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Secretary for
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California Regional Water Quality Control Board

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Arnold Schwarzenegger
Governor

TENTATIVE ORDER
NPDES PERMIT NO. CA0037621

The following Discharger is subject to waste discharge requirements as set forth in this Order.

Table 1. Discharger Information

Discharger	City of Sunnyvale
Name of Facility	Sunnyvale Water Pollution Control Plant and its sewage collection system
Facility Address	1444 Borregas Avenue
	Sunnyvale, CA 94088
	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 Sunnyvale 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	Advanced secondary-treated Municipal Wastewater	37º 25′ 13″ N	122º 01′ 00″ W	Moffett Channel (Tributary to South San Francisco Bay via Guadalupe Slough)

Table 3. Administrative Information

This Order was adopted by the Regional Water Board on:	March 11, 2009
This Order shall become effective on:	May 1, 2009
This Order shall expire on:	April 30, 2014
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

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 March 11, 2008.

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Bruce H. Wolfe**,** Executive Officer

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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	City of Sunnyvale
Name of Facility	Sunnyvale Water Pollution Control Plant and its sewage collection system
Facility Address	1444 Borregas Avenue Sunnyvale , CA 94088 Santa Clara County
Facility Contact, Title, and Phone	Lorrie Gervin, Environmental Division Manager, (408) 730-7268
Mailing Address	P.O. Box 3703, Sunnyvale CA 94088
Type of Facility	Publicly Owned Treatment Works (POTW)
Facility Design Flow	29.5 million gallons per day (MGD) (average dry weather design flow capacity) 40 MGD (peak wet weather design flow)
Service Areas	City of Sunnyvale, Rancho Rinconada, and Moffett Field
Service Area Population	136,000

II. FINDINGS

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

A. Background. The City of Sunnyvale (hereinafter the Discharger) has been discharging under Order No. R2-2003-0079 (previous Order) and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037621. The Discharger submitted a Report of Waste Discharge (ROWD) on April 2, 2008, and applied for reissuance of its NPDES permit to discharge up to 40 MGD of treated wastewater from the Sunnyvale 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 associated collection system (collectively the facility). The Plant provides advanced-secondary 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 136,000.

   Wastewater treatment processes at the Plant include grinding and grit removal, primary sedimentation, secondary treatment through the use of oxidation ponds, fixed-film reactor nitrification, dissolved air flotation, dual media filtration, chlorine disinfection, and dechlorination.

   The Plant's collection system is 100% separate sanitary sewer. It contains approximately 327 miles of pipes ranging from 6 inches to 48 inches in diameter, and one lift station.

2. **Discharge Description.** Treated wastewater from the Plant flows into Moffett Channel (37° 25′ 13″ Latitude and -122° 01′ 00″ Longitude), tributary to Guadalupe Slough and South San Francisco Bay. The Plant has an average dry weather flow design capacity of 29.5 million gallons per day (MGD) and a 40 MGD peak wet weather flow capacity. The annual average daily flow discharged to Moffett Chanel was 12 MGD from 2006 - 2008, the average dry weather discharge flow rate was 9.3 MGD from 2004 - 2007, and the maximum daily effluent flow rate was 35 MGD, during 2006 -2008**.**

3. **Biosolids Management.** Biosolids from primary treatment and a portion of the solids from secondary treatment are pumped to the anaerobic digesters. Secondary treatment solids consist of algae "float" removed from the oxidation pond effluent in the dissolved air floatation tanks (DAFTs). Digested sludge is conditioned with polymer and dewatered on gravity drainage tiles to approximately 15-20 percent (%) solids and then solar dried to approximately 50-70% solids prior to land application or disposal at the City of Sunnyvale's Biosolids Monofill.

4. **Reclamation Activities.** The Discharger provides recycled water for distribution throughout the northern portion of Sunnyvale, mainly for irrigation purposes; however, recycled water is also available for construction use at remote locations through a truck fill facility located at the Plant. The production and distribution of recycled water are regulated under Regional Water Board Order No. 94-069.

5. **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 Plant. Attachment C provides a flow schematic of the Plant.

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 or Water Code, 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 Water Code (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 (Attachment F).

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 Moffett Channel, or Guadalupe Slough, but does identify beneficial uses for South San Francisco Bay, to which Moffett Slough and Guadalupe Slough are 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). Regional Monitoring Program total dissolved solids (TDS) data at Guadalupe Slough station (C-1-3, about 7,000 feet downstream of the discharge outfall) ranged from 220 mg/L to 26,800 mg/L (with an average above 11,000 mg/L) thereby meeting an exception to Resolution No. 88-63. The MUN designation is therefore not applicable to Moffett Channel. Table 5 identifies the existing and potential beneficial uses that are applicable to South San Francisco Bay.

Although South San Francisco Bay is listed to support shellfish harvesting, according to a City of San Jose's report, *Alternative Effluent Bacteriological Standards Pilot Study*, 2003,

representatives from the California Department of Fish and Game have stated that no shellfish harvesting occurs in San Francisco Bay south of Foster City. In addition, the Shellfish Harvesting (SHELL) beneficial use likely does not exist in Moffett Channel or Guadalupe Slough. Both water bodies are characterized with soft mudflats and subtidal marsh, which are not suitable shellfish habitats, The Discharger's 2003 beneficial use survey of Moffett Channel and Guadalupe Slough found no attempts by the public at shellfish harvesting over a period of 18 months.

Table 5. Beneficial Uses of South San Francisco Bay

Discharge Point	Receiving Water Name	Beneficial Uses of South San Francisco Bay
001	Moffett Channel (tributary to South San Francisco Bay via Guadalupe Slough)	Industrial Service Supply (IND) Ocean, Commercial, and Sport Fishing (COMM) Shellfish Harvesting (SHELL) Estuarine Habitat (EST) Fish Migration (MIGR) Fish Spawning (SPWN) Preservation of Rare and Endangered Species (RARE) Wildlife Habitat (WILD) Contact Recreation (REC1) Non-contact Water Recreation (REC2) Navigation (NAV)

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 has been approved by USEPA and OAL, and became effective on August 27, 2008, superseding the Basin Plan's compliance schedule policy.

This Order includes a compliance schedule for dioxin-TEQ as allowed by the Basin Plan, and consistent with the State Water Board's new policy. A detailed discussion of the basis for the compliance schedules and interim effluent limitations and/or discharge specifications is included in the Fact Sheet (Attachment F).

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), carbonaceous biochemical oxygen demand (CBOD), and residual chlorine. 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.

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).

IT IS HEREBY ORDERED that this Order supersedes Order No. R2-2003-0079 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.

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 effluent flow as measured at monitoring station EFF-002, described in the attached MRP (Attachment E), shall not exceed 29.5 MGD. Actual average dry weather flow shall be determined for compliance with this prohibition over three consecutive dry weather months each year.

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

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).

1. CBOD, TSS, Oil and Grease, pH, Total Chlorine Residual, and Turbidity

Table 6. Effluent Limitations for CBOD, TSS, Oil and Grease, pH, Total Chlorine Residual, and Turbidity – 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	20	---	30	---	---
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, chlorine, and sulfur dioxide 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

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

Pollutant	Units[3]	Effluent Limitations[1,2]	
		Average Monthly Effluent Limitation (AMEL)	Maximum Daily Effluent Limitation (MDEL)
Copper	µg/L	10	20
Nickel	µg/L	24	37
Cyanide	µg/L	8.0	18
Dioxin-TEQ[4]	µg/L	1.4×10^{-8}	2.8×10^{-8}
Chlorodibromomethane	µg/L	34	93
Endrin	µg/L	0.0019	0.0038
Tributyltin	µg/L	0.0061	0.012
Total Ammonia (June – September)	mg/L	2.0	5.0
Total Ammonia (October – May)	mg/L	4.5	18

Footnotes for Table 7:

(1) a. Limitations apply to the average concentration of all samples collected during the averaging 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, or, in cases where the available MLs exceed the WQO, the lowest available ML. An 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.

(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 starting May 1, 2019.

Table 8. MLs for Pollutants with Effluent Limitations

Pollutant	ML	Units[3]
Copper	2	µg/L
Nickel	1	µg/L
Cyanide	5	µg/L
Chlorodibromomethane	0.5	µg/L
Endrin	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

C. Interim Effluent Limitation for Dioxin-TEQ

Until final effluent limitations for dioxin-TEQ become effective on May 1, 2019, the Discharger shall maintain compliance with the following interim effluent limitation at Discharge Point 001, with compliance determined at Monitoring Location EFF-001, as described in the attached MRP (Attachment E), for dioxin-TEQ.

Table 9. Interim Effluent Limitation for Dioxin-TEQ

Pollutant	Units	Average Monthly Effluent Limitation (AMEL)
Dioxin-TEQ	µg/L	6.3×10^{-5}

D. 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 and receiving water 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 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).

b. The Discharger shall comply with Provision VI.C.2.e. upon the effective date of this Order.

c. After the toxicity study specified in Provision VI.C.2.e is completed (no later than May 1, 2013), the Discharger shall comply with the following:

(1) Conduct routine monitoring.

(2) Conduct accelerated monitoring after exceeding a three sample median of 1 chronic toxicity unit (TUc[1]) or a single-sample maximum of 2 TUc or greater.

(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 Provision VI.C.2.d.

(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.

d. The Discharger shall monitor chronic toxicity using 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 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 Marine and Estuarine Organisms," currently second Edition (EPA/600/4-91/003), with exceptions granted by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

e. Failure to comply with the above requirements may result in the establishment of effluent limitations for chronic toxicity.

E. Land Discharge Specifications

Not Applicable.

[1] A TUc equals 100 divided by the no observable effect level (NOEL). The NOEL is determined from IC, EC, or NOEC values. These terms, their usage, and other chronic toxicity monitoring program requirements are defined in more detail in the MRP (**Attachment E**). 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.

F. Reclamation Specifications

Regional Water Board Order No. 94-069 established water reclamation requirements for the Discharger.

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 Moffett Channel, Guadalupe Slough, 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, Regional Water Board Standard Provisions), 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 anti-backsliding 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 a reasonable potential analysis 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, or cause to have submitted on its behalf, 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 the facility oxidation ponds, and Moffett Channel, Guadalupe Slough, and South San Francisco Bay 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. Chronic Toxicity Identification and Toxicity Reduction Study

i. Special Chronic Toxicity Identification and Reduction Tasks and Schedules

The Discharger shall comply with the following tasks and schedule to identify and reduce chronic toxicity in its effluent.

Table 10. Chronic Toxicity Identification and Reduction Tasks and Schedule

Task	Compliance Date
(1) Review Plant practices and conditions, and past Toxicity Identification Evaluation (TIE) efforts, to identify all possible causes of previously observed effluent chronic toxicity. Submit a report on the findings of this review.	July 1, 2009
(2) Submit a TIE/TRE study plan acceptable to the Executive Officer for a program to identify the cause including possible reduction measures of observed chronic toxicity consisting at a minimum of the following elements: (a) Investigate procedures for collecting and handling effluent samples used for whole effluent toxicity tests to ensure that samples are representative and uncontaminated. (b) Investigate effect of oxidation pond algae and related by-products on effluent chronic toxicity. (c) Investigate polymers used in air flotation tanks and their effects on chronic toxicity. (d) Investigate elevated sulfur dioxide concentrations on chronic toxicity. (e) Investigate any other possible circumstances and pollutants present in the wastewater that may cause chronic toxicity. (g) Collect samples of intermediate waste streams for chronic toxicity testing to determine if treatment processes or its chemical contribute to observed toxicity. (f) Identify a schedule to implement the TIE study plan. (g) Collect effluent samples and conduct chronic toxicity tests at least twice per month during January, February, and March.	September 1, 2009

Task	Compliance Date
(3) Initiate the study described in Task (2) above.	Within 45 days of study plan submittal.
(4) Submit a final TIE/TRE study report including all the findings and identified causes of toxicity.	Within 90 days of completing all TIE tests, but no later than May 1, 2011.
(5) Based on the TIE/TRE study results and past TRE efforts, prepare and submit a plan to reduce chronic toxicity and implementation schedule.	Within 90 days of completing all TIE tests, but no later than May 1, 2011
(6) Initiate the plan to reduce chronic toxicity as described in Task (5) above.	Within 60 days of TRE plan submittal.
(7) Report status of efforts annually, including any necessary revision or updates to the original plan.	Annually on June 30 with first report due on June 30, 2010
(8) Submit a final report documenting the findings efforts to reduce chronic toxicity; propose additional measures if the discharge is still above the chronic toxicity triggers specified in IV.C.2.b.(2).	May 1, 2013

ii. Other Chronic Toxicity Reduction Evaluation (TRE) Requirements

(1) 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:

(a) Tier 1 consists of basic data collection (routine and accelerated monitoring).

(b) Tier 2 consists of evaluation of optimization of the treatment process, including operation practices and in-Plant process chemicals.

(c) Tier 3 consists of a toxicity identification evaluation (TIE).

(d) Tier 4 consists of evaluation of options for additional effluent treatment processes.

(e) Tier 5 consists of evaluation of options for modifications of in-Plant treatment processes.

(f) Tier 6 consists of implementation of selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.

(2) During the TIE/TRE process, the Discharger shall collect effluent samples and conduct chronic toxicity tests at least twice per month.

(3) The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity or when the TRE measures as required by Provision VI.C.2.e are being implemented.

(4) 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.

(5) 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.

(6) 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.

(7) 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.

e. 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.

f. Optional Near-Field Site-Specific 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 site-specific translators 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 11. Optional Site-Specific Translator Study Tasks and Schedule

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.

g. Total Suspended Solids (TSS) Removal

This Order retains the TSS effluent limitations of 20/30 mg/L (monthly average/daily maximum) from the previous Order; however, the Regional Water Board has established more stringent TSS effluent limitations (10/20 mg/L) for other nearby major dischargers with advanced-secondary treatment (filters).

At least 180 days prior to the expiration date of this Order, the Discharger shall submit to the Regional Water Board a report that addresses removal of TSS by the Plant. The report shall include, but not be limited to the following components.

- A summary of influent and effluent TSS data for the previous five-year period,
- Description of existing components of wastewater treatment, including processes employed and equipment/treatment units age,
- Discussion of TSS removals achieved versus expected, in light of the specific treatment processes employed and/or then available at the Plant,
- Evaluation of operational changes to enhance TSS removal,
- Evaluation, including cost estimates, of treatment Plant modifications and/or upgrades, if necessary, to attain more stringent TSS effluent limits.

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. 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. PMP Submittals for Pollutants with Effluent Limitations

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

(1) The Discharger shall maintain a Reliability Status Report for the Discharger's wastewater facilities, which will allow the Regional Water Board to evaluate the reliability of the Discharger's system in preventing inadequately treated wastewater from being discharged into the receiving waters. The Reliability Status Report 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 Reliability Status Report to ensure that the document 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 as soon as practical.

(3) The Discharger shall provide the Executive Officer, upon request, a report describing the current status of its Reliability Status Report, 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 Reliability Status Report.

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. Biosolids Management Practices Requirements

(1) All biosolids generated by the Discharger must be disposed of in a municipal solid waste landfill, used as part of a waste-to-energy facility, reused by land application, or disposed of by surface disposal or in a sludge-only landfill (such as the City of Sunnyvale's Biosolids Monofill) in accordance with 40 CFR 503. If the Discharger desires to dispose of biosolids 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 biosolids management practices.

(2) Biosolids 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 biosolids use or disposal which has a likelihood of adversely affecting human health or the environment.

(4) The discharge of biosolids 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 biosolids 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 biosolids applied to the land, placed on a surface disposal site, or fired in a biosolids 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) Biosolids 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 biosolids 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) Biosolids Monitoring and Reporting Provisions of this Regional Water Board's Standard Provisions (Attachment G), apply to biosolids 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 biosolids 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 Provisions - 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; and with the sanitary sewer overflow and unauthorized discharge notification and reporting requirements of the letter issued by the Regional Water Board on May 1, 2008, pursuant to CWC Section 13267. The Discharger fulfilled this requirement by August 31, 2008. The Discharger shall report sanitary sewer overflows electronically using the State Water Board's statewide online reporting system.

6. Other Special Provisions

a. 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 12. 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).	August 1, 2009
(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:	February 28, 2010 with 2009 annual P2 report

Task	Compliance Date
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 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

b. 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 13. Copper Action Plan

Task	Compliance Date
(1) Review Potential Copper Sources The Discharger shall submit an inventory of potential copper sources to the wastewater treatment facility.	August 1, 2009
(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, 2010 with 2009 annual P2 report
(3) Implement Additional Measures If the three-year rolling mean copper concentration of South Bay exceeds 4.2 µg/L, evaluate the effluent copper concentration trend, and if it is increasing, develop and implement additional measures to control copper	Within 90 days of exceedance

Task	Compliance Date
discharges.	
(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

c. Compliance Schedules for Dioxin-TEQ

The following table outlines actions to be completed in order to meet the final limits for dioxin-TEQ.

Table 14. Dioxin-TEQ Compliance Schedule

Task	Deadline
(1) The Discharger shall continue its semi-annual dioxin monitoring at monitoring point EFF-001 and comply with the reporting requirements contained in the MRP. The Discharger shall also comply with the following interim effluent limit: Dioxin-TEQ: MDEL = 6.3×10^{-5} µg/L	August 1, 2009
(2) If dioxin-TEQ(1) 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 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 monitoring data show that the Discharger is out of compliance
(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	No later than 4 months after the most recent annual P2 report that identifies that

Task	Deadline
schedule for implementation of additional actions to reduce the concentrations of these pollutants.	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
(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.	April 30, 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 include~~d~~, 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.

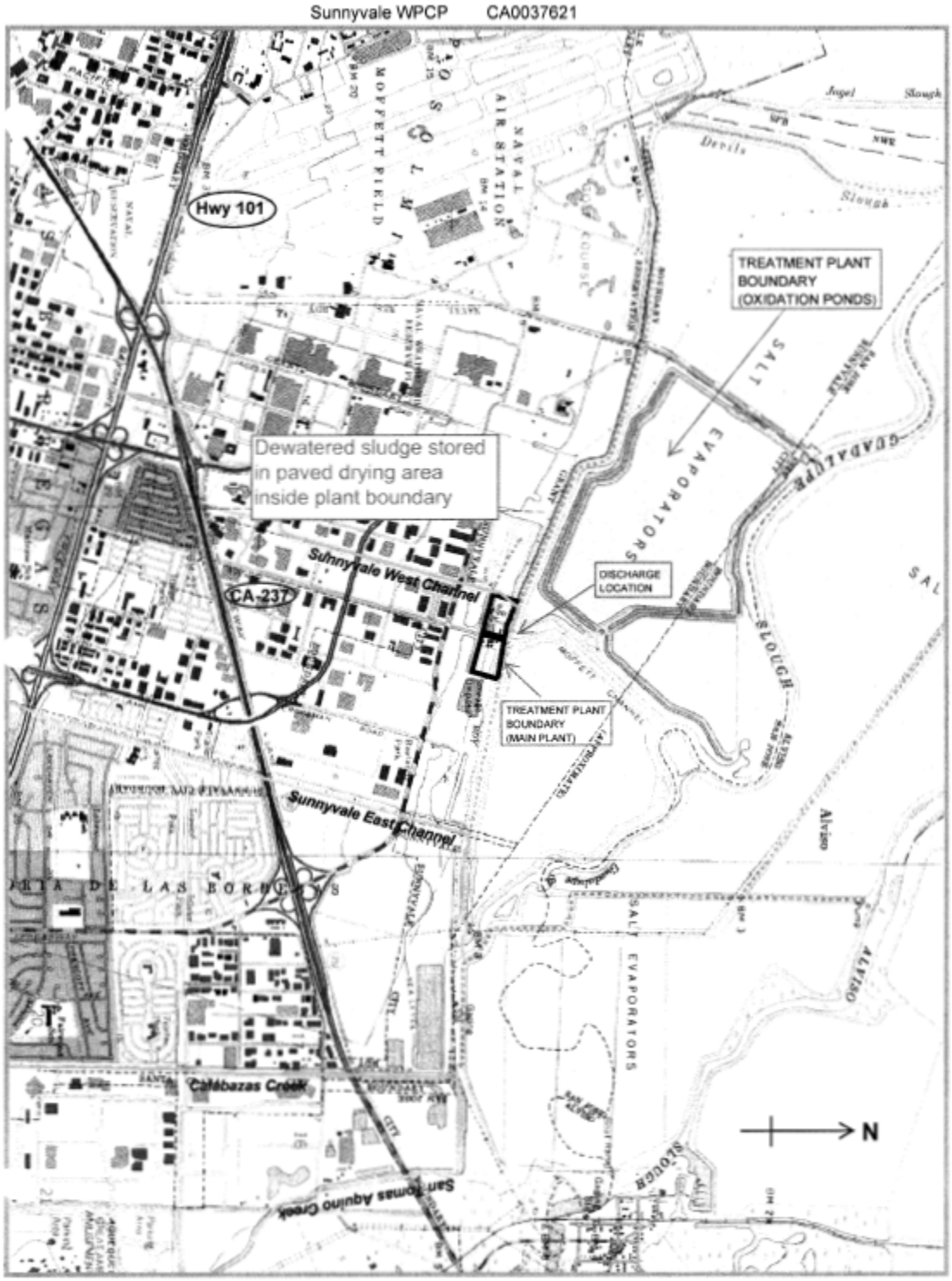
Standard Deviation (σ) is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

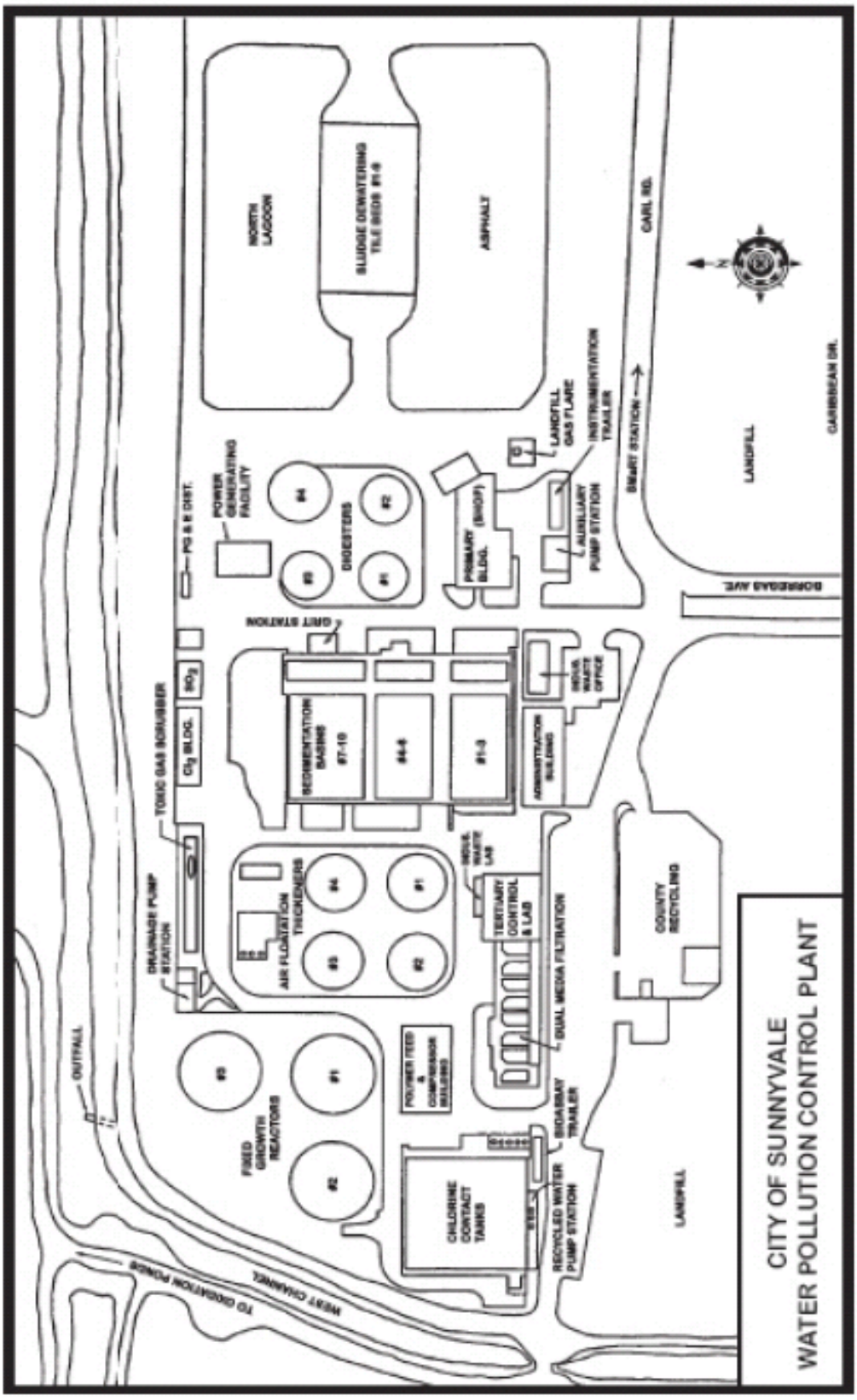
where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

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.)

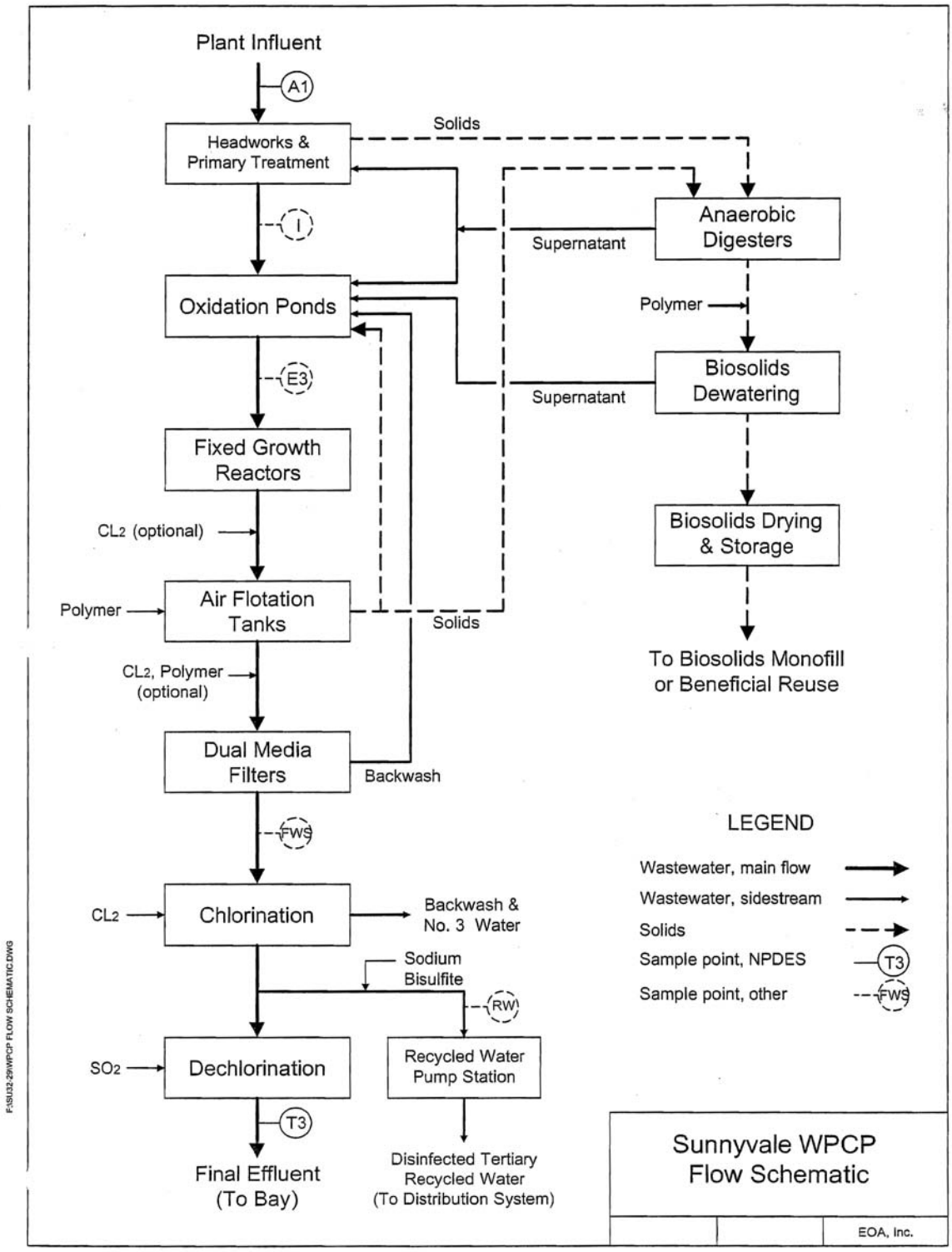
ATTACHMENT B (1) – LOCATION MAP



ATTACHMENT B(2) – FACILIT 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. California Water Code (CWC) sections 13267 and 13383 also authorize the Regional Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that 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 Public Health, in accordance with CWC 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								
16-TEQ	Dioxin-TEQ[2]												
23	Chlorodibromomethane	0.5	2										

CTR #	Constituent	Types of Analytical Methods [1] Minimum Levels (µg/L)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICPMS	SPGFAA	HYDRIDE	CVAF	DCP
115	Endrin	0.01											
---	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. Minimum Levels (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.
Effluent (flow only station)	EFF-002	At the point after filtration but before chlorination where all effluent flows are present (after flow diversion for filter backwash)
Receiving water	RSW-001	At the same location as the Regional Monitoring Program station C-1-3 (about 7,000 feet downstream of the discharge outfall in Guadalupe Slough)
Receiving water	RSW-002	At the same location in Guadalupe Slough as Station C-2-0 of the 2001 ammonia special study (about 8500 feet upstream of the outfall)

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
$CBOD_5$	mg/L	C-24	1/week
	kg/day	calculate	1/week
TSS	mg/L	C-24	1/week
	kg/day	calculate	1/week
Cyanide	µg/L	Grab	1/month

Legends for Table E-3

(1) Unit Abbreviations
MGD = million gallons per day
MG = million gallons
mg/L = milligrams per liter
kg/day = kilograms per day
µg/L = micrograms per liter

(2) Sample type
Cont = continuous monitoring
Cont/D = measured continuously and recorded and reported daily
C-24 = 24-hour composite

(3) Sampling frequency
1/week = once per week
1/month = month per month

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 minimum flow rates (MGD) in a month.

(2) The Discharger may elect to monitor CBOD as BOD, as defined in the latest edition of *Standard Methods for the Examination of Water and Wastewater*.

IV. EFFLUENT MONITORING REQUIREMENTS

The Discharger shall monitor treated effluent discharged from the Plant at EFF-001 and EFF-002 (flow only) 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

Parameter	Units	Sample Type	Minimum Sampling Frequency
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	Grab composites	1/quarter
	kg/day	Grab	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	°C	Grab	1/day
Dissolved Oxygen (DO)	mg/L	Grab	1/day
	% Saturation	Grab	1/day
Dissolve Sulfides (if DO < 5 mg/L)(6)	mg/L	Grab	1/day
Total Ammonia Nitrogen	mg/L as N	C-24	1/month
	kg/day as N	C-24	1/month
Unionized Ammonia Nitrogen	mg/L as N	calculate	1/month
Acute Toxicity(7)	% survival	Flow through	1/month
Chronic Toxicity(8)	TUc	C-24	(8)
Copper	µg/L	C-24	1/month
Nickel	µg/L	C-24	1/month
Cyanide	µg/L	Grab	1/month
Dioxin-TEQ(9)	µg/L	Grab	2/year
Endrin	µg/L	Grab	1/quarter
Tributyltin	µg/L	Grab	1/quarter
Remaining Priority Pollutants(10)	µg/L	(10)	2/year
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
- °C = 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

(3) Sampling frequency

1/hour	= once per hour
1/day	= once per day
5/week	= five times per week
1/week	= once per week
1/month	= once per month
1/quarter	= once per quarter
2/year	= twice per year

Footnotes for Table E-4:

(1) **Flow.** Flows shall be monitored continuously and the following shall be reported in monthly self-monitoring reports for both EFF-001 and 002 unless otherwise specified:
   a. Daily average flow rate (MGD) (averaging period is 24 hours)
   b. Daily average flow rate while discharging to Moffett Channel (averaging period is the actual discharge duration) and daily discharge duration in hours) (EFF-001 only)
   c. Average daily maximum and average daily minimum flow rates (MGD) in a month (averaging period is 24 hours),
   d. Average daily maximum and average daily minimum flow rates (MGD) in a month while discharging to Moffett Channel (averaging period is the actual discharge duration) (EFF-001 only),
   e. Daily total Moffet Channel discharge flow volume (EFF-001) or daily total effluent flow volume (EFF-002) (MG),
   f. Monthly total Moffet Channel discharge flow volume (MG) (EFF-001),
   g. Monthly total duration when discharging to Moffet Channel (hour) (EFF-001 only),
   h. Monthly total flow volume (MG) (EFF-002), and
   i. Monthly average discharge flow rate to Moffet Channel based on (f) and (g) above (EFF-001) or monthly effluent flow rate (EFF-002) (MGD).

(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 as soon as possible after use, and the solvent rinsate shall be added to the composite sample for extraction and analysis.

(5) **Total Chlorine Residual.** Effluent chlorine concentrations shall be monitored continuously. Chlorine residual concentrations shall be monitored and reported for sampling points both before and after dechlorination. The Discharger shall report the maximum residual chlorine concentration observed following dechlorination on a daily basis. Total chlorine dosage (kg/day) shall be recorded on a daily basis.

Alternatively, the Discharger may evaluate compliance with this requirement by recording discrete readings from the continuous monitoring every hour on the hour, or by collecting grab samples every hour, for a total of 24 readings or samples per day if the following conditions are met: (a) The Discharger shall retain continuous monitoring readings for at least three years; (b) The Discharger shall acknowledge in writing that the Regional Water Board reserves the right to use all other continuous monitoring data for discretionary enforcement; (c) The Discharger must provide in writing the brand name(s), model number(s), and serial number(s) of the equipment used to continuously monitor dechlorinated final effluent chlorine residual. If the identified equipment is replaced, the Discharger shall provide the Regional Water Board in writing, within 72 hours of the successful startup of the new equipment, the new equipment's brand name, model number, and serial number. The written notification identified in items (a) through (c) shall be in the form of a letter addressed to the Regional Water Board's Executive Officer with a

certification statement as listed in the October 19, 2004, Regional Water Board letter re: *Chlorine Compliance Strategy for Dischargers Using Continuous Monitoring Devices***.**

(6) **Dissolved Sulfides.** Monitoring for dissolved sulfides shall occur when D.O. concentrations are less than 5 mg/L.

(7) **Acute Toxicity.** Acute bioassay tests shall be performed in accordance with Section V.A of this MRP.

(8) **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. Sampling frequency is specified in V.B.1.c.

(9) **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.

(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 *Americamysis bahia.* The Discharger shall conduct a three species screening chronic toxicity test as described in Appendix E-1 following any significant change in the nature of the effluent. 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. Frequency. The frequency of routine and accelerated chronic toxicity monitoring shall be as specified below:

(1) Routine Monitoring: Monthly

(2) Accelerated Monitoring: Twice/Month,

i. Beginning with the effective date of this Order, the Discharger shall conduct accelerated monitoring twice per month from January through March until Provision VI.C.2.d.(i) is implemented (Table 10, Task 8 start date) or as otherwise specified by the Executive Officer.

ii. The Discharger shall conduct accelerated monitoring twice per month after exceeding a three-sample median of 1 TUc or a single sample maximum of 2 TUc for discharges via Discharge Point 001, or as otherwise specified by the Executive Officer.

Monitoring conducted pursuant to a TIR/TRE effort shall satisfy the requirements for routine and accelerated monitoring while the TIE/TRE investigation is underway.

d. 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).

e. 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).

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. PRETREATMENT AND BIOSOLIDS MONITORING REQUIREMENTS

The Discharger shall comply with the pretreatment requirements specified in Table E-6 for influent (at Monitoring Location INF-001), effluent (at Monitoring Location EFF-001), and biosolids monitoring.

Table E-5. Pretreatment and Biosolids Monitoring Requirements: Sampling Frequency

Constituents	Influent INF-001	Effluent[3] EFF-001	Biosolids
VOC	2/year	2/year	2/year
BNA	2/year	2/year	2/year
Metals[1]	1/month	1/month	2/year
Hexavalent Chromium[2]	1/month	1/month	2/year

Legends for Table E-6:

VOC = volatile organic compounds
BNA = base/neutrals and acids extractable organic compounds
N/A = not applicable

Footnotes for Table E-6:

(1) The parameters are arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, zinc, selenium, and cyanide.

(2) Total chromium may be substituted for hexavalent chromium at the Discharger's discretion.

(3) Effluent monitoring conducted in accordance with Table E-4 can be used to satisfy these pretreatment monitoring requirements.

Table E-6. Pretreatment and Biosolids Monitoring: Analytical Methods and Sample Type

Constituents	Suggested Analytical Methods	Sample Type[4]	
		INF-001 & EFF-001	Biosolids
VOC[1]	EPA 624 or GC/MS 8260	multiple grabs	grabs
BNA[1]	EPA 625 or GC/MS 8270	multiple grabs	grabs
Hexavalent chromium[2]	Standard Method 3500	multiple grabs	grabs
Metals (except mercury and hexavalent chromium) [3]	GFAA/ICP/ICP-MS and Gas hydride AA or ICP-MS for arsenic and selenium	24-hour composite	grabs
Mercury	EPA 245, 1631, 7471 (SW846)	24-hour composite	grabs
Cyanide	Standard Method 4500-CN^- C or I, 9012A (SW846)	multiple grabs	grabs

Footnotes for Table E-7:

(1) GC/MS methods used must be able to quantify to an equivalent level as applicable GC methods.

(2) The Discharger may elect to run total chromium instead of hexavalent chromium.

(3) Arsenic, cadmium, copper, lead, nickel, silver, zinc, selenium, total chromium (if the Discharger elects to run total chromium instead of hexavalent chromium).

(4) Sample types:

a. Multiple grabs samples for VOC, BNA, hexavalent chromium, and cyanide, must be made up of a minimum of four (4) discrete grab samples, collected equally spaced over the course of a 24-hour period, with each grab analyzed separately and the results mathematically flow-weighted.

b. 24-hour composite sample may be made up discrete grab samples and may be combined (volumetrically flow-weighted) prior to analysis, or they should be mathematically flow-weighted. If automatic compositor is used, 24-hour composite samples must be obtained through flow-proportioned composite sampling.

c. Automatic compositors are allowed for mercury if either 1) the compositing equipment (hoses and containers) comply with ultraclean specifications, or 2) appropriate equipment blank samples demonstrate that the compositing equipment has not contaminated the sample. This direction is consistent with the Water Board's October 22, 1999, letter on this subject.

d. Biosolids collection should comply with those requirements for sludge monitoring specified in Attachment H, Appendix H-C of this Order. The biosolids analyzed shall be a composite sample of the biosolids for final disposal. The Discharger shall also comply with biosolids monitoring requirements required by 40 CFR 503.

X. MODIFICATIONS TO PART A OF SELF-MONITORING PROGRAM (ATTACHMENT G)

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 shall 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 shall 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.

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.b, F.5.c, and F.5.d 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-7. Monitoring Periods

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
Continuous	Permit effective date	All
1/hour	Permit effective date	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 ML and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR 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 Reporting Level (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.

   e. Compliance Determination. 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 RL.

f. When determining compliance with an average monthly effluent limit (AMEL) (or an 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 DNQ or 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.B.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

In 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.7 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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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 438018001
CIWQS Place ID	259507
Discharger	City of Sunnyvale
Name of Facility	Sunnyvale Water Pollution Control Plant and its sewage collection system
Facility Address	1444 Borregas Avenue Sunnyvale CA 94088 Santa Clara County
Facility Contact, Title, Phone	Lorrie Gervin, Environmental Division Manager, (408) 730-7268
Authorized Person to Sign and Submit Reports	Marvin Rose, Director of Public Works, (408) 730-7441
Mailing Address	P.O. Box 3707 Sunnyvale CA 94088
Billing Address	Same as Mailing Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes, under Order No. 94-069
Mercury Discharge Requirements	Yes, under Order No. R2-2007-0077
Reclamation Requirements	Yes
Facility Permitted Flow	29.5 million gallons per day (MGD)
Facility Design Flow	29.5 MGD (average dry weather design treatment capacity) 40 MGD (peak wet weather design treatment capacity)
Watershed	Santa Clara Hydrologic Unit
Receiving Water	Moffett Channel (flows to South San Francisco Bay via Guadalupe Slough)
Receiving Water Type	Estuarine
Service Areas	City of Sunnyvale, Rancho Rinconada, and Moffett Field
Service Area Population	136, 000

A. The City of Sunnyvale owns and operates the Sunnyvale Water Pollution Control Plant (Plant) and its associated sewage collection system (collectively the facility). The facility provides advanced-secondary treatment of the wastewater collected from its service areas and discharges to Moffett Channel, a tributary to South San Francisco Bay via Guadalupe Slough.

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 Moffett Channel, a water of the United States, has been regulated by Order No. R2-2003-0079 (previous Order) and NPDES Permit No. CA0037621, 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 2, 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 Plant, which provides primary, secondary, and advanced-secondary 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 136,000.

Wastewater treatment processes at the Plant include grinding and grit removal, primary sedimentation, secondary treatment through the use of oxidation ponds, fixed-film reactor nitrification, dissolved air flotation, dual-media filtration, disinfection (chlorine gas), and dechlorination (sulfur dioxide).

Influent Flow Management. The Plant has sufficient capacity for influent pumping, primary treatment, and flow equalization (in the oxidation ponds) to meet any expected maximum flow condition. Three main influent pumps have a total capacity of 45 MGD, and an auxiliary pump provides an additional capacity of 25 MGD, which provides a combined pumping capacity that exceeds the capacity of the influent sewer. In addition, an emergency gravity flow bypass line exists to route influent flows around the influent pumps to the oxidation ponds; however, the bypass line has not been used since its construction in 1984. Such use would be a bypass and would be subject to all restrictions and requirements applicable to a bypass.

Preliminary Treatment. Preliminary treatment consists of grinders located 30 feet below ground, removal of 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, the settled primary solids are removed from the bottom of the clarifiers, and primary sludge is pumped to the anaerobic digesters.

Biological Treatment. All wastewater flow receives biological (secondary) treatment. Primary effluent flows by gravity into 440 acres of mechanically aerated oxidation ponds.

As wastewater circulates through the pond system, aerobic and anaerobic mechanisms degrade the organic material. The average detention time for wastewater in the pond system is 30 to 45 days.

Advanced Secondary Treatment. Following biological treatment, the wastewater is pumped to the fixed growth reactors (FGRs) for advanced secondary treatment. FGRs, or trickling filters, are a biological treatment process consisting of a tank filled with corrugated plates or plastic media on which a film of microorganisms (i.e., fixed growth) is allowed to develop. At the top of the tank a large wand rotates and trickles wastewater over the plates, where ammonia in the wastewater is converted to nitrate by the microorganism film. The effluent from the FGRs flows by gravity to the dissolved air flotation tanks (DAFTs). In this step, air and polymer are injected to coagulate and flocculate residual algae and other particulate matter, which rises to the top of the tank and is skimmed off. Skimmed material is sent to the anaerobic digesters or returned to the oxidation ponds. As a final polishing step, effluent from the DAFTs is percolated through dual media filters, which provide removal of remaining algae and particulate matter via gravity filtration. The filters are periodically backwashed, and the backwash water is returned to the oxidation ponds for treatment. The peak wet weather design capacity of 29.5 MGD of the Plant reflects advanced-secondary treatment capacity; peak flow capacities of the primary and secondary treatment processes are greater than 40 MGD.

Disinfection. Effluent from the filters flows to the chlorine contact channels, where chlorine gas is added as a disinfectant. The contact time is at least one hour to achieve disinfection. Sulfur dioxide is then added to achieve dechlorination before discharging to Moffett Channel through an outfall pipe.

Dual Modes. The Plant may enter into two different treatment modes – slough discharge and recycled water production modes. During periods of recycled water production (typically 12–16 hours a day) during high recycled water demand season, the DAFT polymer dose, chlorine dose, and chlorine contact time are adjusted to meet Title 22 requirements (recycled water effluent turbidity needs to be below 2 NTU versus 10 NTU for slough discharge). The portion of the effluent that is diverted to the recycled water pump station is partially dechlorinated using sodium bisulfite. Discharge to Moffett Slough is stopped during the recycled water production period.

Effluent Flow Measuring. There is no flow meter installed at the end of the treatment process (i.e., EFF-001 as described in the MRP [Attachment E]). Discharge flow is continuously metered by eight (8) flow meters installed after filtration and before disinfection and discharge. Diverted flows, which consist of tertiary recycled water and water used on site, are also continuously monitored. The total flow, minus the diverted flow, is used to calculate the discharge flow.

Solids Management. Solids removed from wastewater by primary treatment and floc skimmed from the DAFTs are treated in the primary anaerobic digesters for approximately 37-41 days at a temperature of 100ºF, followed by an additional 16 days in an unheated secondary digester. In the digesters, anaerobic bacteria consume the solid material, and produce methane gas, carbon dioxide, stabilized organic solids, and water as products of this process. Methane gas produced in the digesters is then used as fuel to generate the Plant's

engines and generators. The biosolids that remain after treatment in the digesters are conditioned with a polymer and pumped to dewatering beds, which are beds of slotted tiles that allow water to drain by gravity back into the treatment system. The sludge is dried for 1-5 days to approximately 15-20 % solids, and is then spread on a tarmac to dry to approximately 50-70% solids. The biosolids are then hauled off-site by a contractor for land application or disposal at the City of Sunnyvale's Biosolids Monofill.

Plant Electricity Generation. Methane gas generated by the digesters is used to fuel the three engine-driven pumps and an on-site cogeneration facility that produces about 50-60% of the electricity used by the Plant. The cogeneration facility has two 16 cylinder engine generator sets (each one is capable of 800 kW power generation). The Plant also uses methane gas produced by the adjacent Sunnyvale landfill to generate 20-30% of the electrical power. The rest is supplemented by PG&E natural gas.

2. Collection System.

The Discharger's collection system is 100 % separate sanitary sewer, and includes approximately 327 miles of sanitary sewer mains and one lift station.

3. Reclamation

A fraction of tertiary treated water is recycled and used by numerous businesses throughout the service area and by the Discharger for irrigation of landscape and golf courses, and in decorative ponds. Recycled water is also available for construction use at remote locations. Currently about 10 percent of the daily flow is diverted for reuse. Disinfected secondary recycled water is used at the facility for landscape irrigation. Water recycling is accomplished in accordance with Regional Water Board Order No. 94-069, Water Reclamation Requirements for the Discharger.

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	Advanced-secondary treated municipal wastewater	37º 25′ 13″ N	122º 01′ 00″ W	Moffett Channel

Moffett Channel is located in the Palo Alto Hydrologic Area of the Santa Clara Hydrologic Unit and is tributary to South San Francisco Bay via Guadalupe Slough.

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 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 Moffett Channel 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	7.9	---	11
TSS	mg/L	20	---	30	15.5	---	23.5
pH	standard units	6.5 – 8.5			Minimum – 6.5 Maximum – 8.1		
Oil and Grease	mg/L	5	---	10	3.9	---	3.9
Enterococci	colonies/ 100 mL	35(1)	---	276(2)	23(1)	---	488.4(2)
Total Chlorine Residual	mg/L	---	---	0.0 (3)	---	---	0.0
Settleable Matter	mL/L-hr.	0.1	---	0.2	---	---	<0.1
Turbidity	NTU	---	---	10	---	---	9.92
Acute Toxicity	% survival	(4)			Minimum 11-sample median – 95% Minimum 11-sample 90 percentile – 100%		
Ammonia-N	mg/L	2(5)	---	5(5)	10.6	---	11.9

Footnotes for Table F-3:

"<" Analyte not detected in effluent; value given is the MDL as reported by the analytical laboratory.

(1) As a 30-day geometric mean.

(2) As a single sample maximum.

(3) 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*.

(4) 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.

(5) Ammonia effluent limitations apply June through September only. Effluent data during June through September were in compliance with these effluent limits.

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	20	10	---	---	6.9
Mercury	µg/L	---	---	2.1	0.012	0.007
Nickel	µg/L	40	24	---	---	5.1
Cyanide	µg/L	---	---	32	---	10
Chlorodibromomethane	µg/L	---	---	58	---	37.2
Dichlorobromomethane	µg/L	---	---	68	---	36
Tributyltin	µg/L	0.03	0.01	---	---	0.016
4,4'-DDE	µg/L	---	---	0.05	---	<0.002
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.** Exceedances of numeric effluent limitations for tributyltin and enterococci were observed during the previous permit term. The exceedances are summarized in Table F-5, below.

Table F-5. Compliance with Numeric Effluent Limitations

Date of Violation	Parameter	Units	Effluent Limitation	Reported Effluent Concentration
August 31, 2004	Tributyltin	µg/L	Monthly Average – 0.01	0.02
November 30, 2007	Tributyltin	µg/L	Monthly Average – 0.01	0.016
February 2, 2008	Enterococci	MPN/100 mL	Daily Maximum – 276	<2,400

A mandatory minimum penalty of $3,000 was assessed for each of the tributyltin violations, in Order R2-2004-0091 (for the August 2004 violation), and in State Water Board Order SWB-2008-2-0030 (for the November 2007 violation). No enforcement action has yet been taken for the February 2008 enterococci violation.

2. **Compliance with Chronic Toxicity Trigger.** The chronic toxicity trigger of 2.0 chronic toxicity units (TUc) as a single-sample maximum was exceeded on 13 occasions, and the trigger of 1.0 TUc as a three-sample median was exceeded on 30 occasions during the previous permit term. The previous permit contained chronic toxicity triggers and not chronic toxicity effluent limitations. Toxicity Identification Evaluations (TIEs) were inconclusive in part because the toxicity, though detected frequently, was relatively low and transient. In addition to the triggers, a provision in this Order requires the Discharger to

(1) accelerate monitoring during the months when increased toxicity has historically been observed (during January through March), (2) identify the source of the chronic toxicity, and (3) reduce the chronic toxicity below trigger levels by 2013. This is discussed further in Fact Sheet Sections IV.D.6 and VI.C.

3. **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-6, below.

Table F-6. Compliance with Previous Order Provisions

Provision Number	Requirement	Status of Completion
E.2	Avian Botulism Control Program	Annual report submitted February 2004, and annually thereafter.
E.3	Chlorodibromomethane and Dichlorobromomethane Compliance Schedule	The "Final Report for Chlorodibromomethane and Dichlorobromomethane Study" was submitted February 28, 2006
E.4	Cyanide Compliance Schedule and SSO Study	Annual Cyanide SSO report was submitted January 28, 2004 and annually thereafter, and Cyanide Compliance Attainability Evaluation was submitted August 19, 2005.
E.5	Mercury Special Study	Reports have been submitted annually by February 28, and final report was submitted December 15, 2007.
E.10	Copper-Nickel Water Quality Attainment Strategy	Reports have been submitted annually by February 28.
E.12	Receiving Water User Survey	Report was submitted December 31, 2004.
E.14	Operations and Maintenance Manual and Reliability Report Updates	Reports have been submitted annually by February 28.
E.15	Contingency Plan Update	Reports have been submitted annually by February 28.
E.16	Annual Status Reports	Reports have been submitted annually by February 28.
E.17	303(d)-listed Pollutants Site-Specific Objective and TMDL Status Review	Reports have been submitted annually by January 31 by the Clean Estuary Partnership.

E. Planned Changes

Not Applicable.

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 or Water Code, 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 Moffett Channel, which is a narrow inlet within South San Francisco Bay. It does identify beneficial uses for South San Francisco Bay, to which Moffett Channel is tributary via Guadalupe Slough. The Basin Plan states that the beneficial uses of any specifically identified water body generally apply to all its tributaries. Table F-7 identifies existing and potential beneficial uses of South San Francisco Bay.

   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). Monitoring data at Guadalupe Slough station (C-1-3, about 7,000 feet downstream of the discharge outfall) ranged from 220 mg/L to 26,800 mg/L (with an average of above 11,000 mg/L), thereby meeting an exception to Resolution No. 88-63. The MUN designation is therefore not applicable to Moffett Channel.

   Although South San Francisco Bay is listed to support shellfish harvesting, according to a City of San Jose's report, *Alternative Effluent Bacteriological Standards Pilot Study*, 2003, representatives from the California Department of Fish and Game have stated that no shellfish harvesting occurs in the San Francisco Bay south of Foster City. In addition, the Shellfish Harvesting (SHELL) beneficial use likely does not exist in Moffett Channel or Guadalupe Slough. Both water bodies are characterized with soft mudflats and subtidal marsh, which are not suitable shellfish habitats. The Discharger's 2003 beneficial use survey of Moffett Channel and Guadalupe Slough found no attempts by the public at shellfish harvesting over a period of 18 months.

Table F-7. Beneficial Uses of South San Francisco Bay

Discharge Point	Receiving Water Name	Beneficial Uses of South San Francisco Bay
001	Moffett Channel (tributary to South San Francisco Bay via Guadalupe Slough)	Industrial Service Supply (IND) Ocean, Commercial, and Sport Fishing (COMM) Shellfish Harvesting (SHELL) Estuarine Habitat (EST) Fish Migration (MIGR) Preservation of Rare and Endangered Species (RARE) Fish Spawning (SPWN) Wildlife Habitat (WILD) Non-contact Water Recreation (REC2) Contact Recreation (REC1) Navigation (NAV)

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] 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. Moffett Channel and Guadalupe Slough 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, and selenium. 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 became effective 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 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 effluent flow shall not exceed 29.5 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. The average dry weather effluent flow is to be determined over three consecutive dry weather months each year and is to include both flows discharged and recycled.

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 CWA and the Basin Plan.

B. Exceptions to Basin Plan Prohibitions

Discharge prohibition 1 in Table 4-1 of the Basin Plan states that it shall be prohibited to discharge:

> *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 San Jose/Santa Clara Plant was 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. San Jose/Santa Clara was in particular required to propose signifcant salt marsh mitigation.

This Order includes numeric WQBELs for toxic pollutants and requires the Discharger to continue its efforts to control avian botulism. Since salt marsh conversion is not a major issue for the Discharger, compliance with the WQBELs for toxic pollutants and efforts to control avian botulism are sufficient to protect endangered species from toxicity, bioaccumulation of metals, and disease. Based on these facts, the Regional Water Board grants 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 City of Sunnyvale 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-8. 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-8:

(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 secondary wastewater treatment facilities in the late 1970's and has consistently met limits on conventional pollutants that are more stringent than the secondary treatment standards.

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-9. 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	20	---	30	---	---
$CBOD_5$ and TSS	% Removal	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-9:

(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 sulfur dioxide 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.

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.

a. $CBOD_5$ and TSS. The effluent limitations for $CBOD_5$ and TSS, including the 85 percent removal requirement are unchanged from the previous Order. These limitations are technologically feasible for advanced wastewater treatment technologies. 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 effectively 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 based on water quality and on Basin Plan Table 4-2. It 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. Effluent data show the Discharger can comply with this effluent limit. Self-monitoring data show the Discharger has been able to consistently comply with thise 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 advanced-secondary level wastewater treatment. This limitation is technologically feasible for advanced secondary wastewater treatment technologies. Self-monitoring data show the Discharger has been able to consistently comply with this turbidity effluent limit.

f. Enterococcus bacteria. The 30-day geometric mean effluent limitation for enterococcus bacteria is unchanged from the previous Order; however, the single sample maximum limit of 276 colonies per 100 mL is not retained to be consistent with other recently adopted NPDES permits and USEPA criteria. Basin Plan Table 3-2 cites the 30-day geometric mean enterococcus bacteria limit, which is based on the USEPA criteria at 40 CFR 131.41 for coastal recreational waters, including costal estuaries, in California. These water quality criteria became effective on December 16, 2004 [69 Fed. Register 67218 (November 16, 2006)].

Although USEPA also established single sample maximum criteria for enterococci bacteria, this Order implements only the geometric mean criterion of 35 colonies per 100 milliliters as an effluent limitation. When these water quality criteria were promulgated, USEPA expected that the single sample maximum values would be used for making beach notification and beach closure decisions. “Other than in the beach notification and closure decision context, the geometric mean is the more relevant value for assuring that appropriate actions are taken to protect and improve water quality because it is a more reliable measure, being less subject to random variation …” [69 Fed Reg. 67224 (November 16, 2004)].

The removal of the daily maximum bacteria limit is consistent with the exception to the Clean Water Act’s backsliding provisions, expressed at CWA 402(o)(2)(B)(ii) for technical mistakes.

The Discharger has previously conducted a study, from June 2003 to December 2004, and submitted results in a final report dated December 23, 2004, demonstrating that the "lightly used" water contact category is conservative for both Moffett Channel and Guadalupe Slough. Therefore effluent limitations for enterococcus bacteria are protective of water contact beneficial uses of the receiving water.

Self-monitoring data show the Discharger has been able to consistently comply with this enterococcus 30-day geometric mean effluent limit.

Although South San Francisco Bay is listed to support shellfish harvesting, as explained under Section III.C.1, shellfish harvesting does not exist in the South San Francisco Bay south of Foster City, nor does it exist near the vicinity of the discharge outfall. Therefore, this Order does not establish fecal coliform effluent limits for protecting shellfish harvesting.

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 Moffett Channel which ultimately flows into South San Francisco Bay via Guadalupe Slough. Salinity data are not available for Moffett Channel or Guadalupe Slough; however, salinity as measured at the Regional Monitoring Program (RMP) Sunnyvale Slough station (C-1-3) indicates an estuarine environment (59 percent of the salinity data fell between 1 and 10 ppt). Moffett Channel and Guadalupe Slough 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 103 mg/L as $CaCO_3$, the minimum hardness value observed at the Guadalupe Slough RMP station.

g. **Site-Specific Translators.** 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. Site-specific translators can be developed to account for site-specific conditions, thereby preventing exceedingly stringent or under protective WQOs.

Site-specific translators for copper and nickel were developed for South San Francisco Bay and are in the Basin Plan. The site-specific translators for copper and nickel are presented in Table F-10.

For this permit reissuance, Regional Water Board staff developed site-specific translators for chromium (VI), zinc, and lead for the 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-10, 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-10. Site-Specific Translators for Cu, Ni, Zn, Cr(VI), and Pb for 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 Guadalupe Slough RMP station was used. The Discharger conducted an ammonia special study during 1997 through 2000. Ammonia data collected at this same station were also used in the RPA.

   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-11, 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, chlorodibromomethane, endrin, tributyltin, and ammonia exhibit Reasonable Potential by Trigger 1. Mercury and dioxin-TEQ exhibit reasonable potential by Trigger 2. Copper and nickel have reasonable potential by Trigger 3 as explained below.

Table F-11. Summary of RPA Results

CTR #	Priority Pollutants	MEC or Minimum DL [1][2] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [1][2] (µg/L)	RPA Results [3]
1	Antimony	1	4300	1.3	No
2	Arsenic	1.4	36	5.1	No
3	Beryllium	< 1	No Criteria	0.11	Ud
4	Cadmium	0.15	2.5	0.17	No
5a	Chromium (III)	7	212	14.7	No
5b	Chromium (VI)	1.3	180	15	No
6	**Copper**	**5.4**	**13**	**8.6**	**Yes**
7	Lead	1.8	43	4.2	No
8	**Mercury (303d listed)**	**0.007**	**0.051**	**0.068**	**Yes**
9	**Nickel**	**3.4**	**27**	**16**	**Yes**
10	Selenium	2.6	5	0.63	No
11	Silver	1.6	2.2	0.12	No
12	Thallium	< 1	6.3	0.16	No
13	Zinc	50	161	21	No
14	**Cyanide**	**10**	**2.9**	**< 0.4**	**Yes**
15	Asbestos	Not Available	No Criteria	Not Available	Ud
16	2,3,7,8-TCDD	< 5.6E-07	1.4E-08	2.4E-08	No
	Dioxin TEQ (303d listed)	**1.2E-09**	**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
20	Bromoform	8	360	< 0.5	No
21	Carbon Tetrachloride	0.7	4.4	0.07	No
22	Chlorobenzene	< 0.03	21000	< 0.5	No
23	**Chlorodibromomethane**	**37**	**34**	**0.057**	**Yes**
24	Chloroethane	< 0.03	No Criteria	<0.5	Ud
25	2-Chloroethylvinyl ether	< 0.1	No Criteria	< 0.5	Ud
26	Chloroform	15	No Criteria	< 0.5	Ud
27	Dichlorobromomethane	30	46	< 0.05	No
28	1,1-Dichloroethane	< 0.04	No Criteria	< 0.05	Ud
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	Ud
36	Methylene Chloride	2.7	1600	< 0.5	No
37	1,1,2,2-Tetrachloroethane	< 0.04	11	< 0.05	No
38	Tetrachloroethylene	0.09	8.9	< 0.05	No
39	Toluene	0.2	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	Ud
42	1,1,2-Trichloroethane	< 0.05	42	< 0.05	No
43	Trichloroethylene	0.3	81	< 0.5	No
44	Vinyl Chloride	< 0.05	525	< 0.5	No
45	2-Chlorophenol	< 0.6	400	< 1.2	No
46	2,4-Dichlorophenol	< 0.7	790	< 1.5	No
47	2,4-Dimethylphenol	< 0.8	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	< 0.6	No Criteria	< 1.3	Ud
51	4-Nitrophenol	< 0.6	No Criteria	< 1.6	Ud
52	3-Methyl 4-Chlorophenol	< 0.5	No Criteria	< 1.1	Ud

CTR #	Priority Pollutants	MEC or Minimum DL [1][2] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [1][2] (µg/L)	RPA Results [3]
53	Pentachlorophenol	< 0.6	7.9	< 1	No
54	Phenol	22	4600000	< 1.3	No
55	2,4,6-Trichlorophenol	< 0.6	6.5	< 1.3	No
56	Acenaphthene	< 0.03	2700	0.0026	No
57	Acenaphthylene	< 0.02	No Criteria	0.0026	Ud
58	Anthracene	< 0.02	110000	0.0023	No
59	Benzidine	< 1	0.00054	< 0.0015	No
60	Benzo(a)Anthracene	< 0.02	0.049	0.011	No
61	Benzo(a)Pyrene	< 0.02	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	Ud
64	Benzo(k)Fluoranthene	< 0.02	0.049	0.021	No
65	Bis(2-Chloroethoxy)Methane	< 0.7	No Criteria	< 0.3	Ud
66	Bis(2-Chloroethyl)Ether	< 0.7	1.4	< 0.32	No
67	Bis(2-Chloroisopropyl)Ether	< 0.6	170000	Not Available	No
68	Bis(2-Ethylhexyl)Phthalate	1.2	5.9	0.93	No
69	4-Bromophenyl Phenyl Ether	< 0.4	No Criteria	< 0.23	Ud
70	Butylbenzyl Phthalate	3	5200	0.0055	No
71	2-Chloronaphthalene	< 0.5	4300	< 0.3	No
72	4-Chlorophenyl Phenyl Ether	< 0.5	No Criteria	< 0.31	Ud
73	Chrysene	< 0.02	0.049	0.022	No
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	0.1	2600	< 0.3	No
78	3,3 Dichlorobenzidine	< 0.3	0.077	< 0.001	No
79	Diethyl Phthalate	7.4	120000	0.3	No
80	Dimethyl Phthalate	0.8	2900000	< 0.21	No
81	Di-n-Butyl Phthalate	2.8	12000	2.2	No
82	2,4-Dinitrotoluene	< 0.6	9.1	< 0.27	No
83	2,6-Dinitrotoluene	< 0.5	No Criteria	< 0.29	Ud
84	Di-n-Octyl Phthalate	< 0.7	No Criteria	< 0.38	Ud
85	1,2-Diphenylhydrazine	< 0.6	0.54	0.0053	No
86	Fluoranthene	< 0.02	370	0.039	No
87	Fluorene	< 0.02	14000	0.0055	No
88	Hexachlorobenzene	< 0.4	0.00077	0.00048	No
89	Hexachlorobutadiene	< 0.7	50	< 0.3	No
90	Hexachlorocyclopentadiene	< 0.4	17000	< 0.3	No
91	Hexachloroethane	< 0.6	8.9	< 0.2	No
92	Indeno(1,2,3-cd)Pyrene	< 0.02	0.049	0.078	No
93	Isophorone	< 0.5	600	< 0.3	No
94	Naphthalene	< 0.02	No Criteria	0.011	Ud
95	Nitrobenzene	< 0.7	1900	< 0.25	No
96	N-Nitrosodimethylamine	< 0.6	8.1	< 0.3	No
97	N-Nitrosodi-n-Propylamine	< 0.6	1.4	< 0.001	No
98	N-Nitrosodiphenylamine	< 0.6	16	< 0.2	No
99	Phenanthrene	< 0.02	No Criteria	0.014	Ud
100	Pyrene	< 0.02	11000	0.056	No
101	1,2,4-Trichlorobenzene	< 0.6	No Criteria	< 0.3	Ud
102	Aldrin	< 0.002	0.00014	1.37E-6	No
103	Alpha-BHC	< 0.003	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	Ud
107	Chlordane (303d listed)	< 0.005	0.00059	0.00057	No
108	4,4'-DDT (303d listed)	< 0.002	0.00059	0.00020	No

CTR #	Priority Pollutants	MEC or Minimum DL [(1)(2)] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [(1)(2)] (µg/L)	RPA Results [(3)]
109	4,4'-DDE (linked to DDT)	< 0.002	0.00059	0.00068	No
110	4,4'-DDD	< 0.002	0.00084	0.00077	No
111	Dieldrin (303d listed)	< 0.002	0.00014	0.00029	No
112	Alpha-Endosulfan	< 0.002	0.0087	0.000027	No
113	beta-Endolsulfan	< 0.002	0.0087	0.000046	No
114	Endosulfan Sulfate	< 0.002	240	0.00016	No
115	**Endrin**	**0.003**	**0.0023**	**0.00012**	**Yes**
116	Endrin Aldehyde	< 0.002	0.81	Not Available	No
117	Heptachlor	< 0.003	0.00021	0.000022	No
118	Heptachlor Epoxide	< 0.002	0.00011	0.00017	No
119-125	PCBs sum (303d listed)	< 0.02	0.00017	0.0040	No
126	Toxaphene	< 0.15	0.0002	Not Available	No
	Tributylin	**0.016**	**0.0074**	**0.003**	**Yes**
	Total PAHs	< 0.02	15	0.38	No
	Ammonia (Oct-May)[(4)]	**11.9**	**1.1**	**2.84**	**Yes**
	Ammonia (Jun-Sept)[(4)]	**2.31**	**1.1**	**0.64**	**Yes**

Footnotes for Table F-11:

(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.

(4) The units for ammonia are expressed in mg/L.

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 interim effluent limits for dichlorobromomethane, 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. 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 Moffett Channel, a shallow water 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. No dilution credit (D=0) was used to calculate WQBELs for most pollutants, with the exception of cyanide and ammonia, which, as discussed below, are non-persistent pollutants that readily degrade to a non-toxic state. Dilution credits depend on the size of the allowed mixing zone, and according to SIP section 1.4.2.2, mixing zones must be as small as practicable. Restricting the mixing zone such that no dilution credit is allowed for most pollutants is practicable because the Discharger can comply with most WQBELs derived in this way.

Dioxin-TEQ is an exception. However, although the Discharger cannot immediately comply with the dioxin-TEQ WQBELs, no dilution credit is warranted because dioxin-TEQ bioaccumulates in San Francisco Bay fish to concentrations that warrant fish advisories, which have resulted in San Francisco Bay being placed on the CWA § 303(d) list of impaired waters. Therefore, no assimilative capacity exists for dioxin-TEQ, and no dilution credit is appropriate.

Cyanide attenuates in receiving waters due to both degradation and dilution. The Basin Plan specifies dilution credits for cyanide for shallow water discharges. The cyanide WQBELs are based on a dilution ratio of 4:1 (D=3.0).

Like cyanide, ammonia attenuates in receiving waters due to both degradation and dilution. The dilution credits used to calculate the ammonia WQBELs reflect the size of the mixing zone. For ammonia, the selected mixing zone stretches from the outfall in Moffett Channel to RMP Station C-1-3 downstream of the discharge in Guadalupe Slough (approximately 7,000 feet from the outfall). Due to the tidal nature of Guadalupe Slough, which tends to push water upstream during tidal cycles, the mixing zone also stretches upstream to sampling station C-2-0 in Guadalupe Slough (approximately 8,500 feet from the outfall). This mixing zone is as small as practicable while meeting the conditions of SIP section 1.4.2.2:

(1) The mixing zone does not compromise the integrity of the receiving water. Guadalupe Slough is a narrow inlet of South San Francisco Bay. Since the mixing zone is entirely within Guadalupe Slough (and tributary Moffett Channel), it does not compromise the integrity of greater South San Francisco Bay.

(2) The mixing zone does not cause acutely toxic conditions to aquatic life passing through the mixing zone. The calculation of ammonia WQBELs is strongly influenced by the Basin Plan's chronic ammonia objective (expressed as an annual median). WQBELs based solely on the acute (maximum) objective would be far less stringent.

(3) Because the mixing zone is entirely within Guadalupe Slough, the mixing zone does not restrict the passage of aquatic life throughout South San Francisco Bay. Passage of aquatic organisms through Guadalupe Slough between South San Francisco Bay and Calabazas and Saratoga creeks is not restricted because the mixing zone does not cause acutely toxic conditions. The water quality objective that would not be maintained within the mixing zone is a long-term annual median ammonia concentration, which is not relevant for organisms simply passing through the mixing zone.

(4) The mixing zone does not adversely impact biologically sensitive or critical habitats because Moffett Channel and Guadalupe Slough are not known to contain special status species. Furthermore, the Basin Plan does not list preservation of rare and endangered species as a beneficial use of the creeks draining into Guadalupe Slough (Calabazas and Saratoga creeks). Moreover, the receiving waters are not areas of special biological significance as identified by Basin Plan Figure 2-1.

(5) The ammonia within the mixing zone does not produce undesirable or nuisance aquatic life.

(6) The ammonia within the mixing zone does not result in floating debris, oil, or scum.

(7) The ammonia within the mixing zone does not produce objectionable color, odor, taste, or turbidity (the receiving water is not used for drinking water supplies).

(8) The ammonia within the mixing zone does not cause objectionable bottom deposits.

(9) The ammonia within the mixing zone does not cause a nuisance.

(10) The mixing zone does not dominate South San Francisco Bay or overlap a mixing zone from a different outfall.

(11) The mixing zone is not located at or near any drinking water intake.

This Order uses a dilution ratio of 4.8:1 (D=3.8) for wet season WQBELs and a dilution ratio of 3:1 (D=2.0) for dry season WQBELs. These dilution ratios reflect the mixing zone identified above and are based on the Discharger's dilution study, *Dilution Ratios of Sunnyvale Effluent in the Receiving Water* (September 1989). The study included a Rhodamine WT fluorescent dye study and hydrodynamic modeling of effluent dilution under different scenarios. According to the report, when the discharge flow is 18 MGD, the dilution ratio is at least 4.8:1 reflects a discharge flow of 18 MGD. When the discharge flow is 14 MGD, the dilution ratio is at least 3:1.The reason there is more dilution when the discharge flow is higher is that there is also more water in Moffett Channel and Guadalupe Slough during wet weather. Because the maximum monthly average effluent flow reported during wet weather was 17.6 MGD, the dilution ratio of

4.8:1 was selected to calculate wet weather WQBELs. Because the maximum monthly average effluent flow reported during dry weather was 10.8 MGD, the dilution ratio of 3:1 was selected to calcualte dry weather WQBELs.

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 South San Francisco Bay, expressed as dissolved metal. Regional Water Board staff converted these WQC to total recoverable metal using the Basin Plan site-specific translator 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 effluent limits for copper for South San Francisco Bay dischargers; therefore, reasonable potential for copper is based on Trigger 3.

iii. *Copper WQBELs*. WQBELs for copper, calculated according to SIP procedures, with an effluent data coefficient of variation (CV) of 0.46, are an AMEL of 11 µg/L and an MDEL of 20 µg/L. The previous Order contained an AMEL of 10 µg/L and an MDEL of 20 µg/L, which are more stringent. Therefore, the previous Order effluent limits are retained as the WQBELs.

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 (3.4 µg/L) is less than the AMEL (10 µg/L); the 99th percentile (4.6 µg/L) is less than the MDEL (20 µg/L); and the mean (1.7 µg/L) is less than the LTA (7.8 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 effluent limits are the same as those in the previous Order; therefore, antibacksliding requirements are satisfied.

(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 South San Francisco Bay, expressed as dissolved metal. Regional Water Board staff converted these WQC to total recoverable metal using the Basin Plan site-specific translator 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 effluent limits for nickel for South San Francisco Bay dischargers; therefore, reasonable potential for nickel is based on Trigger 3.

iii. *Nickel WQBELs.* WQBELs for nickel, calculated according to SIP procedures, with an effluent CV of 0.31, are an AMEL of 24 µg/L and an MDEL of 37 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 (3.0 µg/L) is less than the AMEL (24 µg/L); the 99th percentile (3.4 µg/L) is less than the MDEL (37 µg/L); and the mean (2.0 µg/L) is less than the LTA (19 µg/L). The Regional Water Board concludes that immediate compliance with these WQBELs is feasible.

v. *Antibacksliding.* Antibacksliding requirements are satisfied as nickel effluent limits established by this Order are more stringent than those in the previous Order, which were an AMEL of 24 µg/L and an MDEL of 40 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 10 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 0.79 and a dilution credit of 3.0 (or a dilution ratio of 4:1), are an AMEL of 8.0 µg/L and an MDEL of 18 µg/L.

iv. *Immediate Compliance Feasible*. Statistical analysis of effluent data for cyanide over the period from February 2005 through January 2008 shows that the 95th percentile (5.1 µg/L) is less than the AMEL (8.0 µg/L); the 99th percentile (7.8 µg/L) is less than the MDEL (18 µg/L); and the mean (2.1 µg/L) is less than the LTA (4.6 µg/L). The Regional Water Board concludes that immediate compliance with cyanide WQBELs is feasible.

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 average ambient background concentration (1.1×10^{-7} µg/L), as measured at Dumbarton Bridge (RMP Station BA30), exceeds the applicable WQC (1.4×10^{-8} µg/L), demonstrating Reasonable Potential by Trigger 2.

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 December 5, 2008, asserts that the facility cannot immediately comply with WQBELs for dioxin-TEQ. Even though the MEC is lower than the AMEL, the

Discharger believes there is a very high degree of uncertainty in the dioxin data given the small dataset and the high degree of variability and uncertainty inherent with dioxin sampling and analysis when trying to measure concentrations in the pg/L range. Given the uncertainties in dioxin data and analysis, the Discharger does not believe that it is possible to determine whether it could comply with the proposed final WQBELs in the future. The Regional Water Board staff concurs with this assertion.

v. *Need for a Compliance Schedule.* This Order contains a compliance schedule based on the Basin Plan and State Water Board Resolution No. 2008-0025 (Compliance Schedule Policy) to allow time for the Discharger to comply with these effluent limits, which are based on a new interpretation of a narrative objective. The Compliance Schedule Policy requires that compliance schedules include interim limits. The final effluent limits will become effective on May 1, 2019. The Regional Water Board may amend these limits based on new information or a TMDL for dioxin-TEQ.

vi *Interim Effluent Limits.* Since it is infeasible for the Discharger to comply with the final WQBELs for dioxin-TEQ, and there are not enough data to calculate a performance-based interim limit statistically, this Order establishes an interim limit based on the MLs of all congeners and their TEFs. The sum of the each congener's ML times its TEF is 6.3×10^{-5} µg/L. This interim limit is established as a monthly average limit, and it will remain in effect until April 30, 2019.

vii. *Antibacksliding*. Antibacksliding requirements are satisfied because the previous Order did not include an effluent limitation for dioxin-TEQ.

(5) Chlorodibromomethane

i. *Chlorodibromomethane WQC.* The most stringent applicable WQC for chlorodibromomethane is the CTR criterion for protection of human health of 34 µg/L.

ii. *RPA Results.* This Order finds reasonable potential and thus establishes effluent limitations for chlorodibromomethane because the MEC (37 µg/L) exceeds the most stringent applicable criterion (34 µg/L), demonstrating reasonable potential by Trigger 1.

iii. *Chlorodibromomethane WQBELs.* WQBELs for chlorodibromomethane, calculated according to SIP procedures, with a CV of 1.3, are an AMEL of 34 µg/L and an MDEL of 93 µg/L.

iv. *Immediate Compliance Feasible.* Statistical analysis of effluent data for chlorodibromomethane collected during the period of February 2005 through January 2008 shows that the 95th percentile (22 µg/L) is less than the AMEL (34 µg/L); and the 99th percentile (37 µg/L) is less than the MDEL (93 µg/L). The Regional Water Board concludes that immediate compliance with final WQBELs for chlorodibromomethane is feasible.

v. *Antibacksliding.* Antibacksliding requirements are satisfied because the previous Order did not include final effluent limitations for chlorodibromomethane.

(6) Endrin

i. *Endrin WQC.* The most stringent applicable WQC for endrin is the CTR criterion for protection of aquatic life of 0.0023 µg/L.

ii. *RPA Results.* This Order finds reasonable potential and thus establishes effluent limitations for endrin because the MEC (0.0030 µg/L) exceeds the most stringent applicable criterion (0.0023 µg/L), demonstrating reasonable potential by Trigger 1.

iii. *Endrin WQBELs.* WQBELs for endrin, calculated according to SIP procedures, with a SIP default CV of 0.60, are an AMEL of 0.0019 µg/L and an MDEL of 0.0038 µg/L.

iv. *Immediate Compliance Feasible.* The endrin data set collected during February 2005 through January 2008 contains 38 non-detected values out of 42 samples; therefore, it is impossible to perform a meaningful statistical analysis to determine compliance. Nevertheless, all four endrin effluent data greater than the AMEL are "J" flagged, meaning detected but not quantified. The Discharger believes that it could comply with endrin WQBELs.

v. *Antibacksliding.* Antibacksliding requirements are satisfied because the previous Order did not include final effluent limitations for endrin.

(7) 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 WQC for tributyltin in fresh and marine waters 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 (0.016 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 data set collected during February 2005 through January 2008 contains 34 non-detected values out of 38 samples; therefore, it is impossible to perform a meaningful statistical analysis to

determine compliance. Nevertheless, the Discharger believes that it can comply with the WQBELs.

v. *Antibacksliding.* Antibacksliding requirements are satisfied because final effluent limitations for tributyltin are more stringent than those in the previous Order.

(8) 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 objectives, Regional Water Board staff used pH, salinity, and temperature data collected from the nearest RMP station to the outfall, the Guadalupe Slough station (C-1-3). The Guadalupe Slough station is located approximately 7,000 feet downstream from the discharge point, and approximately 3,000 feet downstream of the confluence of Moffett Channel and Guadalupe Slough. Data collected from 1994 through 2002 by the RMP program and from 1997 through 2000 as part of the Discharger's ammonia special study were used to develop the total ammonia objectives. Combining the two data sets provides a wider range of pH, temperature, and salinity values in the receiving water. This wider range includes some higher pH values, resulting in slightly lower translated criteria. This somewhat conservative approach accounts for uncertainties resulting from the difficulty of collecting representative receiving water samples. Samples are not collected at low tide, when the waters are inaccessible by boat and when pH values may increase due to natural diurnal variability. The United States Geological Survey conducted continuous monitoring of Guadalupe Slough at a location approximately 4,500 feet downstream of Station C-1-3 from August 13 to 17, and September 11 to 24, 2007. The monitoring location was near the discharge point of Salt Pond A3W. The range of pH values detected was roughly comparable to that provided by the RMP and special study (Shellenbarger, G.G., et.al., 2008, *Dissolved Oxygen in Guadalupe Slough and Pond A3W, South San Francisco Bay, California, August and September 2007: U.S. Geological Survey*). 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; *1999 Update of Ambient Water Quality Criteria for Ammonia,* EPA Publication No. 822-R-99-014, US EPA, 1999]:

For salinity > 10 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)

For salinity < 1 ppt: fraction of $NH_3 = \frac{1}{1+10^{(pK-pH)}}$

Where:

pK = 0.09018 + 2729.92/ (273 +T)
T = temperature in degrees Celsius

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 Guadalupe 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 Guadalupe Slough RMP station 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 7.8 mg/L and 1.1 mg/L, respectively.

ii. *RPA Results*. This Order finds reasonable potential, and thus establishes effluent limitations, for total ammonia, as the MEC (11.9 mg/L) exceeds the most stringent applicable criterion (1.1 mg/L).

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.

This Order establishes separate effluent limits for ammonia during the dry season (June through September) and the wet season (October through May) for several reasons. Discharge flow and receiving water conditions are different in the dry season and the wet season. Effluent flows are lower during the dry season, but the discharge receives less dilution than during the wet season because of the smaller volume of water present in Moffet Channel and Guadalupe Slough. This results in different seasonal dilution credits, and thus different seasonal limits. Also, the higher receiving water temperature during the dry season favors un-ionized ammonia formation more than the relatively cold receiving water temperatures during the wet season. Finally, the previous Order established dry season effluent limits for total ammonia that are more stringent than either the dry or wet season limits calculated for this Order. To comply with anti-backsliding

requirements, these limits must therefore be retained during the months in which they are effective.

Seasonal WQBELs for total ammonia were calculated according to SIP procedures, using a separately-calculated effluent CV. For each season, the CV was 1.17 (rounded to two decimal places) for each season. For the wet season (October through May), the limits calculated with a dilution factor D = 3.8 are an AMEL of 4.5 mg/L and an MDEL of 18 mg/L; for the dry season (June through September), the limits calculated with D = 2 are an AMEL of 3.0 mg/L and an MDEL of 12 mg/L. The existing dry season effluent limits of an AMEL of 2 mg/L and an MDEL of 5 mg/L are retained because they are more stringent.

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.

The following table compares the effluent limitations for ammonia from the previous Order (which applied only during June through September) with newly calculated seasonal limitations.

	Effluent Limitations for Ammonia	
	AMEL	MDEL
Previous Order (June through September)	2 mg/L	5 mg/L
Newly Calculated Limits (June through September)	3.0 mg/L	12 mg/L
Newly Calculated Limits (October through May)	4.5 mg/L	18 mg/L

iv. *Feasibility to Comply.* Feasibility was evaluated on a seasonal basis by statistical evaluation of effluent data for total ammonia collected during the period from February 2003 to January 2008. For the dry season, the 95th percentile (0.35 mg/L) is less than the AMEL (2 mg/L); the 99th percentile (0.80 mg/L) is less than the MDEL (5 mg/L); and the mean (0.18 mg/L) is less than the LTA of the data set (2.1 mg/L). For the wet season, the 95th percentile (8.4 mg/L) is greater than the AMEL (4.4 mg/L); the 99th percentile (11 mg/L) is less than the MDEL (18 mg/L); and the mean (2.5 mg/L) is less than the LTA of the data set. The Regional Water Board therefore concludes that immediate compliance with the WQBELs for ammonia is feasible for the dry season, but not for the wet season.

v. *Need for Cease and Desist Order (CDO).* Pursuant to State Water Board Order WQ 2007-0004, compliance schedules are not authorized for numeric objectives or criteria that were in effect prior to the SIP. The Basin Plan's un-ionized ammonia objective has been in place since before the SIP. Because it is infeasible for the Discharger to immediately comply with the WQBELs during the wet season, from October through May, the Discharger will likely discharge in violation of this Order. Therefore, a CDO is proposed concurrent with this Order. The CDO is necessary to ensure that the Discharger achieves compliance. It establishes a time schedule for the Discharger to complete necessary investigative, preventive, and remedial actions to address its imminent and threatened violations.

vi. *Antibacksliding.* Antibacksliding requirements are satisfied because this Order retains the same effluent limitations for ammonia established in the previous Order for June through September, and there were no ammonia effluent limits in the previous Order for October through May.

e. **Effluent Limit Calculations.** The following table shows the derivation of WQBELs for copper, nickel, cyanide, dioxin-TEQ, chlorodibromomethane, endrin, tributyltin, and total ammonia.

Table F-12. Effluent Limit Calculations

PRIORITY POLLUTANTS	Copper	Nickel	Cyanide	Dioxin TEQ	Chlorodibro-momethane	Endrin
Units	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
Basis and Criteria type	BP SSOs	BP SSOs	BP SSOs	CTR HH	CTR HH	CTR SW Aq. Life
Criteria – Acute	10.8	62.4	9.4	-----	-----	-----
Criteria – Chronic	6.9	11.9	2.9	-----	-----	-----
Water Effects Ratio (WER)	1	1	1	1	1	1
Lowest WQO	7	12	2.9	1.4E-08	34	0.0023
Site Specific Translator - MDEL	0.53	0.44	-----	-----	-----	-----
Site Specific Translator - AMEL	0.53	0.44	-----	-----	-----	-----
Dilution Factor (D) (if applicable)	0	0	3.0	0	0	0
No. of samples per month	4	4	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	N	N	Y
HH criteria analysis required? (Y/N)	N	Y	Y	Y	Y	Y
Applicable Acute WQO	20	142	9.4			0.037
Applicable Chronic WQO	13	27	2.9			0.0023
HH criteria		4600	220000	1.4E-08	34	0.81
Background (Maximum Conc for Aquatic Life calc)	8.6	16	0.4	2.6E-07	0.057	0.00012
Background (Average Conc for Human Health calc)		5.8	0.4	1.1E-07	0.057	0.000040
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg)	N	N	N	Y	N	N
ECA acute	20	142	36			0.037
ECA chronic	13	27	10			0.0023
ECA HH		4600	879999	1.4E-08	34	0.81
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	Y	N	Y
Avg of effluent data points	1.7	2.0	2.1		6.7	
Std Dev of effluent data points	0.81	0.61	1.7		8.4	
CV calculated	0.46	0.31	0.79	N/A	1.3	N/A
CV (Selected) - Final	0.46	0.31	0.79	0.60	1.3	0.60

PRIORITY POLLUTANTS	Copper	Nickel	Cyanide	Dioxin TEQ	Chlorodibro-momethane	Endrin
ECA acute mult99	0.39	0.52	0.25			0.32
ECA chronic mult99	0.60	0.71	0.44			0.53
LTA acute	8.0	73.7	9.2			0.012
LTA chronic	7.8	19.2	4.6			0.0012
minimum of LTAs	7.8	19.2	4.6			0.0012
AMEL mult95	1.4	1.3	1.7	1.6	2.2	1.6
MDEL mult99	2.5	1.9	4.0	3.1	6.0	3.1
AMEL (aq life)	11.1	24.4	8.0			0.0019
MDEL (aq life)	19.9	36.9	18			0.0038
MDEL/AMEL Multiplier	1.79	1.51	2.3	2.01	2.7	2.0
AMEL (human hlth)		4600	879999	1.4E-08	34	0.81
MDEL (human hlth)		6966	2003472	2.8E-08	93	1.6
minimum of AMEL for Aq. life vs HH	11	24	8.0	1.4E-08	34	0.0019
minimum of MDEL for Aq. Life vs HH	20	37	18	2.8E-08	93	0.0038
Current limit in permit (30-day average)	10	24	-----	-----	-----	-----
Current limit in permit (daily)	20	40	32 (Interim)	-----	58 (Interim)	-----
Final limit - AMEL	10	24	8.0	1.4E-08	34	0.0019
Final limit - MDEL	20	37	18	2.8E-08	93	0.0038
Max Effl Conc (MEC)	5.4	3.4	10	1.2E-09	37	0.0030

PRIORITY POLLUTANTS	Tributyltin	Total Ammonia (acute) (Oct-May)	Total Ammonia (chronic) (Oct-May)	Total Ammonia (acute) (Jun-Sept)	Total Ammonia (chronic) (Jun – Sept)
Units	µg/L	µg/L	µg/L	µg/L	µg/L
Basis and Criteria type	BP SW Aq. Life	Basin Plan Aquatic Life	Basin Plan Aquatic Life	Basin Plan Aquatic Life	Basin Plan Aquatic Life
Criteria – Acute	0.42	7800	-----	7800	-----
Criteria – Chronic	0.0074	-----	1100	-----	1100
Water Effects Ratio (WER)	1	1	1	1	1
Lowest WQO	0.0074	7800	1100	7800	1100
Site Specific Translator - MDEL	-----	-----	-----	-----	-----
Site Specific Translator - AMEL	-----	-----	-----	-----	-----
Dilution Factor (D) (if applicable)	0	3.8	3.8	2.0	2.0
No. of samples per month	4	4	30	4	30
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	Y	Y
HH criteria analysis required? (Y/N)	N	N	N	N	N
Applicable Acute WQO	0.42	7800	-----	7800	-----
Applicable Chronic WQO	0.0074	-----	1100	-----	1100
HH criteria					
Background (Maximum Conc for Aquatic Life calc)	0.0030	2840	400	640	400
Background (Average Conc for Human Health calc)					
Is the pollutant Bioaccumulative (Y/N)? (e.g., Hg)	N	N	N	N	N
ECA acute	0.420	26648	No Acute WQO	22120	No Acute WQO
ECA chronic	0.0074	No Chronic WQO	3760	No Chronic WQO	2500
ECA HH	-----	-----	-----	-----	-----
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	Y	N	N	N	N
Avg of effluent data points	-----	2487	2487	180	180
Std Dev of effluent data points	-----	2911	2911	210	210
CV calculated	N/A	1.17	1.17	1.17	1.17
CV (Selected) – Final	0.60	1.17	1.17	1.17	1.17
ECA acute mult99	0.32	0.177	-----	0.178	-----

PRIORITY POLLUTANTS	Tributyltin	Total Ammonia (acute) (Oct-May)	Total Ammonia (chronic) (Oct-May)	Total Ammonia (acute) (Jun-Sept)	Total Ammonia (chronic) (Jun – Sept)
ECA chronic mult99	0.53	-----	0.869	-----	0.869
LTA acute	0.135	4727		3933	
LTA chronic	0.00390		3267		2173
minimum of LTAs	0.0	4727	3267	3933	2173
AMEL mult95	1.6	2.11	1.38	2.10	1.38
MDEL mult99	3.1	5.64	5.64	5.62	5.62
AMEL (aq life)	0.0	9964	4523	8278	3006
MDEL (aq life)	0.0	26648	18416	22120	12223
MDEL/AMEL Multiplier	2.0	2.7	4.07	2.7	4.07
AMEL (human hlth)	-----	-----		-----	
MDEL (human hlth)	-----	-----		-----	
minimum of AMEL for Aq. life vs HH	0.0061	9964	4523	8278	3006
minimum of MDEL for Aq. Life vs HH	0.012	26648	18416	22120	12223
Current limit in permit (30-day average)	0.01	2000	2000	2000	2000
Current limit in permit (daily)	0.03	5000	5000	5000	5000
Final limit - AMEL	0.0061	---	4500	---	3000
Final limit - MDEL	0.012	---	18000	---	12000
Max Effl Conc (MEC)	0.016	11900	11900	2310	2310

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 – November 2007 ranged from 95% to 100.0% survival, for 11-sample 90th percentiles, and was 100% for all 11-sample moving medians. 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 or receiving water limitations, then such toxicity does not constitute a violation of the effluent limitations for whole effluent toxicity. If ammonia toxicity is verified by a TIE, the Discharger may use an adjustment protocol approved by the Executive Officer for the routine bioassay testing.

6. Whole Effluent Chronic Toxicity

a. **Monitoring History.** The previous permit contained chronic toxicity monitoring requirements and required accelerated monitoring upon exceedance of a trigger of either 1 TUc as a three sample median or 2 TUc for any single bioassay test. The Discharger's chronic toxicity monitoring data from November 2003 – February 2008 shows that out of

78 chronic toxicity tests, the TUc values for growth ranged from <1.0 to 8.8, and 43 of the 78 tests had TUc values of 1.0 or greater. During this period, the Discharger used a three-sample median "trigger" of 1.25 TUc based on IC_{50} or EC_{50} for initiating the TIE process, rather than 1.0 TUc value based on IC_{25} or EC_{25}. The Discharger conducted two TIEs from November 2003 through February 2008 that were unsuccessful in identifying the causes of the toxicity.

b. **Permit Requirements.** This Order retains the chronic toxicity triggers of 1.0 TUc as a three sample median, and a single sample maximum of 2.0 TUc, from the previous Order. The Discharger is also required to perform twice-monthly accelerated monitoring during the month of January through March or when permit triggers are exceeded and to plan and implement a Chronic Toxicity Identification and Toxicity Reduction Study to identify and reduce chronic toxicity immediately upon adoption of this Order. These permit requirements for chronic toxicity are consistent with the CTR and SIP requirements.

c. **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 expiration of the permit term or after any significant change in the nature of the effluent.

E. Interim Effluent Limitations

1. Feasibility Evaluation and Interim Effluent Limits

The Discharger submitted an Infeasibility Analysis on December 5, 2008, demonstrating that it cannot immediately comply with final WQBELs for dioxin-TEQ. As stated in the previous findings in Fact Sheet Section IV.D.4.(d)(4), the Regional Water Board staff concurred with the Discharger's assertion of infeasibility to comply with final effluent limitations for dioxin-TEQ.

This Order establishes a compliance schedule and an interim limit for dioxin-TEQ that will remain in effect for ten years following the effective date of this Order. Since there are not enough data to calculate a performance-based interim limit for dioxin-TEQ statistically, this Order establishes an interim limit based on the MLs of all congeners and their TEFs. The sum of the each congener's ML times its TEF is 6.3×10^{-5} µg/L and is established as a monthly average limit.

2. 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. On April 15, 2008, the State Water Board adopted Resolution No. 2008-0025 (Compliance Schedule Policy), which includes compliance schedule policies for pollutants that are not addressed by the SIP. This Policy was approved by the USEPA on August 27, 2008. This Policy therefore supersedes the Basin Plan's compliance schedule policy. The compliance schedule for dioxin-TEQ is consistent with the Policy. The compliance schedule police requires 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 Discharger's Infeasibility Analysis shows that it has fulfilled these requirements.

3. Compliance Schedules for Dioxin-TEQ

The compliance schedule for dioxin-TEQ, and the requirements to submit reports on further measures to reduce concentrations of these pollutants to ensure compliance with final limits are based on the above compliance schedule policies. As previously described, the Discharger submitted an Infeasibility Report, and the Regional Water Board staff confirmed their assertions. Subsequently, a compliance schedule for dioxin-TEQ is appropriate because the Discharger has made good faith and reasonable efforts towards characterizing the sources. However, time to allow additional efforts are 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 the Basin Plan narrative objective for bioaccumulation; therefore, the discharge qualifies for a 10-year compliance schedule from the date this Order becomes effective. 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. 94-069.

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.

2. Receiving Water Limitations V.A.3 is based in the previous permit and requires compliance with Federal and state law, which 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, chlorodibromomethane, endrin, 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 dichlorobromomethane, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, 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. With its ROWD, the Discharger requested a change in the acute toxicity compliance monitoring species from fathead minnow (*Pimephales promelas*) to rainbow trout (*Oncorhynchus mykiss*). A sensitivity screening test conducted in 2004 indicated no difference in species sensitivity between rainbow trout and fathead minnow. The request indicated that rainbow trout are preferred over fathead minnow in acute toxicity testing because less stress is imparted during handling, and the larger size of rainbow trout allows for a more thorough inspection for disease, deformities, and general health. The Regional Water Board granted the request and requires the use of rainbow trout in acute toxicity tests.

2. **Chronic Toxicity.** This Order requires the Discharger to (1) immediately commence accelerated monitoring, (2) plan and implement a Chronic Toxicity Identification and Toxicity Reduction Study, and (3) reduce chronic toxicity in its discharge to below trigger levels no later than April 30, 2013. The Discharger is to use the existing most sensitive species. The Discharger conducted an effluent toxicity screening study prior to the expiration of the previous permit, which indicated *Americamysis bahia* is the most sensitive species for chronic toxicity testing. The Discharger shall re-screen in accordance with Appendix E-1 of the MRP (Attachment E) after any significant change in the nature of the effluent. When chronic toxicity is reduced to below

trigger levels, the Discharger shall perform routine chronic toxicity monitoring in accordance with the MRP.

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. Pretreatment and Biosolids Monitoring 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. Biosolids monitoring is required pursuant to 40 CFR Part 503.

This Order specifies the sampling type for pretreatment monitoring. Specifically, this Order requires multiple grabs (instead of 24-hour composites for BNA and most metals, or grabs for VOCs, cyanide, and hexavalent chromium) to make the requirement consistent both with the Federal pretreatment requirements in 40 CFR 403.12, which require 24-hour composites, and with proper sample handling for these parameters (summarized in the Water Board's August 6, 2001, Letter). Composites made up of discrete grabs for these parameters are necessary because of potential loss of the constituents during automatic compositing. Hexavalent chromium is chemically unstable. It, cyanide, and BNAs are also somewhat volatile. For these same reasons, discrete analyses are also necessary since constituents are subject to loss during compositing at the laboratory.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions (Provision VI.A)

Standard Provisions, which, in accordance with 40 CFR 122.41 and 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 and the facility oxidation ponds 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.

d. **Chronic Toxicity Identification and Toxicity Reduction Study.** This study requires the Discharger to aggressively identify the cause of effluent chronic toxicity and to implement measures to reduce the chronic toxicity below the trigger levels. The other TIE/TRE requirements establishes guidelines for these TRE/TIE evaluations. This requirement is unchanged from the previous Order.

e. **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.

f. **Optional Near-Field Site Specific Translator Study.** This provision is newly established by this Order. Site-specific translators were calculated for this Order for zinc, lead, and chromium (VI), using data collected from the Dumbarton Bridge RMP station. USEPA guidance for developing site-specific translators requires that site-specific translators 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 site-specific translator development in future permit reissuances.

g. **Total Suspended Solids Removal.** Due to the South San Francisco Bay's limited circulation and pollutant assimilative capacity, relative to more northern portions of San Francisco Bay, the Regional Water Board remains sensitive to loadings of TSS to the South San Francisco Bay from the Plant. Current effluent limitations for TSS (20/30 mg/L – average monthly/daily maximum) are less stringent than limitations (10/20 mg/L – average monthly/daily maximum) imposed on the other two significant dischargers to the South San Francisco Bay (San Jose/Santa Clara and Palo Alto). Although this difference in limitations may be based on a difference in secondary treatment processes (oxidation ponds versus activated sludge) used by the Discharger versus those used by the Cities of San Jose/Santa Clara and Palo Alto, advanced treatment processes employed by the Discharger (air flotation and dual media filtration) may be able to accomplish better TSS removals than the Plant does currently. The permit, therefore, requires the Discharger to prepare a report regarding TSS removal capability, including description of treatment technologies in place and unique wastewater treatability characteristics, to enable the Regional Water Board to reassess TSS limits imposed on the Plant.

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 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. The Discharger fulfilled this requirement by August 1, 2008.

6. Other Special Provisions

a. **Action Plan for Cyanide.** This provision is based on the Basin Plan, which contains SSOs for cyanide for San Francisco Bay (Regional Water Board Resolution R2-2006-0086). The Basin Plan 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.

b. **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 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 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 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 South Bay, if they should occur; (4) and metal translators for calculating copper and nickel effluent limitations for the 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.

c. **Compliance Schedule for Dioxin-TEQ.** The compliance schedule for dioxin-TEQ and the requirement 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 and the State Water Board's Compliance Schedule Policy. 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 City of Sunnyvale Water Pollution Control Plant. 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 *San Jose City Times*.

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 January 21, 2009.

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: March 11, 2009

Time: 9 a.m.

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 USEPA. USEPA 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 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 USEPA 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 USEPA 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 USEPA'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 USEPA. 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 USEPA, 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 USEPA, 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. Grab samples 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 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 USEPA 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 USEPA 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 USEPA 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 Cities of San Jose and Santa Clara 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 City of Sunnyvale 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. 90-035 (February 21, 1990) amended Order No. 88-176.

- 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. 90-070 (May 16, 1990) amended Order No. 89-013.

- Required the City of Sunnyvale to implement additional source controls through pretreatment program improvements and implementation of a pilot waste minimization program by August 1, 1991.

- 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 Order No. 91-067 (April 17, 1991) amended Order No. 88-176.

- Amended Order No. 88-176 to comply with the requirements of State Water Board Order No. WQ 90-5, with a finding stating the exception request to the Basin Plan discharge prohibitions does not support a finding of net environmental benefit.

- An exception to the three prohibitions may be considered where the Discharger can demonstrate environmental protection equivalent to discharges north of Dumbarton Bridge, and demonstrate advanced treatment reliability.

- Demonstration of equivalent protection included interim concentration limits for toxics based on the water quality objectives of the recently adopted Bays and Estuaries Plan (adopted April 11, 1991, a provision to conduct a Toxicity Reduction Evaluation/Toxicity Identification Evaluation, and a provision to continue its avian botulism control program.

- 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. 91-067 states that "[o]n April 11, 1991, the State Water 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. 91-067 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. 93-086 (July 21, 1993) reissued NPDES/Waste Discharge Requirements for the City of Sunnyvale.

- 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.

Regional Water Board Cease and Desist Order No. 93-084 (October 20, 1993).

- The Cease and Desist Order addressed anticipated violations of effluent limitations established by Order No. 93-086 for copper, and included compliance schedules to come into full compliance with the requirements of Order No. 93-084. The CDO also included source control programs for copper, nickel, silver, and mercury.

Regional Water Board Order No. 98-053 (June 17, 1998) reissued NPDES/Waste Discharge Requirements for the City of Sunnyvale.

- Effluent limitations for copper and cyanide 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 (nickel, 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 July 21, 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. 98-053; 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.

Regional Water Board Order No. 00-109 (October 18, 2000) amended provisions of Order Nos. 98-052 (San Jose/Santa Clara), 98-053 (Sunnyvale), and 98-054 (Palo Alto), 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 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 Nos. 98-052, 98-053, and 98-053 to include the requirements of the Copper and Nickel Action Plans and to require the participation of the Discharger with the Santa Clara Watershed Management Initiative to assist the Regional Water Board in selecting and adopting SSOs for copper and nickel.

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. R2-2003-0079 (August 20, 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.

- Based on its findings regarding the establishment of water quality based effluent limitations, including mass-based limitations, and the retention of requirements for an avian botulism control program, the Regional Water Board, in Order No. R2-2003-0079, continued to grant exceptions to the Basin Plan discharge prohibitions for the City of Sunnyvale.