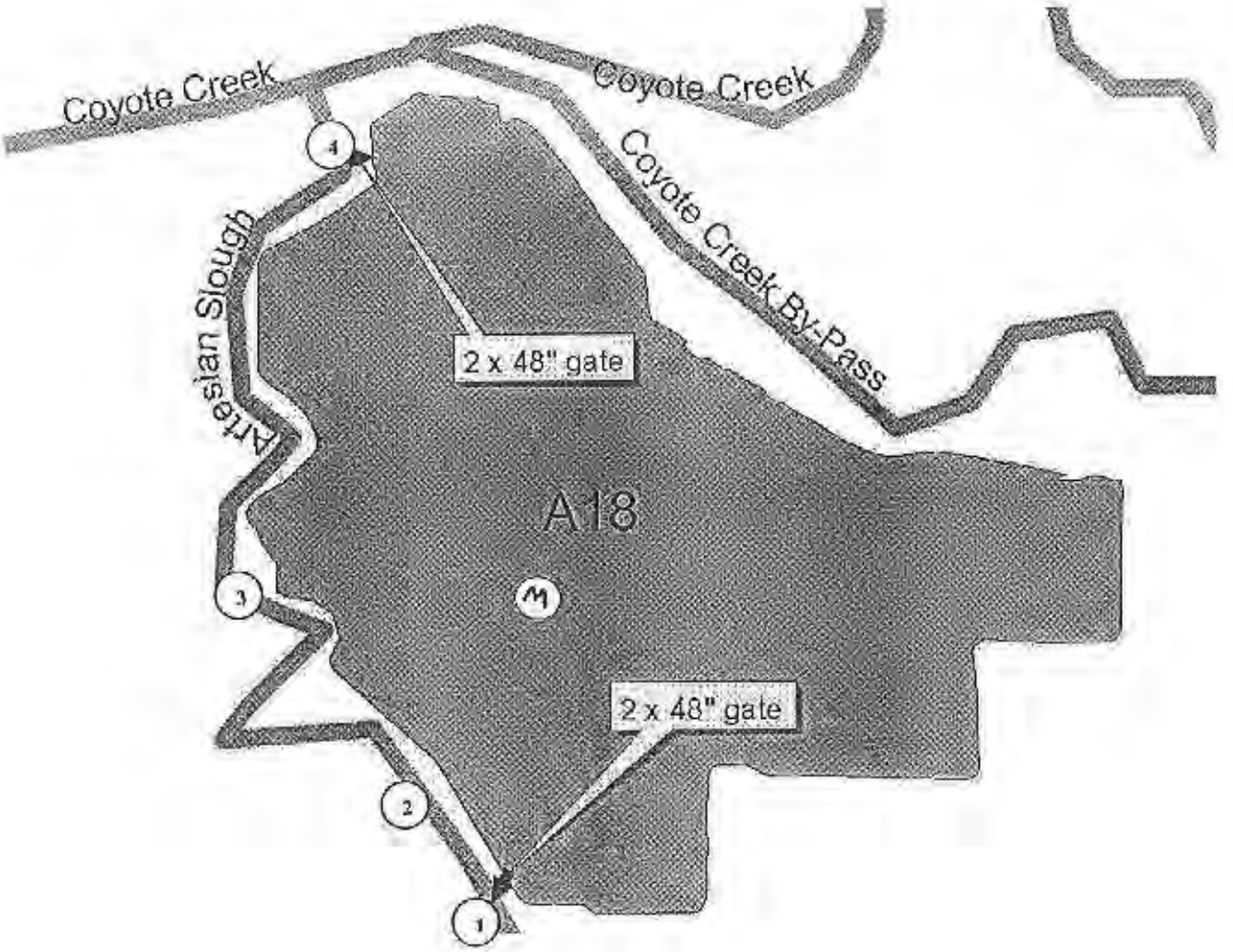


Figure 1 – Pond A18 Monitoring for South Discharge

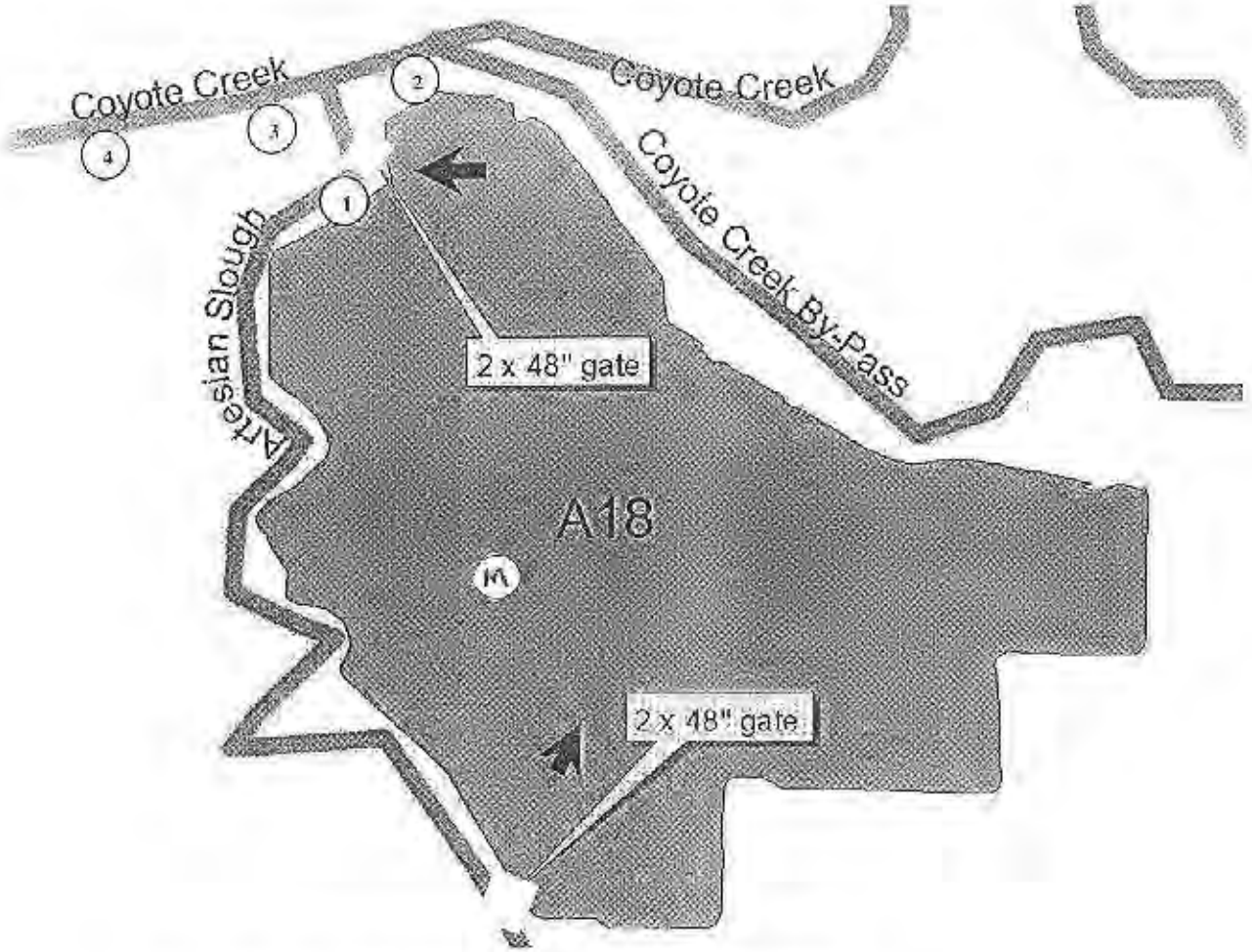


Figure 2 – Pond A18 Monitoring for North Discharge

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

WASTE DISCHARGE REQUIREMENTS for
CARGILL INCORPORATED
POND A18 LOW SALINITY SALT POND
SANTA CLARA COUNTY
ORDER NO. R2-2005-0003

PUBLIC NOTICE:

Written Comments

- Interested persons are invited to submit written comments concerning this draft Order.
- Comments must be submitted to the Water Board no later than 5:00 p.m. **on January 18, 2005**.
- Send comments to the Attention of Robert Schlipf.

Public Hearing

- The draft Order 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: **February 16, 2005**, starting at 9:00 am.

Additional Information

- For additional information about this matter, interested persons should contact Water Board staff member: Mr. Robert Schlipf, Phone: (510) 622-2478; email: rschlipf@waterboards.ca.gov

This Fact Sheet contains information regarding an application for waste discharge requirements for Cargill Incorporated. The Fact Sheet further describes the factual, legal, and methodological basis for the sections addressed in the proposed Order, and provides supporting documentation to explain the rationale and assumptions used in deriving limitations and requirements.

I. INTRODUCTION

Cargill Incorporated (hereafter Discharger) has applied to the Board for issuance of waste discharge requirements to discharge low salinity waters from Pond A18 to waters of the State. The Application and Report of Waste Discharge (ROWD) are dated November 10, 2004.

The Discharger proposes to discharge saline waters from Pond A18 to Artesian Slough. The purpose of this discharge is to maintain open water habitat, and cease salt production. Artesian Slough is a tidally influenced waterbody, with significant fresh water inflows from the San Jose/Santa Clara Water Pollution Control Plant. The existing and potential beneficial uses for receiving waters in the vicinity of the discharges, as identified in the Basin Plan are:

a. Industrial Service Supply

b. Navigation
c. Water Contact Recreation
d. Non-contact Water Recreation
e. Commercial and Sport Fishing
f. Wildlife Habitat
g. Preservation of Rare and Endangered Species
h. Fish Migration
i. Shellfish Harvesting
j. Fish Spawning
k. Estuarine Habitat

This Order conservatively assumes that Artesian Slough is estuarine under both the Basin Plan and California Toxics Rule (CTR) definitions. Therefore, the discharge limitations specified in this Order for all these discharges are based on the lower of the marine and freshwater Basin Plan WQOs and federally promulgated WQC.

II. HISTORICAL CONTEXT AND POND SYSTEMS

Historical Context. One of the focuses with the Discharger's application was to ensure that it had adequate controls in place to prevent significant salinity increases and acidification of soils as occurred in the North Bay Salt Ponds. According to *Feasibility Analysis: South Bay Salt Pond Restoration* by Stuart Siegel and Philip Bachand, 2002 (hereafter Restoration Report), insufficient water flows to the North Bay Salt Ponds created conditions favorable to sediment oxidation, which decreased sediment pH, and made ponds inhospitable for vegetation colonization. In order to minimize salinity and metals concentration, the potential for low pH in the sediment, mercury methylation, and conditions favorable to low dissolved oxygen in Pond A18, the Discharger conducted hydrodynamic modeling to ensure that the proposed sizing of inlet and outlet structures would result in adequate flow through. Historically, the salt ponds have not experienced decreased pH.

Pond A18. The Discharger proposes to discharge saline waters from Pond A18, which is 856 acres in size. Pond A18 has two control structures that have the ability to close off all flow, all inflow only, or outflow only, which offers the Discharger flexibility in management to control salinity and/or water levels. Water will enter and leave Pond A18 by gravity. The flow rates will vary over the tidal cycle depending on the difference in water level in the pond and water level in the Bay and associated sloughs where culverts are located. The ROWD indicates that the hydraulic residence time will vary as tidal conditions vary, but will typically range from 15 to 50 days. Table 1 below indicates that the average residence for May through November may be slightly higher than 50 days.

Table 1: Average Summer Hydraulic Residence Times (May through November) for A18

Pond	Area (acres)	Depth (ft)	Volume (acre-ft)	Outlet Flow (ft^3/s)	Residence Time (days)
A18	856	1.8	1540.8	12.6	61.7

While the hydraulic residence time indicated in Table 1 reflects average discharge flows and will likely change based on management practices employed by the Discharger, it does illustrate the management constraint of using flow management as a corrective measure to reduce salinities or increase dissolved oxygen levels. As such, the Order requires that the Discharger's operations plan consider corrective measures such as within pond targets for certain constituents in order to comply with the Order's limitations

III. WATER QUALITY

There are two types of discharge associated with the Pond A18 Management Plan. These are the initial release of higher salinity waters currently in Pond A18, and the continuous circulation of water in and out of Pond A18. The main parameters of concern for these discharges include salinity, metals, dissolved oxygen, pH, and temperature. The subsections below describe the potential for adverse affects from each of these parameters under the initial release and continuous circulation period.

SALINITY

During the initial release, hydrodynamic modeling predicts that Artesian Slough will contain elevated levels of salinity under both the south initial release (intake water from lower Artesian Slough near Coyote Creek, and discharge to upper Artesian Slough), and north initial release (intake water from upper Artesian Slough and discharge to lower Artesian Slough near Coyote Creek) scenarios. In developing salinity standards for the initial release, the Discharger indicates that Pond A18 will not contain salinity levels above 135 ppt since gypsum (calcium sulfate) begins to precipitate in water with salinities above 146 ppt. As calcium sulfate does not readily dissolve in water and the precipitation of which may cause the toxicity of saline waters above this threshold to increase significantly, the Discharger needs to ensure that salinity levels remain below this level.

For the North Initial Release scenario, the Discharger predicts relatively small increases in salinity, and indicates adverse affects on aquatic life are unlikely. For the South Initial Release scenario the ROWD predicts that salinity increases in Artesian Slough may be high enough to cause a temporary impact to some resident aquatic species near the discharge point, but expects recovery from such impacts to occur in less than one year. The salinity increase associated with the initial release are described in Attachment 1 and below:

a. South Initial Release: The highest salinity elevations in Artesian Slough and Coyote Creek are predicted to occur during the first week of March. On a depth-averaged basis, the ROWD predicts salinity increases of 10-20 ppt in most of Artesian Slough, and 1-5 ppt in portions of Coyote Creek. Salinity increases near the bottom of Artesian Slough up to 25 ppt are expected. During the initial release, the highest depth-averaged salinity predicted in Artesian Slough is 34 ppt near the Pond A18 discharge point.

b. North Initial Release: The highest salinity elevations in Artesian Slough and Coyote Creek are predicted to occur during the month of March with a maximum bottom salinity increase of about 5 ppt. The ROWD indicates that most of Artesian Slough should experience salinity increases of about 2-3 ppt, and portions of Coyote Creek should experience salinity increases of about 1-3 ppt. The highest depth-average salinity should be about 23 ppt near the confluence of Artesian Slough and Coyote Creek.

During the continuous circulation period, the Order requires that the maximum salinity discharged from Pond A18 not exceed 44 parts per thousand (ppt). Modeling efforts by the Discharger show that beneficial uses of Artesian Slough will be protected under the continuous circulation period because the magnitude and spatial scale of salinity increases will be small (for reference, these increases are shown in Attachment 1). The expected effect of salinity on the Bay and Coyote Creek should be minimal.

The ROWD predicts that during Continuous Circulation the salinity elevation in Artesian Slough and Coyote Creek will be low. For daily-averaged salinity, it is predicted that any increases will be 1-2 ppt or less and will occur in creek segments in the immediate vicinity of the Pond A18 discharge point. The area of Artesian Slough/Coyote Creek is directly affected by the freshwater discharge from the San Jose/Santa Clara Water Pollution Control Plant (WPCP). For the modeled conditions, all areas in Artesian Slough/Coyote Creek are expected to have salinities below 33 ppt. Consequently, adverse affects to aquatic life in Coyote Creek as a whole, resulting from elevated salinity, are not expected during the long-term Continuous Circulation Period.

METALS

The ROWD estimates metals concentrations at each discharge point based on salinity and some empirical salt pond data. To match metals concentrations with the range of salinities proposed for discharge, the ROWD considered (a) samples collected from the salt ponds in October 2002 along a salinity gradient (salinities ranged from 31.6 to 279 ppt), and (b) RMP data from the South Bay and Dumbarton Bridge (salinities ranged from 12 to 20 ppt). Table 2 below shows the modeled salinity in ppt for Pond A18 and the corresponding estimated maximum metals concentration in µg/L (except for mercury which is in ng/L). Metal concentrations in the discharge that are expected to exceed the minimum applicable receiving water quality objective are shown in italics.

Table 2: Proposed Maximum Salinity and Metals for Initial Discharge from Pond A18

Pond System	Modeled Salinity	Cr	Ni	Cu	Zn	As	Se	Ag	Cd	Hg	Pb
A18	135	2.36	21.8	3.39	4.49	*56.2*	0.31	0.15	0.119	49.7	1.37
WQO[1]		11.4	27	13	86	36	5.0	2.2	0.76	50	8.5

[1] The water quality objectives south of Dumbarton Bridge apply to discharges from Pond A18. The water quality objectives for chromium and cadmium are freshwater driven and based on a hardness of 400 mg/L. The initial release of highly saline waters from Alviso Ponds will cause some receiving waters to contain salinity and arsenic in excess of water quality objectives for a short duration.

As indicated in Table 2, Pond A18 may contain concentrations of arsenic that exceed water quality objectives during the initial release. To determine if pond discharges would cause receiving waters to exceed water quality objectives, the Discharger performed hydrodynamic modeling. This showed that during the initial release, the Pond A18 discharge should not cause any exceedances for arsenic in Artesian Slough. Under the continuous circulation period, metals are not expected to exceed water quality objectives provided the Discharger ensures that salinities remain below 44 ppt. Accordingly, this Order proposes to use a salinity limit of 44 ppt, as a surrogate for specific limits for metals. This should offer more protection because a) metals do not increase proportionately with increasing salinity because other factors such as biological uptake and adsorption to fine sediments reduce their concentrations, and b) the Discharger can monitor salinity continuously, which will provide it with immediate feedback and the ability to implement corrective measures in a more timely manner.

DISSOLVED OXYGEN AND PH

In lower salinity ponds, dissolved oxygen and pH may present water quality concerns. The Restoration Report indicates that low salinity ponds are likely conducive to algal growth because (a) more algal species can tolerate salinities in this range, and (b) they tend to have elevated nitrogen and phosphorus concentrations, warm temperatures, and good light attenuation. Excessive algal growth can cause dissolved oxygen and pH levels to vary significantly over the day. This is because during daylight hours, photosynthesis will produce oxygen and consume dissolved carbon dioxide (which behaves similar to carbonic acid). During nighttime hours, decomposition of algae will produce dissolved carbon dioxide and consume oxygen. Therefore, any significant algal growth will cause dissolved oxygen and pH levels to peak during the evening hours and to be at their lowest levels in the morning. This diurnal and seasonal variation in dissolved oxygen levels is similar to patterns observed in lagoons and sloughs and other shallow areas of the Bay. Factors that influence dissolved oxygen levels, both in the pond and in receiving waters, include strength and level of tides, other inflows into the receiving waters, rainfall, wind direction, temperature, time of day, amount of sunlight, and seasonal effects.

To ensure that dissolved oxygen levels from the discharge are not adversely affecting receiving waters, this Order also includes a trigger value for the continuous circulation period. If dissolved oxygen levels fall below a 10th percentile of 3.3 mg/L (calculated on a weekly basis), the Discharger shall make a timely report to the Board, and implement Best Management Practices described in its Operations Plan, as appropriate. These adaptive management techniques may include aeration, controlling the flow rate of the intake or discharge, reversing

direction of flow, controlling the timing of the discharge, or temporarily suspending the discharge. The dissolved oxygen trigger is based on levels found in Coyote Creek in July 1997. These values are the most relevant representation of natural dissolved oxygen variations in sloughs or lagoon systems currently available. As it may be possible for the Discharger to develop more relevant trigger values, this Order provides the Discharger with the opportunity to develop alternative values subject to Executive Officer or Board approval.

In evaluating the potential for dissolved oxygen sags in Artesian Slough and Coyote Creek, the ROWD indicates that the Discharger (a) evaluated dissolved oxygen conditions in receiving waters associated with pond discharges, (b) reviewed dissolved oxygen monitoring data collected during the initial release period from the summer of 2004, and (c) performed a laboratory study to evaluate the potential for dissolved oxygen depressions (or sags) in Artesian Slough from Pond A18 discharges. Based on these analyses (described below), the Discharger indicates that the potential for dissolved oxygen sags in Artesian Slough from Pond A18 discharges is less than significant.

a. **Initial Stewardship Plan (ISP) Analysis:** This evaluation involved evaluating oxygen demand and dissolved oxygen dynamics in ponds. The Discharger determined that increased oxygen demand or low dissolved oxygen levels is due to the presence and respiration of algae in pond water, and with minimal ambient light conditions (~8 hrs) no net loss of dissolved oxygen should occur in sloughs or the Bay over a 24-hour period. As described in Finding No. 40, the results of a September 2003 study on dissolved oxygen dynamics showed that dissolved oxygen levels drop below 5.0 mg/L in many of the ponds near dawn, but that levels recover in the afternoon hours.

b. **Review of ISP Data:** In the summer of 2004, The Service commenced the initial release of pond waters from Ponds A2W, A3W, and A7. Monitoring efforts showed that dissolved oxygen levels in Ponds A2W and A7 exhibited a strong diurnal pattern (low dissolved oxygen near dawn), but that receiving water monitoring in the Bay and Alviso Slough did not detect reductions in dissolved oxygen levels from these discharges. The discharge from Pond A3W showed consistently low dissolved oxygen levels, and monitoring of Guadalupe Slough indicates that Pond A3W may have caused dissolved oxygen depressions. To evaluate why dissolved oxygen levels in Pond A3W were severely depressed on a consistent basis (i.e., below 1 mg/L), the Discharger performed two surveys and learned the low dissolved oxygen levels in the Pond A3W discharge was the result of a mat of decaying algae, and was not representative of the general state of the pond. Since the discharge point for Pond A3W is located on the edge of this algae mat, it contains depressed dissolved oxygen levels. The ROWD indicates that salt ponds should exhibit a diurnal dissolved oxygen pattern, with supersaturated conditions during the day, and low levels during the night and predawn hours. The ROWD explains that this should not cause significant dissolved oxygen depression in sloughs. In situations where the discharge point is near accumulating dead algae, the discharge could produce a significant DO sag in receiving waters. For the Pond A18 discharge, the ROWD explains that accumulation of dead algae near the discharge point should not occur because the discharge structures are on the upwind side of the pond.

c. **Laboratory Study:** To evaluate the potential for dissolved oxygen sags in Artesian Slough from Pond A18 discharges, the Discharger performed laboratory simulations in which algal populations developed densities similar to those expected in Pond A18 during a later-summer continuous circulation period. The laboratory simulation formulated estimated compositions of water (i.e., Bay water, Artesian Slough water, Pond A18 discharge water, and Pond A16 discharge water), and tested oxygen demand. The ROWD indicates that circulating water through Pond A18 (under both scenarios) should not reduce dissolved oxygen levels in Artesian Slough to a point where adverse affects to aquatic life would occur. However, the ROWD explains that Pond A18 discharges would remain higher in dissolved oxygen when discharging through the south structure because intake water at the north structure will contain less effluent from Plant. The ROWD indicates that the laboratory study showed that for simulations using intake water from the south structure, algae levels were significantly higher than those found in simulations using water

from the north structure or the control (all Bay water). This indicates that Pond A18 would have a higher potential to discharge waters low in dissolved oxygen should it intake water from the south structure (i.e., near the San Jose/Santa Clara Water Pollution Control Plant discharge point).

For pH, the data collected by the Discharger in the ISP analysis shows it does not exhibit a diurnal variation. This data showed that there is little spatial variation in pH across each pond, and that the Discharger would likely have trouble meeting the water quality objective for pH of 6.5 to 8.5 at the discharge point (Finding No. 40 includes a summary of pH data). To minimize the potential for high pH values in the discharge, the Discharger needs to ensure that ponds have adequate flow through. It is also appropriate to consider a receiving water limitation for this parameter due to the impracticalities of chemically controlling pH in salt ponds to meet Basin Plan objectives.

TEMPERATURE

Due to shallow water depths and limited tidal exchange, water temperature in the salt ponds is elevated and varies widely throughout the day. Annual water temperatures within the ponds generally range from 40 to 80°F and generally track air temperature. The State's Thermal Plan indicates that discharges shall not exceed the natural temperature of receiving waters by 20°F, and the discharges shall not cause temperatures to rise greater than 4°F above the natural temperature of the receiving water at any time or place. The ROWD indicates that temperatures collected in the salt ponds on August 26 and 27, 2002, showed values ranging from 19.5 to 32.8°C (67.1 to 91.0°F), and values in the Bay ranging from 26.7 and 28.1°C (80.1 to 82.6 °F). These results indicate that salt pond discharges should comply with the Thermal Plan.

SEDIMENTS

The Restoration Report indicates that the level of contaminants in salt pond sediments are expected to be lower than surrounding areas. This is because the pond systems are currently managed to maintain long detention times that can result in significant algal growth. Algae typically settle to the bottom of ponds, thereby increasing sediment organic content. This addition of biomass dilutes contaminants in these soils. Sediment data collected by the Discharger confirms this with organics at nondetect, and metals typically lower than ambient conditions.

IV. SHORT-TERM EXCEEDANCES AND RECOVERY TIMES

The ROWD indicates that the South Bay environment requires resident aquatic organisms to have the ability to tolerate fluctuations (e.g., benthic species) and/or have the ability to move to more optimal conditions (e.g., planktonic species). Since benthic organisms do not have the ability to move away from unsuitable conditions, they must be much more tolerant than mobile organisms in order to survive. The ROWD indicates that it is not possible to develop a threshold salinity value for the South Bay that would be protective of all exposed organisms because of the variety of species, and the lack of scientific data on salinity tolerance ranges. To address potential adverse affects to resident aquatic organisms, the ROWD approximates salinity levels that could have acute (lethal) or chronic (altered physiological function) effects. Table 3 below (from the Discharger's ROWD) provides the matrix developed by the Discharger that relates certain salinity levels to acute and chronic effects.

Table 3: Summary of Potential Salinity Response Characteristics (Summer Conditions)[1]

Class	Salinity Range	Potential Response
Ambient	<33	Benthic species population may vary depending upon species salinity preferences.
Drought	33-35	Chronic exposure: benthic community changes to salinity tolerant species similar to drought years, effects quickly reversed with normal salinity regime. Acute exposure: less of a shift is species composition. In either case, impacts less than significant

Salinity ranges above those encountered in South Bay		
Stage 1	36-38	Chronic exposure: benthic community may lose most sensitive species, impacts considered potentially significant. Acute exposure: less impact on community, impacts considered less than significant.
Stage 2	39-41	Chronic exposure: benthic community may lose larger number of species, impacts considered significant. Acute exposure: less impact on community, impacts considered potentially significant.
Stage 3	41-45	Chronic exposure: community may be limited to most salinity tolerant species, impacts considered significant. Acute exposure: less impact on community but still loss of large number of species, impacts considered significant.
Stage 4	>45	For both chronic and acute exposures, community would be severely reduced. In either case, impacts considered significant.
NOTE: Response criteria based on scant scientific data for local species and therefore must be considered speculative.		

[1] The ROWD indicates that the Discharger based the stages on some species that do not inhabit the bay. This is because there is limited information on the tolerance of native species

Since the initial release has the potential to adversely affect aquatic life, the Discharger also investigated the potential for recovery should adverse affects occur. The ROWD indicates that any adverse affects to aquatic organisms during the initial release will be short-lived and that the aquatic community will quickly recover. Based on available literature, the ROWD indicates that benthic communities adversely affected by the initial release should completely recover within one year. To support this position, the ROWD cites a number of studies (enumerated below) that describe quick recovery times for benthic communities subject to perturbations that significantly reduced their numbers.

1) The ROWD indicates that from 1974-1983, Nichols and Thompson studied benthic invertebrate communities in South Bay mudflats. This report found that benthic communities were very persistent over time because of the ability of species to respond quickly to environmental perturbations such as changes in salinity. According to the ROWD, perturbations that greatly reduced or almost eliminated resident species were short-lived, as when favorable conditions returned these species would reestablish within months.

2) The ROWD also cites a report by Hopkins that studied two sites near Palo Alto and Hayward that are close to proposed discharge points from the ISP Alviso pond systems, and therefore, should have a similar benthic invertebrate community. This report found that an unusually wet period resulted in the loss of many benthic invertebrates, but that these species recovered when normal rainfall patterns returned the following year.

3) Additionally, the ROWD cites a report by the California Department of Water Resources (CDWR) that describes an accidental spill of metam sodium in the upper Sacramento River, which eliminated the benthic community for a 26-mile stretch. The CDWR study reports that within four months the diversity found at impacted areas was similar to the upstream control area and that within one year most metrics of then benthic community indicated recovery.

Providing Open Water Habitat and Cessation of Salt-Making Outweighs Short-term Exceedances. As potential adverse affects from the Pond A18 discharge include short-term impacts from the initial discharge related to salinity and metals, the ROWD indicates that the benefit of providing open water habitat outweighs the environmental cost of the project. To maintain open water conditions in Pond A18, the ROWD indicates that the Discharger must provide circulation of Bay water. This is because the hydrologic connection between Pond A17 and A18 is being severed due to the implementation of the ISP (historically, a siphon under Artesian Slough transferred brine from Pond A17 to A18). Without the introduction of Bay water, Pond A18 would dry down during the summer and become a seasonal pond in the winter, which would significantly reduce open water

habitat. The finding of net environmental benefit is also based on timely cessation of salt-making operations and the avoidance of the negative consequences of project delays on buildup of salt in the former salt ponds and the associated water quality risks and management costs, as experienced by the dischargers with the North Bay salt ponds.

V. GENERAL RATIONALE

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

? The Water Board's June 21, 1995 *Water Quality Control Plan San Francisco Bay Basin (Region 2)* (the Basin Plan);

? U.S. EPA's May 18, 2000 *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (the California Toxics Rule – the CTR);

? U.S. EPA's National Toxics Rule as promulgated [Federal Register Volume 57, 22 December 1992, page 60848] and subsequently amended (the NTR);

? U.S. EPA's March 1991 Technical Support Document for Water Quality-Based Toxics Control (the TSD);

? The State Board's *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan).

VI. SPECIFIC RATIONALE

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

1. Basis for Prohibitions

a) Prohibition A. (initial release from Pond A18 cannot commence at any time other than February 16 through March 16): This prohibition is to ensure that the initial release of waters from Pond A18 occurs at a time when mixing with freshwater will be maximized, and exposure to sensitive species (e.g., bay shrimp) will be minimized. Additionally, this prohibition is to ensure that the initial release is consistent with modeled results, which used March 2 as the date for commencing the initial release.

2. Basis for Discharge Limitations

a) Discharge Limitation B.1 (salinity limits for the initial release): These limits are based on the narrative salinity objective in the Basin Plan. The Fact Sheet provides the rationale for this limit.

b) Discharge Limitation B.2 (salinity limits for continuous circulation, dissolved oxygen, and pH limits): These limits are based on the Basin Plan. The Fact Sheet contains the rationale for the salinity, dissolved oxygen, and pH limits.

c) Discharge Limitation B.3 (temperature): This limit is based on the narrative temperature objective in the Basin Plan and the Thermal Plan.

d) Discharge Limitation B.4 (Dissolved Oxygen Trigger within ponds): The purpose of this trigger is to ensure the Discharger will implement corrective measures to minimize the potential for odors, avian botulism, and mercury methylation. This limit is based on previous permits adopted by the California Regional Water Quality Control Board, Central Valley Region (e.g., Order No. 5-01-243 for the El Portal Wastewater Treatment Facility).

3. Basis for Receiving Water Limitations

a) Receiving water limitations C.1, C.2, and C.3 (conditions to be avoided): These limits are based on the narrative/numerical objectives contained in Chapter 3 of the Basin Plan, page 3-2 – 3-5, and are identical to language in nearly all WDRs adopted by the Water Board.

b) Receiving water limitation C.4 (compliance with State Law): This requirement requires compliance with Federal and State Law, and is self-explanatory. This is identical to language in nearly all WDRs adopted by the Water Board.

4. Basis for Self-Monitoring Requirements

This Order requires water quality monitoring within ponds, at discharge points, and in the receiving waters for salinity, metals, dissolved oxygen, pH, temperature, and turbidity. It also requires receiving water monitoring for benthic organisms. Additionally, this Order requires the Discharger to monitor water levels, and conduct sediment monitoring for pH, TOC, redox potential, and metals (including speciation of mercury to determine if the management of Pond A18 creates conditions that enhance mercury methylation).

5. Basis for Provisions

a) Provision D.1 (Permit Compliance): This purpose of this provision is to specify the date that the Order becomes effective. The effective date allows the Discharger to release waters from Pond A18 provided it complies with the terms and conditions in the Order. It also provides the starting date for which the Discharger must begin to comply with monitoring requirements contained in the Order.

b) Provision D.2 (Operations Plan and Adaptive Management)**:** This provision requires that the Discharger submit an Operations Plan for Pond A18 that describes how it will review self-monitoring data and adaptively manage Pond A18 to ensure that during the continuous circulation period the beneficial uses of receiving waters remained protected. In this case, adaptive management is essential because of the uncertainty associated with managing low salinity ponds and the potential for avian botulism outbreaks and changes in salinity, metals, pH, dissolved oxygen, temperature, and mercury methylation. This provision is necessary to ensure that the Discharger implements best management practices to minimize the potential for these parameters to affect water quality and beneficial uses.

d) Provision D.3 (Compliance with Dissolved Oxygen Limitation): This provision requires that the Discharger submit a timely report to the Board, and implement Best Management Practices described in its Operations Plan if dissolved oxygen levels fall below a 10^{th} percentile of 3.3 mg/L (calculated on a weekly basis) at the point of discharge. This trigger is based on dissolved oxygen data from July 1997 from Artesian Slough near the Heron Rookery (10^{th} percentile equals 3.3 mg/L). This provision is necessary to ensure that the Discharger implements corrective measures to minimize the potential for depressed dissolved oxygen levels to affect water quality and beneficial uses.

e) Provision D.4 (Timing Variance): The Discharger may petition the Executive Officer to receive a variance from the timing requirements contained in this Order for the initial release, if it can demonstrate

that its proposed alternative discharge will offer an equivalent level of protection. Specifically, the Discharger must address potential impacts to aquatic life (e.g., bay shrimp) if it proposes to commence the initial release of saline waters at a time other than that prescribed by Prohibition A. This provision is to provide the Discharger some flexibility in operating subject to natural factors beyond the Discharger's control (e.g., weather conditions, equipment failure, and complications with coordinating the initial release from Ponds A14 and A16 with The Service), as long as it does not harm water quality.

f) Provision D.5 (Initial Release from Ponds A14 and A16): This provision requires the Discharger to coordinate with The Service to ensure that the commencement of the initial release from Pond A18 does not coincide with the commencement of the initial release from Pond A16. A staggering of the beginning of the initial releases of A18 and A16 is necessary to minimize salinity increases in Artesian Slough during this period.

g) Provision D.6 (Status Report on Long-Term Operations): The purpose of this provision is to ensure the Discharger will commit to a long-term planning effort for Pond A18 that will benefit water quality and beneficial uses. This is necessary to offset potential low dissolved oxygen conditions associated with lagoon management during the continuous circulation period.

f) Provision D.7 (Self-Monitoring Program): This provision requires compliance with the Self-Monitoring Program (SMP) and is necessary to ensure that the Discharger conducts monitoring of the permitted discharges in order to evaluate compliance with Order conditions. Monitoring requirements are contained in the SMP of the Order and are necessary to ensure the Discharger has sufficient information to adaptively manage pond systems (if necessary) to ensure beneficial uses of receiving waters remain protected.

g) Provision D.8 (Standard Provisions and Reporting Requirements): The purpose of this provision is to require compliance with the standard provisions and reporting requirements given in this Water Board's document titled *Standard Provisions and Reporting Requirements for NON-NPDES Wastewater Discharge Permits, August 1993* (Standard Provisions), or any amendments thereafter. That document is incorporated in this Order as an attachment to it. Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in Standard Provisions, this Order's specifications shall apply. The standard provisions and reporting requirements given in the above document are based on various state and federal regulations with specified references cited therein.

h) Provision D.9 (Change in Control or Ownership): This provision is necessary to ensure that if this land changes control or ownership, the succeeding owner or operator recognizes that it must comply with the terms and conditions contained in the Order.

i) Provision D.10 (Review and Modification of Requirements): This provision is necessary to notify the Discharger that the Board may modify permit conditions to ensure that beneficial uses or receiving waters remain protected.

VII. 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.

Attachment 1: Magnitude and Spatial Scale of Salinity Increases under the Initial Release and the Continuous Circulation Period

Table 1: Modeled Salinity Increases for the Initial Release

			Acres By Salinity Class[1]						
Receiving Water	**Date[2]**	**Total Acres**	**Ambient Conditions**	**Drought Conditions**	**Stage 1**	**Stage 2**	**Stage 3**	**Stage 4**	**Context[3] – Percent of Area**
Artesian Slough									
South Initial Release	3-Mar								
Daily Maximum (2-hr)[4]		178	176	1.3	0.0	0.1	0.2	0.6	0.0
Daily Average (24-hr)[5]		178	178	0.1	0.0	0.0	0.2	0.0	0.0
North Initial Release	2-Mar								
Daily Maximum (2-hr)[4]		178	178	0.1	0.0	0.0	0.0	0.1	0.0
Daily Average (24-hr)[5]		178	178	0.0	0.0	0.0	0.0	0.1	0.0

Notes:
[1] Ambient Conditions = <33ppt salinity; Drought Conditions = 33-35 ppt salinity; Stage 1 = 36-38 ppt salinity; Stage 2 = 36-38 ppt salinity; Stage 3 = 42-45 ppt salinity; Stage 4 = >45 ppt salinity
[2] Date of maximum day of areal impact during IRP.
[3] Context – Areal extent of significant intensity classes; greater than 10% considered significant.
[4] Daily maximum salinity predicted for approximately 2 hours of maximum day of IRP.
[5] Daily average salinity over 24 hours of maximum day of IRP.

Table 2: Modeled Salinity Impacts for Late Summer Conditions During Continuous Circulation Period

			Acres By Salinity Class[1]						
Receiving Water	**Date[2]**	**Total Acres**	**Ambient Conditions**	**Drought Conditions**	**Stage 1**	**Stage 2**	**Stage 3**	**Stage 4**	**Context[3] – Percent of Area**
Artesian Slough									
Daily Maximum (2-hr)[4]	15-Sep	178	178	0.0	0.0	0.0	0.0	0.0	0
Daily Average (24-hr)[5]	15-Sep	178	178	0.0	0.0	0.0	0.0	0.0	0

Notes:
[1] Ambient Conditions = <33ppt salinity; Drought Conditions = 33-35 ppt salinity; Stage 1 = 36-38 ppt salinity; Stage 2 = 36-38 ppt salinity; Stage 3 = 42-45 ppt salinity; Stage 4 = >45 ppt salinity
[2] Date of maximum day of areal impact.
[3] Context – Areal extent of significant intensity classes; greater than 10% considered significant.
[4] Daily maximum salinity predicted for approximately 2 hours of maximum day.
[5] Daily average salinity over 24 hours of maximum day.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
August 1993

STANDARD PROVISIONS AND REPORTING REQUIREMENTS

for

NON-NPDES WASTEWATER DISCHARGE PERMITS

A. GENERAL PROVISIONS

1. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Section 13050 of the California Water Code.

2. Duty to Comply

   a. The discharger must comply with all of the conditions of this permit. Any permit noncompliance constitutes a violation of the Porter-Cologne Water Quality Control Act and/or Basin Plan and is grounds for enforcement action.

   b The filing of a request by the discharger for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

3. Duty to Mitigate

   The discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this order and permit which has a reasonable likelihood of adversely affecting public health or the environment, including such accelerated or additional monitoring as requested by the Board or Executive Officer to determine the nature and impact of the violation.

4. All facilities used for transport, treatment, or disposal of wastes shall be adequately protected against overflow or washout as the result of a 100-year frequency flood.

5. Collection, treatment, storage and disposal systems shall be operated in a manner that precludes public contact with wastewater, except where excluding the public is inappropriate, warning signs shall be posted.

6. Property Rights

   This Order and Permit does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, nor protect the discharger from liabilities under federal, state or local laws.

7. Inspection and Entry

   The Board or its authorized representatives shall be allowed:

   a. Entry upon premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of the order and permit;

b. Access to and copy at reasonable times any records that must be kept under the conditions of the order and permit;

c. To inspect at reasonable times any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under the order and permit; and

d. To photograph, sample, and monitor at reasonable times for the purpose of assuring compliance with the order and permit.

8. Permit Actions

This Order and Permit may be modified, revoked and reissued, or terminated in accordance with applicable State regulations. Cause for taking such action includes, but is not limited to any of the following:

a. Violation of any term or condition contained in the Order and Permit;

b. Obtaining the Order and Permit by misrepresentation, or by failure to disclose fully all relevant facts; and

c. Endangerment to public health or environment that can only be regulated to acceptable levels by order and permit modification or termination.

9. Duty to Provide Information

The discharger shall furnish, within a reasonable time, any information the Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit. The discharger shall also furnish to the Board, upon request, copies of records required to be kept by its permit.

10. Waste Stream Diversion

The intentional diversion of waste streams from any portion of a treatment facility or authorized waste disposal system is prohibited. The Board may take enforcement action against the discharger for such diversions unless:

a. Waste stream diversion was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a diversion. Severe property damage does not mean economic loss caused by delays in production.);

b. There were no feasible alternatives to the diversion, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a diversion which occurred during normal periods of equipment downtime or preventive maintenance; and

c. The discharger submitted advance notice of the need for a diversion to the Board. If the discharger knows in advance of the need for a diversion, it shall submit prior notice, if possible at least 10 days before the date of the diversion.

11. Availability

A copy of this permit shall be maintained at the discharge facility and be available at all times to operating personnel.

12. Continuation of Expired Permit

This permit continues in force and effect until a new permit is issued or the Board rescinds the permit. Only those dischargers authorized to discharge under the expiring permit are covered by the continued permit.

B. TREATMENT RELIABILITY

1. The discharger shall, at all times, properly operate and maintain all facilities and systems of treatment disposal and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with this order and permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. All of these procedures shall be described in an Operation and Maintenance Manual. The discharger shall keep in a state of readiness all systems necessary to achieve compliance with the conditions of this order and permit. All systems, both those in service and reserve, shall be inspected and maintained on a regular basis. Records shall be kept of the tests and made available to the Board.

2. Safeguard to electric power failure:

   a. The discharger shall, within ninety (90) days of the effective date of this permit, submit to the Board for approval a description of the existing safeguards provided to assure that, should there be reduction, loss, or failure of electric power, the discharger shall comply with the terms and conditions of its Order. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past five years on effluent quality and on the capability of the discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Board.

   b. Should the Board not approve the existing safeguards, the discharger shall, within ninety (90) days of having been advised by the Board that the existing safeguards are inadequate, provide to the Board a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the permittee shall comply with the terms and conditions of this permit. The schedule of compliance shall, upon approval of the Board Executive Officer, become a condition of the Order.

   c. If the discharger already has approved plan(s), the plan shall be revised and updated as specified in the plan or whenever there has been a material change in design or operation. A revised plan shall be submitted to the Board within ninety (90) days of the material change.

3. Waste treatment facilities subject to this order and permit shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Division 4, Chapter 14, Title 23 of the California Code of Regulations. (See Definition E. 4)

C. GENERAL REPORTING REQUIREMENTS

1. Signatory Requirements

   a. All reports required by the order and permit and other information requested by the Board shall be signed by a principal owner or operator, or by a duly authorized representative of that person.

   b. Certification

      All reports signed by a duly authorized representative under Provision C.1.a. shall contain the following certification:

      "I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

2. Should the discharger discover that it failed to submit any relevant facts or that it submitted incorrect information in any report, it shall promptly submit the missing or correct information.

3. False Reporting

   Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall be subject to enforcement procedures as identified in Section F of these Provisions.

4. Transfers

   a. This permit is not transferable to any person except after notice to the Board. The Board may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary.

   b Transfer of control or ownership of a waste treatment/disposal facility must be preceded by a notice to the Board at least 30 days in advance of the proposed transfer date. The notice must include a written agreement between the existing discharger and proposed discharger containing specific dates for transfer of responsibility, coverage, and liability between them. Whether an order and permit may be transferred without modification or revocation and reissuance is at the discretion of the Board. If order and permit modification or revocation and reissuance is necessary, transfer may be delayed 180 days after the Board's receipt of a complete application for waste discharge requirements.

5. Spill Prevention and Contingency Plans

The discharger shall file with the Board, for Executive Officer review and approval within ninety (90) days after the effective date of this Order, a technical report or a statement that the existing plan(s) was reviewed and updated, as appropriate, on preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. The technical report or updated revisions should:

a. Identify the possible sources of accidental loss, untreated or partially treated waste bypass, and polluted drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.

b. Evaluate the effectiveness of present facilities and procedures and state when they became operational.

c. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

This Board, after review of the technical report or updated revisions, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions may be incorporated as part of this Order, upon notice to the discharger. If the discharger already has an approved plan(s) he shall update them as specified in the plan(s).

6. Compliance Reporting

a. Planned Changes

The discharger shall file with the Board a report of waste discharge at least 120 days before making any material change or proposed change in the character, location or volume of the discharge.

b. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final compliance dates contained in any compliance schedule shall be submitted within 10 working days following each scheduled date unless otherwise specified within this order and permit. If reporting noncompliance, the report shall include a description of the reason for failure to comply , a description and schedule of tasks necessary to achieve compliance and an estimated date for achieving full compliance. A final report shall be submitted within 10 working days of achieving full compliance, documenting full compliance

c. Anticipated Non-compliance

A discharger must provide adequate notice to the Board of any substantial or material change in the volume or character of pollutants being introduced into the waste treatment system.

Adequate notice shall include information on the quality and quantity of influent introduced as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the waste treatment system.

d. Non-compliance Reporting (Twenty-four hour reporting:)

1) The discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five working days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

2) The following shall be included as information that must be reported within 24 hours under this paragraph:

i. Any unanticipated discharge not authorized by this permit,

ii. Any waste treatment upset that exceeds any effluent limitation in this permit.

iii. Violation of a maximum daily discharge limitation for any of the pollutants listed in this permit to be reported within 24 hours.

3) The Board may waive the above-required written report on a case-by-case basis.

D. ENFORCEMENT

1. The provision contained in this enforcement section shall not act as a limitation on the statutory or regulatory authority of the Board.

2. Any violation of the permit constitutes violation of the California Water Code and regulations adopted thereunder and is the basis for enforcement action, permit termination, permit revocation and reissuance, denial of an application for permit reissuance; or a combination thereof.

3. The Board may impose administrative civil liability, may refer a discharger to the State Attorney General to seek civil monetary penalties, may seek injunctive relief or take other appropriate enforcement action as provided in the California Water Code or federal law for violation of Board orders.

4. It shall not be a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this order and permit.

E. DEFINITIONS

1. Duly authorized representative is one whose:

   a. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as general manager in a partnership, manager, operator of a well or a well field, superintendent, positon of equivalent responsibility, or an individual or positon having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named positon.); and

   b. Written authorization is submitted to the Board. If an authorization becomes no longer accurate because a different individual or positon has responsibility for the overall operation of the facility, a new authorization satisfying the requirements above must be submitted to the Board prior to or together with any reports, information, or applications to be signed by an authorized representative.

2. Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable or substantial and permanent oss of natural resources which can reasonably be expected to occur in the absence of an overflow. It does not mean economic loss caused by delays in production.

3. Waste Stream Diversion means the intentional diversion of waste streams from any portion of treatment facility.

4. Waste Treatment Facility means either:

   a. Any facility owned by a state, local, or federal agency and used in the treatment or reclamation of sewage and industrial wastes.

   b. Any privately owned facility used in the treatment or reclamation of sewage and industrial wastes, and regulated by the Public Utilities Commission pursuant to Sections 216 and 230.6 of, and hapter 4 (commencing with Section 701) of Part 1 of Division 1, of the Public Utilities Code.

5. Waste, waste discharge, discharge of waste, and discharge are used interchangeably in this order and permit. The requirements of this order and permit are applicable to the entire volume of water, and the material therein, which is disposed of to surface and ground waters of the State of California.