STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

STAFF SUMMARY REPORT (John H. Madigan/Tong Yin)
MEETING DATE: August 12, 2009

ITEM: **6**

SUBJECT: **City of Sunnyvale, Sunnyvale Water Pollution Control Plant and Collection System, Sunnyvale, Santa Clara County—**Reissuance of NPDES Permit

CHRONOLOGY: August 2003—Permit reissued

DISCUSSION: The Revised Tentative Order (Appendix A) would reissue the NPDES permit for the Sunnyvale Water Pollution Control Plant and its collection system. The City owns and operates the wastewater plant, which provides advanced secondary treatment of domestic, commercial, and industrial wastewater for a population of about 136,000 in the City and nearby areas. The plant has a dry weather design capacity of 29.5 million gallons per day (MGD). Its peak wet weather treatment capacity is 40 MGD. The plant discharges to Moffett Channel, tributary to Guadalupe Slough and South San Francisco Bay. The plant also provides recycled water under Order No. 94-069.

We received comments (Appendix B) from the City, the Bay Area Clean Water Agencies (BACWA), and the California Sportfishing Protection Alliance (Alliance). As explained in our Response to Comments (Appendix C), we resolved many of the concerns by revising an earlier draft permit that we distributed for public review. For example, in response to the City's comments, we replaced a numeric chronic toxicity limit with a clearer, narrative one. Among the Alliance's major concerns was that the permit does not contain water quality-based effluent limits for ammonia. We do not believe such limits are necessary because the levels in the discharge would not reasonably cause or contribute to exceedances of water quality standards in the receiving water. The Alliance also indicated that we should base the bacteria, turbidity, and total suspended solids effluent limits on the State's Title 22 tertiary treatment standards. However, Title 22 does not apply to wastewater discharges. The Alliance also asserted that the permit does not contain final effluent limits for chronic toxicity. The draft permit did, in fact, contain chronic toxicity limits, though as indicated earlier, we have revised them to narrative limits. The Revised Tentative Order reflects all changes proposed.

We anticipate that some stakeholders will choose to testify at the hearing.

RECOMMEN-DATION: Adopt the Revised Tentative Order

CIWQS PLACE ID: 259507

APPENDICES:
A. Revised Tentative Order
B. Comment Letters
C. Response to Comments

APPENDIX A

Revised Tentative Order

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California Regional Water Quality Control Board

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Arnold Schwarzenegger
Governor

REVISED 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 facility, consisting of the Sunnyvale Water Pollution Control Plant and its sewage collection system, 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:	August 12, 2009
This Order shall become effective on:	October 1, 2009
This Order shall expire on:	September 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 August 12, 2009.

_____

Bruce H. Wolfe**,** Executive Officer

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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 flow design capacity) 40 MGD (peak wet weather flow design capacity)
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 advanced-secondary level treated wastewater from the Sunnyvale Water Pollution Control Plant (Plant) to waters of the State and the United States.

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 area 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 and is owned by the Discharger. 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 average dry weather flow discharged to Moffet Channel during the months of June, July, August, and September in 2006-2008 was 9.4 MGD. The average flow discharged to Moffett Chanel was 11.8 MGD during 2006 - 2008, the average wet weather flow (October-May) discharged to Moffett Chanel was 13.1 MGD during 2006 – 2008, 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 Channel 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 (Basin Plan tributary rule). 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. These beneficial uses also apply to Moffett Channel in accordance with the Basin Plan tributary rule.

Although South San Francisco Bay is listed to support shellfish harvesting, according to a City of San Jose 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 2004 beneficial use survey of Moffett Channel and Guadalupe Slough found no attempts by the public at shellfish harvesting over a period of 18 months (*City of Sunnyvale Water Pollution Control Plant Receiving Water User Survey Confirmation Study, December 23, 2004*).

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 schedule and interim effluent limitation 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, which 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. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with anti-backsliding requirements.

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 the conditions stated in Subsections I.G.2 and I.G.4 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, Turbidity and Total Ammonia – 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	mg/L	---	---	---	---	0.0

Residual[3]						
Turbidity	NTU	---	---	---	---	10
Total Ammonia (October-May)	mg/L as nitrogen	18	---	26	---	---
Total Ammonia (June-September)	mg/L as nitrogen	2.0	---	5.0	---	---

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) 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 limit 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[4]	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[3]	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

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 associated with the minimum level (ML). The required MLs for pollutants with effluent limitations are listed below.

Table 8. MLs for Pollutants with Effluent Limitations

Pollutant	ML	Units(4)
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

(3) Final effluent limitations for dioxin-TEQ shall become effective starting October 1, 2019.

(4) Unit Abbreviation
mg/L= milligrams per liter
µg/L = micrograms per liter
pg/L = picograms per liter

C. Interim Effluent Limitation for Dioxin-TEQ

The Discharger shall comply with the following interim effluent limit for dioxin-TEQ at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the MRP (Attachment E). The interim limit for dioxin-TEQ shall remain in effect until September 30, 2019. Starting October 1, 2019, the final effluent limit in Table 7 for dioxin-TEQ shall become effective.

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 90th 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.

2. Whole Effluent Chronic Toxicity

a. There shall be no chronic toxicity in the discharge. Chronic toxicity is a detrimental biological effect of growth rate, reproduction, fertilization success, larval development, or any other relevant measure of the health of an organism population or community.

Compliance with this limit shall be determined by analyses of indicator organisms and toxicity tests. Compliance shall be measured at EFF-001 as described in the MRP (Attachment E).

b. The chronic toxicity of the effluent shall be expressed and reported in toxic units (TUc), where

$$TU_c = \frac{100}{NOEC}$$

The No Observable Effect Concentration (NOEC) is expressed as the maximum percent effluent concentration that causes no observable effect on test organisms, as determined by the results of a critical life stage toxicity test.

c. The Discharger shall comply with the following tiered requirements based on results from representative samples of the effluent at Discharge Point 001, with compliance measured at EFF-001 as described in the MRP (Attachment E), meeting test acceptability criteria and Section V.B of the MRP (Attachment E):

(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 in excess of either "trigger" in (2), above, initiate toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) procedures in accordance with Provision VI.C.2.d.*ii*.

(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 comply with Provision VI.C.2.d, which requires a "Chronic Toxicity Identification and Toxicity Reduction Study" in accordance with a schedule set forth in Provision VI.C.2.d.*i*.

e. 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

[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.

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 third edition (EPA-821-R-02-014), and "*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. Land Discharge Specifications

Not Applicable.

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 discharge 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, 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 Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits (Attachment G).

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 applicable sampling and reporting requirements in the two Standard Provisions listed in VI.A above.

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 the receiving water does not meet promulgated ammonia objectives.

e. If State Water Board precedential decisions, new policies, new laws, or new regulations on chronic toxicity or total chlorine residual become available.

f. If administrative or judicial decision on a separate NPDES permit or WDR that addresses requirements similar to this discharge.

g. 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 the Regional Standard Provisions (Attachment G) according to the sampling frequency specified in the attached MRP (Attachment E).

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.* Focused Chronic Toxicity Identification and Reduction Tasks and Schedule to Address Chronic Toxicity Measured in the Discharge**

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.	December 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 and to examine whether the receiving water is impacted by the discharge with respect to toxicity. The study plan shall consist at a minimum of the following elements: (a) Investigate procedures for collecting and handling samples used for whole effluent toxicity tests to ensure that samples are representative and uncontaminated. (b) Investigate effects of oxidation pond algae and related by-products on effluent chronic toxicity, and possible ways to reduce toxicity from	December 1, 2009

Task	Compliance Date
those effects. (c) Investigate polymers used in air flotation tanks and their effects on chronic toxicity, and possible ways to reduce toxicity from those effects. (d) Investigate elevated sulfur dioxide concentrations on chronic toxicity, and possible ways to reduce toxicity caused by sulfur dioxide if it is found to be a source of toxicity. (e) Investigate any other possible circumstances and pollutants present in the wastewater that may cause chronic toxicity, and the sources and possible ways to reduce the sources. (f) Collect samples of intermediate waste streams for chronic toxicity testing to determine if treatment processes or its chemical contribute to observed toxicity. (g) Conduct chronic toxicity tests at least twice per month during December, January, February, and March. Conduct chronic toxicity test at least once per month during other times of the year. If any test result is above the TRE workplan trigger, initiate a TIE to identify the cause. Monitoring conducted pursuant to a TIE/TRE shall satisfy the requirements for routine and accelerated monitoring while the TIE/TRE is underway. Tests shall consist of effluent with laboratory water as diluent, and effluent with receiving water as diluent. Receiving water samples may be collected in Moffett Channel or further away from influence of the discharge. (h) Identify a schedule to implement the TIE/TRE study plan. The study length shall be a minimum of two years (including two full wet and dry seasons).	
(3) Initiate the study described in Task (2) above.	January 15, 2010
(4) Submit a final report including all the findings and identified causes of toxicity. Based on these findings and consideration of past TRE efforts, prepare and submit a work plan to reduce chronic toxicity and include an implementation schedule.	March 1, 2012.
(5) Begin implementation of the work plan to reduce chronic toxicity as described in Task (4) above.	April 15, 2012
(6) Report status of efforts annually, including any necessary revision or updates to the work plan. The Discharger may request to the Executive Officer to stop submitting annual status reports after June 30, 2013, if it has successfully addressed the chronic toxicity issue.	Annually on June 30 with first report due June 30, 2010
(7) Submit a final report documenting the efforts to reduce chronic toxicity; propose additional measures if the discharge is still above the chronic toxicity triggers specified in IV.D.2.c.(2).	October 1, 2013

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

(3) The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity except as required by Provision VI.C.2.d.*i*.

(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. Receiving Water Ammonia Characterization Study

The Discharger shall comply with the following tasks and schedule to evaluate the concentrations of total ammonia and un-ionized ammonia in the effluent and receiving waters, the variability in the discharge, any mixing and dilution in the receiving waters, and any more-stringent ammonia criteria that may become effective in the foreseeable future.

Table 11. Receiving Water Ammonia Characterization Study Tasks and Schedule

Tasks	Compliance Date
(1) Submit a study plan for a minimum two-year study that includes the following elements: (a) effluent and receiving water sampling locations (receiving water locations, at a minimum, 200, 500, 1000, and 2000 feet downstream from the outfall in Moffet Channel; an upstream station that is not impacted by the discharge in Moffet Channel, if applicable; and stations upstream and downstream of the confluence of Moffett Channel in Guadalupe Slough, which may be the same stations in the *City of Sunnyvale WPCP Receiving Water Ammonia Investigations 2001 Final Report, June 29, 2001*), (b) sampling and analysis protocols (including means to evaluate diurnal conditions, such as continuous monitoring), (c) sampling parameters (including, at a minimum, pH, salinity, temperature, hardness, and total ammonia), (d) data interpretation models and other methods to be used (representing conservative, reasonable worst case conditions), and (e) implementation schedule.	December 1, 2009
(2) Begin implementation of the study plan developed for Task (1).	January 15, 2010
(3) Submit annual status reports for all the tasks required by this Provision that contain, at minimum, monitoring data collected during the previous year and necessary updates to all the study plans specified in this provision.	Annually, on February 1, with the annual self-monitoring reports (SMRs) required by MPR (Attachment E)
(4) Submit a final study report that includes the following elements: (a) sampling results, data interpretation, and conclusions, such as receiving water characterization, seasonal/diurnal variability, etc.; (b) proposed mixing zone (consistent with *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* § 1.4.2.2) and dilution credit, if any; (c) determination if there is reasonable potential for the discharge to cause receiving water to exceed applicable ammonia objectives (based on any proposed dilution and based on a no dilution scenario) using procedures outlined in the Technical Document for Toxics Control (also see Fact Sheet, Attachment F, Pages F-24 to F-28); (d) if there is reasonable potential, total ammonia effluent concentration goals that account for applicable ammonia objectives and WQC that may foreseeably become applicable standards or objectives within the term of this permit or the next permit term, such as USEPA's *1999 Update of Ambient Water Quality Criteria for Ammonia* (EPA-822-R-99-014); and (e) Compliance attainability with the total ammonia concentration goals described above.	April 15, 2012
(5) If there is reasonable potential and there would be compliance difficulty with the total ammonia concentration goals in task (4), submit a study plan that includes the following elements: (1) investigate treatment options to achieve compliance with the ammonia concentration goals, including a description and summary of the treatment options with a discussion of the pros and cons of each, (2) plan for bench scale tests or pilot scale tests or both, and (3) implementation schedule.	June 15, 2012

Tasks	Compliance Date
(6) Begin implementation of the study plan developed for Task (5) for those tasks necessary to comply with the total ammonia effluent concentration goals based on the ammonia objectives in effect at that time.	August 1, 2012
(7) After completion of Task (6), submit a report summarizing results of Task (6) and a study plan that includes the following elements: (a) measures the Discharger will take to comply with the ammonia concentration goals, including the following, as relevant: i. development of preliminary design specifications, ii. development of final design specifications, iii. procurement of funding, iv. acquisition of necessary permits and approvals, and v. construction; and (b) implementation schedule for the above measures.	August 1, 2013
(8) Begin implementation of the study plan developed for Task (7).	September 15, 2013
(9) Submit annual status reports and a final report documenting results of Task (8).	Annually by February 1 with the annual SMR required by Attachment E; final report is due within 90 days of completing Task (8).

f. Optional Mass Offset

If the Discharger can demonstrate that further net reductions of the total mass loadings of 303(d)-listed pollutants to the receiving water cannot be achieved through economically feasible measures such as aggressive source control, wastewater reuse, and treatment Plant optimization, but only through a mass offset program, the Discharger may submit to the Regional Water Board for approval a mass offset plan to reduce 303(d)-listed pollutants to the same watershed or drainage basin. The Regional Water Board may modify this Order to allow an approved mass offset program.

g. Optional Near-Field Site-Specific 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 12. 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.

h. 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, and
- Evaluation of operational changes to enhance TSS removal.

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 (see Regional Standard Provisions [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 the Regional 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 13. 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).	December 1, 2009

Task	Compliance Date
(2) Implement Cyanide Control Program The Discharger shall submit a plan for, and begin implementation of, a program to minimize cyanide discharges to the sanitary sewer system consisting, at a minimum, of the following elements: i. Inspect each potential contributor to assess the need to include that contributing source in the control program. ii. Inspect contributing sources included in the control program annually. Inspection elements may be based on USEPA guidance, such as 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.	February 28, 2010 with 2009 annual P2 report
(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 14. 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.	December 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

Task	Compliance Date
(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 discharges.	Within 90 days of exceedance
(4) Report Status of Copper Control Program Submit a report to the Regional Water Board documenting implementation of the copper control program.	Annually with P2 reports due February 28

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: AMEL = $6.3x10^{-5}$ µg/L	Upon Order effective date
(2) If dioxin-TEQ effluent monitoring data show that the Discharger is out of compliance, as described in Section 2.4.5, Compliance Determination, of the SIP, the Discharger shall submit a plan to identify 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 each source included in the program. 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	Annually with P2 reports due February 28

Task	Deadline
the discharge into compliance with the effluent limits in this Order.	
(7) In the event that source control measures are insufficient for meeting final WQBELs specified in Effluent Limitations and Discharge Specifications IV.B for or dioxin-TEQ, the Discharger shall submit a schedule for implementation of additional actions to reduce the concentrations of these pollutants.	No later than 4 months after the most recent annual P2 report that identifies that additional actions are needed
(8) The Discharger shall commence implementation of the identified additional actions in accordance with the schedule submitted in task (7).	Within 45 days after the deadline for task 7
(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.	October 1, 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.

Percent Removal is a percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as determined from the 30-day average values of the raw wastewater influent pollutant concentrations to the facility and the 30-day average values of the effluent pollutant concentrations for a given time period (40 CFR 133.101).

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.

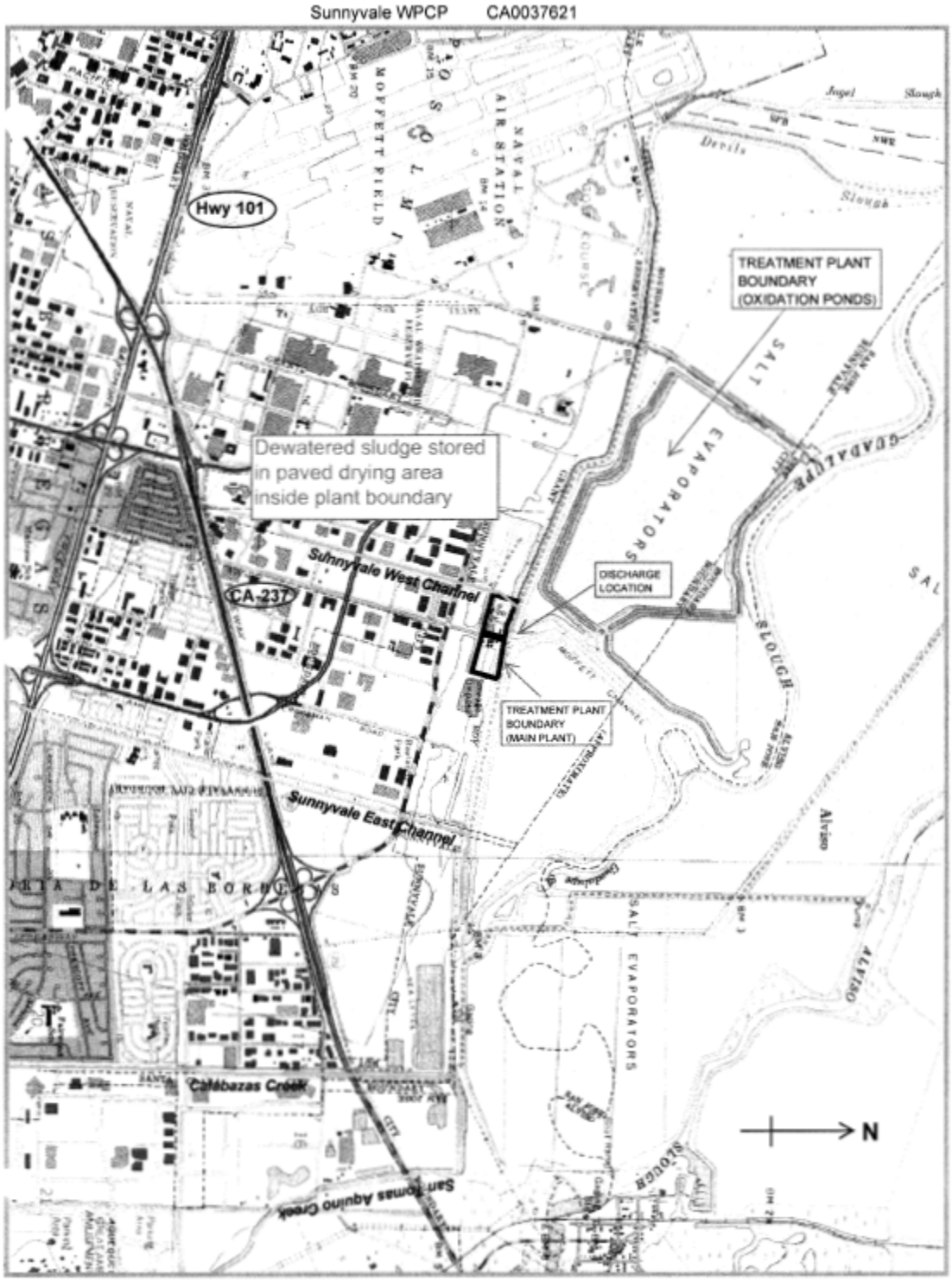
Standard Deviation (σ) is a measure of variability that is calculated as follows:

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

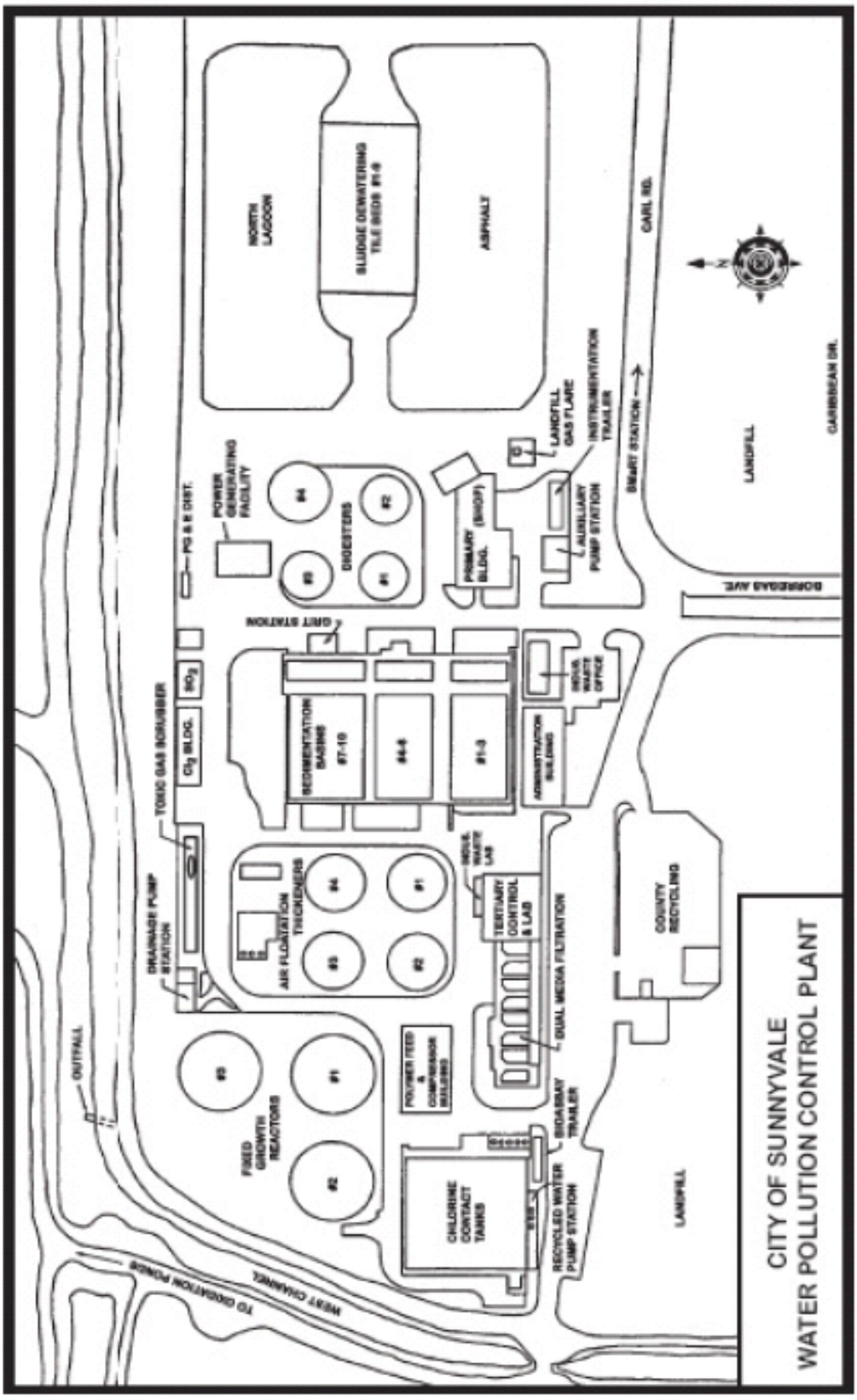
where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

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.)

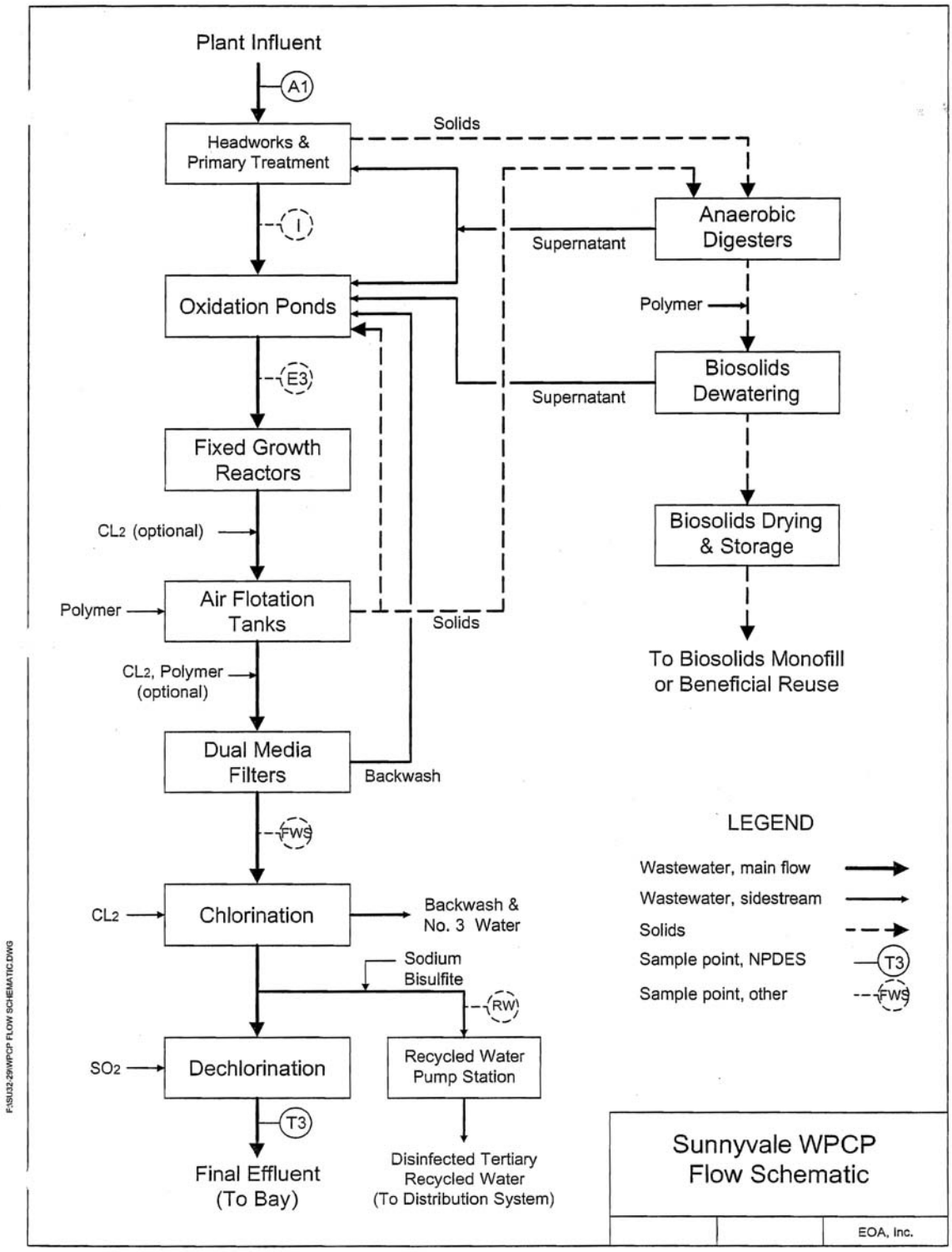
ATTACHMENT B (1) – LOCATION MAP



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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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 the Regional Standard Provisions (Attachment G). The MRP 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 the Regional Standard Provisions, 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 the Regional Standard Provisions (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										
115	Endrin	0.01											

CTR #	Constituent	Types of Analytical Methods (1) Minimum Levels (µg/L)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICPMS	SPGFAA	HYDRIDE	CVAF	DCP
---	Tributyltin(3)	0.005											
---	Total Ammonia	0.2 mg/L (as N) using titration method											

Footnotes for Table E-1:

(1) Analytical Methods / Laboratory techniques are defined as follows:

Color	=	Colorimetric;
CVAF	=	Cold Vapor Atomic Fluorescence.
DCP	=	Direct Current Plasma
FAA	=	Furnace Atomic Absorption;
GC	=	Gas Chromatography
GCMS	=	Gas Chromatography Mass Spectroscopy
GFAA	=	Graphite Furnace Atomic Absorption;
ICP	=	Inductively Coupled Plasma
ICPMS	=	Inductively Coupled Plasma/Mass Spectrometry;
LC	=	Liquid Chromatography
SPGFAA	=	Stabilized Platform Graphite Furnace Atomic Absorption (i.e. EPA 200.9)

(2) Use USEPA Method 1613. 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 and Plant No. 3 water)

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 = once 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
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	[7]
	kg/day as N	C-24	[7]
Unionized Ammonia Nitrogen	mg/L as N	Calculate	[7]
Acute Toxicity[8]	% survival	Flow through	1/month
Chronic Toxicity[9]	TUc	C-24	[9]
Copper	µg/L	C-24	1/month
Nickel	µg/L	C-24	1/month
Cyanide	µg/L	Grab	1/month
Dioxin-TEQ[10]	µg/L	Grab	2/year
Endrin	µg/L	Grab	1/quarter
Tributyltin	µg/L	Grab	1/quarter
Remaining Priority Pollutants[11]	µg/L	[10]	2/year
Standard Observations[12]	---	---	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/day = 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 and daily discharge duration in hours (averaging period is the actual discharge duration) (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)
i. Monthly average discharge flow rate to Moffet Channel based on (f) and (g) above (EFF-001) and 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) **Total Ammonia Nitrogen and Un-ionized Ammonia Nitrogen**. Sampling frequency shall be 1/week (once per week) during October-April and 1/month (once per month) during May-September.

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

(9) **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., except during the period when the Discharger is conducting the "Chronic Toxicity Identificationa and Toxicity Reduction Study" as required by Provision VI.C.2.d *i*, when the sampling frequency would be those specified for the study.

(10) **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.

(11) **Remaining priority pollutant.** The sample type and analytical method should be as described in the Regional Standard Provisions (Attachment G) or as amended and subsequently approved by the Executive Officer.

(12) **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 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, except during the period when the Discharger is conducting the "Chronic Toxicity Identification and Toxicity Reduction Study" as required by Provision VI.C.2.d *i*, when the sampling frequency would be those specified for the study:

(1) Routine Monitoring: Monthly

(2) Accelerated Monitoring: Twice/Month

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. Test sample pH in each dilution in the series may be controlled to the level of the effluent sample as received prior to being salted up.

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-5 for influent (at Monitoring Location INF-001), effluent (at Monitoring Location EFF-001), and biosolids monitoring.

Table E-5. Pretreatment and Biosolids Monitoring Requirements

Constituents	Sampling Frequency			Sample Type[5]	
	Influent INF-001	Effluent[3] EFF-001	Biosolids[4]	INF-001 & EFF-001	Biosolids[5d]
VOC	2/year	2/year	---	multiple grabs[5a]	grabs
BNA	2/year	2/year	---	multiple grabs[5a]	grabs
Metals[1]	1/month	1/month	2/year	24-hour composite[5b]	grabs
Hexavalent Chromium[2]	1/month	1/month	2/year	multiple grabs[5a]	grabs
Mercury	1/month	1/month	2/year	24-hour composite[5b,5c]	grabs
Cyanide	1/month	1/month	2/year	multiple grabs[5a]	grabs

Legends for Table E-5:

VOC = volatile organic compounds
BNA = base/neutrals and acids extractable organic compounds
N/A = not applicable
1/month = once per month
2/year = twice per year

Footnotes for Table E-5:

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

(2) The Discharger may elect to run total chromium instead of hexavalent chromium. Sample collection for total chromium measurements may also use 24-hour composite sampling.

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

(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 or with grab samples combined (volumetrically flow-weighted) prior to analysis.

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 Regional 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-3 of this of the Order for sludge monitoring. 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. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with the federal Standard Provisions (Attachment D) and the Regional 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 Standard Provisions (Attachment G).

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-6. Monitoring Periods

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
Continuous	Permit effective date	All
1/hour	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)	Final cell density	4 days	4

Toxicity Test Reference:

4. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, fourth Edition Chronic manual (EPA-821-R-02-013, October 2002).

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	Lorrie Gervin, Environmental Division Manager, (408) 730-7268, or 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 flow design capacity) with full advanced-secondary treatment 40 MGD (peak wet weather flow design capacity) with full secondary treatment
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 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 area population is approximately 136,000.

Wastewater treatment processes at the Plant include grinding and grit removal, primary sedimentation, secondary and advanced 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. The oxidation ponds simultaneously provide flow equalization for primary effluent so advanced treatment processes can be operated at a constant flow rate. The flow equalization capacity varies with pond depth, but is typically in the range of 50-100 million gallons.

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 average dry 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.

Recycled Water Production. The Plant may enter into two different treatment modes – slough discharge wastewater treatment and recycled water production. During periods of recycled water production in high recycled water demand seasons (typically 12–16 hours a day), 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. During recycled water production, there is no discharge to Moffett Channel.

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 an adjacent 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	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.			Minimum 11-sample median – 95% Minimum 11-sample 90th percentile – 100%		
Ammonia-N	mg/L	2(4)	---	5(4)	17.4	---	24.1

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) 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 the two 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 20 occasions (out of 97 samples), and the trigger of 1.0 TUc as a three-sample median was exceeded on 44 occasions out of 92 3-sample median values during the previous permit term (November 2003-March 2009). This Order imposes additional requirements for the Discharger to reduce chronic toxicity. See more discussed in Fact Sheet Sections IV.D.6.

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.

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 (Basin Plan tributary rule). Table F-7 identifies existing and potential beneficial uses of South San Francisco Bay. These beneficial uses also apply to Moffett Channel in accordance with the Basin Plan tributary rule.

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 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 as provided for in the conditions stated in Subsections I.G.2 and I.G.4 of Attachment D of this Order):** 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

1. Basin Plan Discharge Prohibition 1

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….

2. History of Granting Exception to Prohibition 1

The treated wastewater discharges from the Sunnyvale, San Jose/Santa Clara, and Palo Alto 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 No. 88-176 and Order No. 88-175, respectively), 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. Nevertheless, the Regional Water Board found that the discharge could provide a net environmental benefit under specific circumstances, and 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.

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 (San Jose/Santa Clara and Sunnyvale) were to continue efforts to control avian botulism, and (c) the dischargers (San Jose/Santa Clara in particular) were to properly protect threatened and endangered species. (Attachment I provides a chronological description of the actions taken by the State and Regional Water Boards and the Discharger related to the requirements of Order No. 90-5. The summary also clarifies the origin of some provisions that appear in this Order).

3. Compliance with State Water Board Order No. 90-5

The following is a summary of the Discharger's past and on-going efforts in complying with State Water Board Order No. WQ 90-5, which required (a) numeric WQBELs for toxic pollutants, (b) efforts to control avian botulism, and (c) protection of threatened and endangered species.

(a) **Toxic Pollutants.** This Order contains WQBELs for toxic pollutants with reasonable potential, including copper, nickel, cyanide, dioxin-TEQ, chlorodibromomethane, endrin, and tributyltin. As shown in Table F-4, the Discharger routinely complied with WQBELs in the previous permit. The Discharger will maintain its current performance and monitoring program for both effluent and receiving water to ensure that conditions will not degrade. As discussed in IV.D, below, compliance with all the WQBELs in this Order is expected to be feasible, with the exception of dioxin-TEQ. This Order requires specific measures to allow the Discharger to come into compliance with new dioxin-TEQ limits.

(b) **Avian botulism control**. The Discharger has maintained an avian botulism control program by monitoring Moffett Channel, Guadalupe Slough, the vicinity of the oxidation pond, and South San Francisco Bay for the presence of avian botulism since 1982. Annual avian

botulism monitoring reports submitted by both the Discharger and the San Jose/Santa Clara Water Pollution Control Plant indicate that the most recent botulism outbreak in the South Bay occurred in September 2004. Although the South Bay ecosystem is susceptible to avian botulism outbreaks, when considering the constant wastewater discharge from wastewater treatment plants the cause of these episodic outbreaks seems to lie with other environmental factors.

While treatment plant discharge is unlikely to cause botulism outbreaks, monitoring for and removing dead birds to minimize the potential for an outbreak is an appropriate environmental stewardship program to control the severity and extent of the disease. Because waterfowl are a highly mobile group of birds and are most heavily affected by avian botulism, outbreaks could quickly spread throughout the region if no action were taken. For these reasons, continuing the monitoring program and collecting dead and injured birds on Plant property and areas along Moffett Channel and Guadalupe Slough is a worthwhile public endeavor. This Order requires the Discharger to maintain its avian botulism program and continue to conduct avian botulism surveys.

4. Rationale for Continuing to Grant Exception

The following is a summary of the Discharger's past and on-going efforts in meeting the requirements for an exception to Basin Plan Prohibition 1. The Basin Plan allows exceptions when there would otherwise be an inordinate burden placed on a discharger and an equivalent level of protection is possible through such means as providing a higher level of treatment. Likewise, the Basin Plan provides for an exception when a discharge is part of a reclamation project. As discussed below, compliance with Prohibition 1 would place an undue burden on the Discharger, particularly considering the advanced treatment provided, its water recycling efforts, and its pollution prevention and pretreatment programs. The discharge qualifies for exceptions to Prohibition 1.

(a) **Undue Burden.** For the Discharger to reliably provide at least a 10:1 dilution for its effluent, it would need to construct an outfall far and deep into San Francisco Bay. However, through Order No. WQ 90-5, the State Water Board acknowledged that relocation of the discharge to a location north of the Dumbarton Bridge was not an economically or environmentally sound solution to the concerns associated with the South Bay discharges.

(b) **Advanced Treatment.** The Discharger provides advanced secondary treatment for all its discharges. In addition to meeting secondary treatment standards, the Plant removes ammonia and provides filtration of the wastewater, which constitutes "advanced" secondary treatment. This Order contains more stringent effluent limits for BOD, TSS, and turbidity than those imposed on plants that provide only secondary treatment. These more stringent effluent limits will ensure that this advanced level of treatment continues.

(c) **Water Recycling.** The Discharger has invested over $20 million in a water recycling program that produces and delivers disinfected tertiary recycled water for use in parks, golf courses, commercial landscaping, street medians, and dual plumbed systems in the northern and central sections of the City of Sunnyvale. The system consists of approximately 43,000 feet of 12-inch through 36-inch transmission pipelines, 34,000 feet of 8-inch distribution pipelines, two pump stations, and a 2 million gallon storage tank. In addition, the Discharger updated the Plant's polymer feed, disinfection, dechlorination, and associated control

systems to facilitate production of recycled water and to meet California Department of Public Heath Title 22 requirements for water quality and system reliability. During the dry season, approximately 1.2 million gallons are delivered daily to over 100 customers.

(d) **Pollution Prevention and Pretreatment.** The Discharger continues to implement an aggressive Pollution Prevention and Minimization Program that targets industrial, commercial and residential sectors. The goal of the program is to create awareness of and respect for the watershed in which people live, work, and attend school, and to provide information that leads to opportunities to improve water pollution prevention and water conservation behaviors. The Discharger communicates public outreach messages through several media outlets, including on-screen theater ads, emails, newsletter articles, community cable TV, newspaper ads, door hangers, and utility bill inserts. The Discharger also participates in numerous community and business events throughout the year to promote pollution prevention messages to residents, the general public, youth, and corporate employees. In addition to community events, the Discharger reaches the youth audience through classroom presentations, creek education field trips and treatment plant tours. To leverage resources the Discharger also participates in regional outreach campaigns.

The Discharger's Pretreatment Program staff inspects permitted industrial users and commercial businesses in 15 categories, including dental offices. The Discharger conducted a series of pollution prevention studies in the 1990s in response to Cease and Desist Order No. 93-086, which culminated in a new City Ordinance for industrial dischargers to implement reasonable source control measures, and a reduction in local limits for both copper and nickel. These actions resulted in a permanent reduction in the Plant influent and effluent copper and nickel concentrations, as documented in source identification reports submitted as part of the Discharger's Annual Pretreatment Report.

Because the Discharger has met all the historical requirements of both the State and Regional Water Boards for obtaining an exception to the Basin Plan prohibition, and continues to meet these requirements as discussed above, the Regional Water Board continues to grant an exception to Basin Plan Prohibition 1.

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	$35^{(2)}$	---	---	---	---
Ammonia Nitrogen (Jun-Sep)	mg/L as nitrogen	2.0	---	5.0	---	---
Ammonia Nitrogen (Oct-May)	mg/L as nitrogen	18	---	26	---	---

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. Self-monitoring effluent data show the Discharger can comply with this 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.

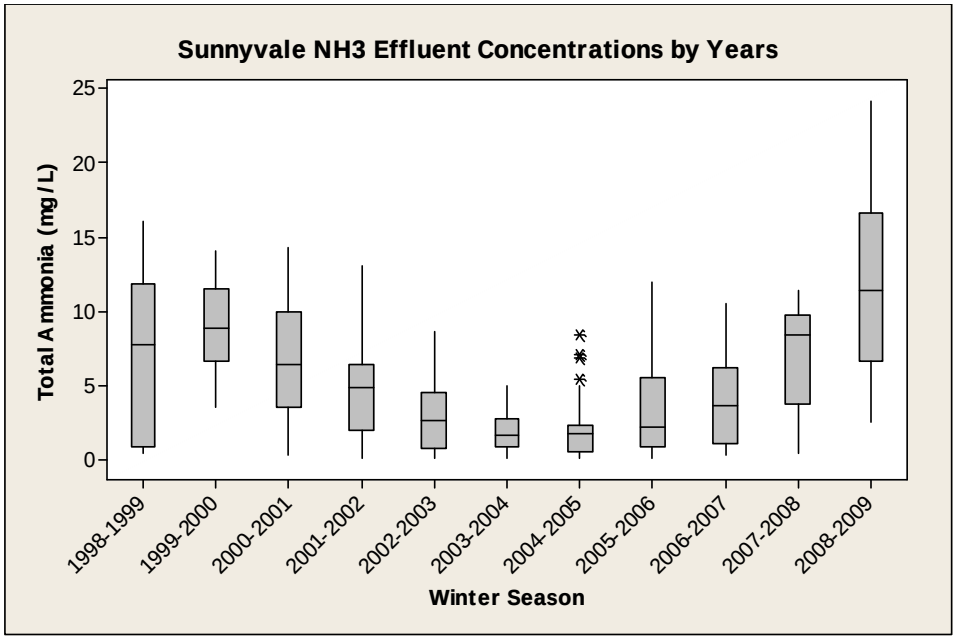
The Discharger has previously conducted a study, from June 2003 to December 2004, and submitted results in a final report, *City of Sunnyvale Water Pollution Control Plant Receiving Water User Survey Confirmation Study,* dated December 23, 2004, demonstrating that the "lightly used" water contact category 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.

g. **Total Ammonia.** The effluent limits during June through September are retained from the previous Order. In addition, this Order includes new performance-based ammonia effluent limits for colder weather months, October through May. The new performance-based effluent limits are intended to ensure that the Discharger maintains its Plant's existing ammonia removal performance and that current ammonia conditions are maintained in the receiving water. Effluent monitoring data from 1998 through 2009 during the winter months (November through March) indicate that ammonia effluent concentrations vary from year to year. There were years that ammonia effluent concentrations showed a decreasing trend, but there were times that ammonia effluent concentrations showed an increasing trend. The box plot below illustrates the general trend of ammonia effluent concentrations during the winter seasons of 1998 through 2009. Average total ammonia concentrations during these winter seasons were 7.0, 8.9, 6.7, 4.6, 2.9, 1.8, 2.0, 3.3, 3.8, 6.7, and 11.6 mg/L for 1998-1999, 1999-2000, 2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, and

2008-2009, respectively. Effluent limits are necessary to prevent Plant performance from deteriorating as seen in recent years.



How to read a box plot: The box plot has a box, with two whiskers extending upward and downward of the box, and stars beyond the whiskers. The bottom of the box is the first quartile (Q1, or 25% of the data values are less than or equal to this value) and the top box is the third quartile (Q3) – 75% of the data values are less than or equal to this value. The upper whisker extends to the highest data value within the upper limit (upper limit = Q3 + 1.5 (Q3-Q1)); the lower whisker extends to the lowest value within the lower limit (lower limit = Q1+1.5 (Q3 - Q1)). The stars are unusually large or small observations. Values beyond the whiskers are considered outliers. The line in the middle of the box is the median of the data, which half of the observations are less than or equal to. The little circle inside the box is the mean value.

The new winter performance-based effluent limits are based on cold-weather (October through May) Plant performance from November 2003 through March 2009. The daily maximum effluent concentrations and monthly average concentrations for those months fit a lognormal distribution after data transformation (the 0.3 root of daily maximum concentrations and the square root of monthly average concentrations were taken). The 99.87^{th} percentile (three standard deviations above the mean) of the maximum daily concentrations is 26 mg/L; this value is established as the daily maximum effluent limit. The 99^{th} percentile of the monthly average concentrations is 18 mg/L; this value is established as the monthly average effluent limit. The maximum daily effluent concentration during October through May of 2003-2009 ranged from <0.08 mg/L to 24.1 mg/L. Monthly average concentrations during this period ranged from 0.1 mg/L to 17.4 mg/L. Therefore, the Discharger is expected to be able to comply with these new effluent limits.

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. Site-specific objectives 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; 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. **SIP 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* 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. **Reasonable Potential Analysis for Ammonia**

Ammonia is a toxic pollutant, but not a priority pollutant as defined by the CTR; therefore, Regional Water Board staff used the procedures outlined in the *Technical Support Document for Toxics Control* (TSD) (EPA/505/2-90-001, March 1991) to determine if ammonia in the discharge has a reasonable potential to cause water quality objectives to be exceeded in the receiving water.

(1) TSD RPA Procedure

TSD allows using measured receiving water concentrations (RWC) or projected RWC from effluent data to perform RPA. The following summarizes steps to determine reasonable potential for excursions above ambient criteria using effluent data:

Step 1. Determine the number of total observations (n) for a set of effluent data and determine the highest value from that data set (the maximum effluent concentration or MEC).

Step 2. Determine the coefficient of variation (CV) from the data set. For a data set where n<10, the CV is estimated to equal 0.6. For a data set where n>10, the CV is calculated as the standard deviation divided by the mean.

Step 3. Determine an appropriate ratio for projecting a selected upper bound concentration (e.g., the 99th or 95th percentile) assuming a lognormal distribution.

To do this, the percentile represented by the MEC in a data set of "*n*" samples, p_n, needs to be determined based on the desired confidence interval, e.g., 95% or 99%.

$$p_n = (1 - \text{confidence interval})^{1/n}$$

Then concentrations based on two percentile values, $C_{upper\ bound}$, and C_{Pn} need to be calculated using the following equation.

$$C_p = \exp(Z_p\sigma - 0.5\sigma^2)$$

where $\sigma = \ln(CV^2+1)$, p is the percentile (upper bound or p_n), and Z_p is the standard normal distribution value for the percentile p.

The ratio, *R,* is then determined to be

$$R = \frac{C_{upper\ bound}}{C_{Pn}}$$

Step 4. Multiply the MEC by the ratio, R, determined by Step 3. Use this value with the appropriate dilution to project the receiving water concentration (RWC) (this analysis assumes no dilution or D=1).

RWC = MEC × R / dilution ratio

Step 5. Compare the projected RWC to the applicable WQC (CCC, CMC, human health criteria, etc). If a RWC is greater than or equal to a criterion, then there is reasonable potential.

(2) TSD-based RPA for Ammonia

i. *Ammonia WQOs.* The Basin Plan contains WQOs for un-ionized ammonia of 0.025 mg/L as an annual median and 0.4 mg/L as a maximum for Lower San Francisco Bay.

ii. *Ammonia Data Translation*. Effluent and receiving water monitoring data are available for total ammonia, not un-ionized ammonia, because (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 water. Regional Water Board staff

translates total ammonia concentrations into un-ionized ammonia concentrations (as nitrogen) to compare with the Basin Plan un-ionized ammonia objectives based on the following equations [Ambient Water Quality Criteria for Ammonia (saltwater) – 1989, USEPA Publication 440/5-88-004, USEPA, 1989]:

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
I = the molal ionic strength of saltwater = 19.9273*(S)/(1000-1.005109*S)
S = salinity (parts per thousand)
T = temperature in Kelvin
P = pressure (one atmosphere)

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

Where:

pK = 0.09018 + 2729.92/ T
T = temperature in Kelvin

For this effluent data calculation, no salinity data were available and staff assumed that the effluent is fresh; therefore, staff used the equation for waters of salinity <1 ppt.

iii. *Ammonia Dilution.* For purposes of this discharge, no dilution was assumed for ammonia, i.e., dilution ratio=1; therefore, the RWC is the same as the projected upper bound concentration, i.e., RWC=MEC×R (see Step 4 under TSD RPA Procedure above).

iv. Two Approaches

According to the TSD, the RPA can be performed based on the projected RWC using effluent data (the steps summarized above) or measured receiving water concentrations. Both values may be compared directly with WQOs.

(a) RPA Based on Effluent Data

Regional Water Board staff used effluent monitoring data for total ammonia from April 1, 2006, through March 31, 2009. Un-ionized ammonia concentrations were calculated using the pH and temperature data collected for the same samples. There were 318 data points (n=318). The MEC was 0.11 mg/L un-ionized ammonia. The confidence interval was set at 95%. The percentile represented by the MEC is calculated to be:

$p_n = (1\text{-}0.95)^{1/318} = 0.99$

Therefore, the MEC represented the 99th percentile. For this analysis, $C_{upper\ bound}$ is set at the 99th percentile, which means $C_{Pn} = C_{upper\ bound}$ and R = 1. With no dilution (dilution ratio=1), the projected RWC is the same as the observed MEC, 0.11 mg/L (= MEC×R/dilution ratio). This value is less than the Basin Plan un-ionized ammonia acute objective of 0.4 mg/L, indicating no reasonable potential to exceed this objective.

The median of the effluent data is appropriate for comparing with the chronic objective, which is expressed as an annual median. Regional Water Board staff calculated the 50th percentile un-ionized ammonia concentration from the effluent data and compared this value with the annual median objective. No projection is needed because the observed 50th percentile is generally very close to the population 50th percentile. The 50th percentile value is 0.002 mg/L, which is less than the annual median objective of 0.025 mg/L.

Therefore, there is no reasonable potential based on the effluent data.

(b) RPA Based on Receiving Water

The Discharger conducted a receiving water study during 1997-2000 (*City of Sunnyvale WPCP Receiving Water Ammonia Investigations 2001 Final Report, June 29, 2001*). The Discharger collected ammonia, pH, salinity, and temperature data at seven receiving water stations located in Moffett Channel and Guadalupe Slough, both upstream and downstream of the discharge point. In addition, the Regional Monitoring Program (RMP) has monitoring data at one of the sampling stations (C-1-3). This analysis uses the RMP data as well.

Regional Water Board staff translated the measured total ammonia concentrations into un-ionized ammonia concentrations using the pH, salinity, and temperature data collected on the same sampling dates. Then they used the data from all seven stations to determine the maximum receiving water concentration to be compared with the acute objective, and the highest 50th percentile value from the seven stations to be compared to the annual median objective.

The maximum RWC as un-ionized ammonia was 0.068 mg/L. This occurred on November 19, 1998, at Station C-3-0, which is located at the confluence of Moffett Channel and Guadalupe Slough (the closest station to the outfall). This un-ionized ammonia value is less than the acute objective of 0.4 mg/L.

The highest 50th percentile at any location occurred at station C-2-0 (located about 8000 feet above the discharge outfall in Guadalupe Slough). The median value there was 0.015 mg/L, which is less than the annual median objective of 0.025 mg/L.

Therefore, there is no reasonable potential based on the receiving water data.

e. **RPA Determination.** Except for ammonia, discussed above, the RPA for this Order is based on the SIP. 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, and tributyltin 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

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]
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
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

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)
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
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

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.

f. **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.

g. **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. No dilution credit (D=0) was used to calculate WQBELs for most pollutants, with the exception of cyanide. 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) as specified in the Basin Plan.

c. **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[1].

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.

[1] The statistical feasibility analysis consisted of the following steps:

- Use statistical software (MiniTab) to fit a statistical distribution to the effluent data.
- Calculate the mean, 95th and 99th percentiles of the effluent data for each constituent considered (using the fitted distribution for percentiles calculation).
- Compare the mean, 95th and 99th percentile values with the long-term average (LTA), AMEL, and MDEL calculated using the SIP procedure, respectively.
- If any of the LTA, AMEL, and MDEL exceeds the mean, 95th percentile, and 99th percentile, it may be infeasible for the Discharger to immediately comply with WQBELs.
- Where the 95th and 99th percentile values cannot be estimated due to too few data or too many data being non-detect, the determination was based on staff judgment after examination of the raw data, such as direct comparison of MEC with AMEL. If MEC>AMEL, it may be infeasible for the Discharger to immediately comply with WQBELs.

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 x 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 October 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 $6.3x10^{-5}$ µg/L. This interim limit is established as a monthly average limit, and it will remain in effect until September 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.

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

Table F-12. Effluent Limit Calculations

PRIORITY POLLUTANTS	Copper	Nickel	Cyanide	Dioxin TEQ	Chlorodibro -momethane	Endrin	Tributyltin
Units	µg/L	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	BP SW Aq. Life
Criteria – Acute	10.8	62.4	9.4	-----	-----	-----	0.42
Criteria – Chronic	6.9	11.9	2.9	-----	-----	-----	0.0074
Water Effects Ratio (WER)	1	1	1	1	1	1	1
Lowest WQO	7	12	2.9	1.4E-08	34	0.0023	0.0074
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	0
No. of samples per month	4	4	4	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	N	N	Y	Y
HH criteria analysis required? (Y/N)	N	Y	Y	Y	Y	Y	N
Applicable Acute WQO	20	142	9.4			0.037	0.42
Applicable Chronic WQO	13	27	2.9			0.0023	0.0074
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	0.0030
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	N
ECA acute	20	142	36			0.037	0.420
ECA chronic	13	27	10			0.0023	0.0074
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	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	N/A
CV (Selected) - Final	0.46	0.31	0.79	0.60	1.3	0.60	0.60
ECA acute mult99	0.39	0.52	0.25			0.32	0.32
ECA chronic mult99	0.60	0.71	0.44			0.53	0.53
LTA acute	8.0	73.7	9.2			0.012	0.135
LTA chronic	7.8	19.2	4.6			0.0012	0.00390
minimum of LTAs	7.8	19.2	4.6			0.0012	0.0
AMEL mult95	1.4	1.3	1.7	1.6	2.2	1.6	1.6
MDEL mult99	2.5	1.9	4.0	3.1	6.0	3.1	3.1
AMEL (aq life)	11.1	24.4	8.0			0.0019	0.0
MDEL (aq life)	19.9	36.9	18			0.0038	0.0
MDEL/AMEL Multiplier	1.79	1.51	2.3	2.01	2.7	2.0	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	0.0061
minimum of MDEL for Aq. Life vs HH	20	37	18	2.8E-08	93	0.0038	0.012
Current limit in permit (30-day average)	10	24	-----	-----	-----	-----	0.01
Current limit in permit (daily)	20	40	32 (Interim)	-----	58 (Interim)	-----	0.03
Final limit - AMEL	10	24	8.0	1.4E-08	34	0.0019	0.0061
Final limit - MDEL	20	37	18	2.8E-08	93	0.0038	0.012
Max Effl Conc (MEC)	5.4	3.4	10	1.2E-09	37	0.0030	0.016

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.

6. Whole Effluent Chronic Toxicity

a. **History of Chronic Toxiciy.** The previous permit contained chronic toxicity monitoring requirements and required accelerated monitoring upon exceedance of a trigger of either 1 TUc[2] as a three-sample median or 2 TUc for any single bioassay test. A value of 1 TUc represents no measured chronic toxicity when organisms are exposed to 100% effluent. A value of 2 TUc represents no measured toxicity when organisms are exposed to a mixture of 50% effluent and 50% "clean" laboratory water.

From November 2003 through March 2009, the Discharger reported 97 chronic toxicity tests using *Americamysis bahia*. The TUc values ranged from <1.0 to 8.8. Of the 97 tests, 20 had TUc values of 2.0 or greater (21%). The 3-sample median trigger of 1 TUc was exceeded 44 times out of 92 3-median values (48%) during the same period (the median values ranged from 1 to 5.9 TUc).

During this period, the Discharger used a three-sample median "trigger" of 1.25 TUc based on IC_{50} or EC_{50} to initiate the TIE process. Based on this criterion, the Discharger conducted or attempted to conduct several TIE studies in February 2004, March 2005, May 2005, June 2006, February 2008, and December 2008. The February 2004 and June 2006 Phase I TIE study found that the toxicity was not persistent; therefore, additional efforts were discontinued; the March 2005 and May 2005 attempts failed due to lack of effluent samples. The February 2008 TIE study suggested that the observed toxicity was caused by a contaminant that is not amenable to removal by centrifugation or C18SPE or alternatively that there are polar organic compounds present in concentrations high enough to cause toxicity. The last TIE study suggested the possibility that ammonia may cause or contribute to the toxicity. As part of the on-going Plant Master Planning effort, the Discharger has been investigating alternative measures and technologies to enhance nitrification performance. Per the design consultant's recommendations, in Fall 2009, the Discharger will be implementing Plant process changes to attempt to improve winter

[2] 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**). The 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.

nitrifying trickling filter performance. The previous permit states that the Regional Water Board would consider imposing numeric chronic toxicity limits if the Discharger failed to conduct a TRE within a designated period.

b. **Toxicity Objective.** Basin Plan Section 3.3.18 states, "There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community."

c. **Reasonable Potential.** Based on the data summarized above, there is reasonable potential for chronic toxicity in the effluent to cause or contribute to chronic toxicity in the receiving waters. Therefore, the SIP requires chronic toxicity effluent limits.

d. **Permit Requirements.** This Order establishes a narrative effluent limitation for chronic toxicity based on the narrative Basin Plan toxicity objective discussed in item b above. In addition, this Order retains from the previous permit requirements to implement the chronic toxicity narrative objective and includes numeric triggers of 1.0 TUc as a three-sample median and 2.0 TUc as a single-sample maximum. The Discharger is also required to perform twice-monthly accelerated monitoring during the months of December through March and when permit triggers are exceeded.

Because chronic toxicity continues to be a problem for this discharge, this Order requires the Discharger to conduct aggressive TIE/TRE to identify the causes of the toxicity and eliminate them. Provision VI.C.2.d requires the Discharger 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 requirements are consistent with the SIP.

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.

7. Antibacksliding/Antidegradation

Effluent limits in this Order that are less stringent than those in the previous Order or are not retained from the previous Order comply with antibacksliding and antidegradation requirements for the reasons explained below:

- The single sample maximum effluent limit for enterococcus is not retained. As stated under Section C.2.f above, the removal of this limit complies with antibacksliding requirement and is not expected to cause degradation of water quality because the Discharger will maintain its treatment at current levels and the 5-day geometric mean limit will hold the Discharger to its current performance.

- Effluent limitations for settleable matter are not retained. The Plant provides advanced secondary treatment, and the settleable matter effluent limits of the previous Order were

technology-based effluent limitations for primary treatment. Compliance with the requirements of 40 CFR 133 and Basin Plan Table 4-2 will ensure removal of settleable solids to acceptably low levels - below 0.1 ml/L/hr (30 day average) and 0.2 ml/L/hr (daily maximum). The Basin Plan was amended on January 21, 2004, in part, because it mistakenly applied these limits to secondary and advanced treatment plants; therefore, not retaining the limits for settleable solids is consistent with the exception to the backsliding prohibition expressed at CWA section 402(o)(2)(B)(ii) (when technical mistakes or mistaken interpretations of law were made in establishing the limitation in the previous permit). The removal of these limits is not expected to cause degradation of the receiving water because the Discharger will maintain its existing treatment performance. Limits for total suspended solids will also hold the Discharger at its current performance.

- The effluent limits for dichlorobromomethane, 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene are not retained in this Order because monitoring data during the past five years do not exhibit reasonable potential for these pollutants. The removal of these effluent limits is consistent with anti-backsliding requirements in accordance with State Water Board Order WQ 2001-16, and degradation is not expected because the Discharger will maintain its current performance.

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 $6.3x10^{-5}$ 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 Policy requires the following documentation to be submitted to the Regional Water Board to justify a compliance schedule:

- Descriptions of diligent efforts a 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 Standard Provisions (Attachment G).

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) plan and implement a TIE/TRE study, (2) commence accelerated monitoring during the months of December-March during the study period, and (3) reduce chronic toxicity in its discharge to below trigger levels no later than October 1, 2013. The Discharger is to use the existing most sensitive species. The Discharger conducted an effluent toxicity screening study during the previous permit term, 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 or prior to the expiration of this Order.

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 Regional Standard Provisions [Attachment G]). 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) and the Regional Standard Provisions (Attachment G). 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 Regional Standard Provisions (Attachment G) and as specified in the MRP (Attachment E). 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 Regional Standard Provisions (Attachment G). 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 focused 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 general TIE/TRE requirements establishes guidelines for TIE/TRE evaluations. The other general requirement is unchanged from the previous Order.

e. **Receiving Water Ammonia Characterization Study.** This Order requires a study on Moffett Channel and Guadalupe Slough focusing on ammonia. It will generate new information for the Regional Water Board to evaluate ammonia and un-ionized ammonia

levels in the receiving water. Regional Water Board staff may use the data to examine whether the receiving water meets applicable ammonia objectives. The Discharger may also be able to use this information to propose an appropriate dilution credit for the ammonia effluent limit calculation for the next permit reissuance. If monitoring data show that ammonia WQOs are exceeded in the receiving water, the permit may be reopened to include WQBELs for ammonia.

f. **Optional Mass Offset Plan.** This option is provided to encourage the Discharger to further implement aggressive reduction of mass loadings of pollutants to South San Francisco Bay. If the Discharger wishes to pursue a mass offset program, it must submit a mass offset plan for reducing 303(d) listed pollutants to the same receiving water body for Regional Water Board approval. The Regional Water Board will consider any proposed mass offset plan and amend this Order accordingly.

g. **Optional Near-Field Site Specific Translator 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.

h. **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 on 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 Order requires the Discharger to implement monitoring and surveillance, pretreatment, source control, and pollution prevention for copper in accordance with the Basin Plan. The Basin Plan contains site-specific water quality objectives for copper in all San Francisco Bay segments. The water quality objectives for South San Francisco Bay are 6.9 µg/L dissolved copper as a 4-day average, and 10.8 µg/L dissolved copper as a 1-hour average. The Basin Plan includes an implementation plan that requires a Copper Action Plan to ensure no degradation of water quality.

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 the 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 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. Notification was provided through the *San Jose City Times* on July 8, 2009.

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 Officer 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 June 29, 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: August 12, 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).

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT G
REGIONAL STANDARD PROVISIONS, AND MONITORING AND REPORTING REQUIREMENTS
(SUPPLEMENT TO ATTACHMENT D)

For

NPDES WASTEWATER DISCHARGE PERMITS

July 2009

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

REGIONAL STANDARD PROVISIONS, AND MONITORING AND REPORTING REQUIREMENTS (SUPPLEMENT TO ATTACHMENT D)

FOR

NPDES WASTEWATER DISCHARGE PERMITS

APPLICABILITY

This document applies to dischargers covered by a National Pollutant Discharge Elimination System (NPDES) permit. This document does not apply to Municipal Separate Storm Sewer System (MS4) NPDES permits.

The purpose of this document is to supplement the requirements of Attachment D, Standard Provisions. The requirements in this supplemental document are designed to ensure permit compliance through preventative planning, monitoring, recordkeeping, and reporting. In addition, this document requires proper characterization of issues as they arise, and timely and full responses to problems encountered. To provide clarity on which sections of Attachment D this document supplements, this document is arranged in the same format as Attachment D.

I. STANDARD PROVISIONS - PERMIT COMPLIANCE

A. Duty to Comply – Not Supplemented

B. Need to Halt or Reduce Activity Not a Defense – Not Supplemented

C. Duty to Mitigate – This supplements I.C. of Standard Provisions (Attachment D)

1. **Contingency Plan -** The Discharger shall maintain a Contingency Plan as originally required by Regional Water Board Resolution 74-10 and as prudent in accordance with current municipal facility emergency planning. The Contingency Plan shall describe procedures to ensure that existing facilities remain in, or are rapidly returned to, operation in the event of a process failure or emergency incident, such as employee strike, strike by suppliers of chemicals or maintenance services, power outage, vandalism, earthquake, or fire. The Discharger may combine the Contingency Plan and Spill Prevention Plan into one document. Discharge in violation of the permit where the Discharger has failed to develop and implement a Contingency Plan as described below will be the basis for considering the discharge a willful and negligent violation of the permit pursuant to California Water Code Section 13387. The Contingency Plan shall, at a minimum, contain the provisions of a. through g. below.

    a. Provision of personnel for continued operation and maintenance of sewerage facilities during employee strikes or strikes against contractors providing services.

b. Maintenance of adequate chemicals or other supplies and spare parts necessary for continued operations of sewerage facilities.

c. Provisions of emergency standby power.

d. Protection against vandalism.

e. Expeditious action to repair failures of, or damage to, equipment and sewer lines.

f. Report of spills and discharges of untreated or inadequately treated wastes, including measures taken to clean up the effects of such discharges.

g. Programs for maintenance, replacement, and surveillance of physical condition of equipment, facilities, and sewer lines.

2. **Spill Prevention Plan** - The Discharger shall maintain a Spill Prevention Plan to prevent accidental discharges and minimize the effects of such events. The Spill Prevention Plan shall:

   a. Identify the possible sources of accidental discharge, untreated or partially treated waste bypass, and polluted drainage;

   b. Evaluate the effectiveness of present facilities and procedures, and state when they became operational; and

   c. Predict the effectiveness of the proposed facilities and procedures, and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

   This Regional Water Board, after review of the Contingency and Spill Prevention Plans or their updated revisions, may establish conditions it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions may be incorporated as part of the permit upon notice to the Discharger.

D. Proper Operation & Maintenance – This supplements I.D of Standard Provisions (Attachment D)

1. **Operation and Maintenance (O&M) Manual** - The Discharger shall maintain an O&M Manual to provide the plant and regulatory personnel with a source of information describing all equipment, recommended operational strategies, process control monitoring, and maintenance activities. To remain a useful and relevant document, the O&M Manual shall be kept updated to reflect significant changes in treatment facility equipment and operational practices. The O&M Manual shall be maintained in usable condition and be available for reference and use by all relevant personnel and Regional Water Board staff.

2. **Wastewater Facilities Status Report** - The Discharger shall regularly review, revise, or update, as necessary, its Wastewater Facilities Status Report. This report shall document how the Discharger operates and maintains its wastewater collection, treatment, and disposal facilities to ensure that all facilities are adequately staffed, supervised, financed, operated,

maintained, repaired, and upgraded as necessary 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.

3. **Proper Supervision and Operation of Publicly Owned Treatment Works (POTWs) -** POTWs shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Division 4, Chapter 14, Title 23 of the California Code of Regulations.

E. Property Rights – Not Supplemented

F. Inspection and Entry – Not Supplemented

G. Bypass – Not Supplemented

H. Upset – Not Supplemented

I. Other – This section is an addition to Standard Provisions (Attachment D)

1. Neither the treatment nor the discharge of pollutants shall create pollution, contamination, or nuisance as defined by California Water Code Section 13050.

2. Collection, treatment, storage, and disposal systems shall be operated in a manner that precludes public contact with wastewater, except in cases where excluding the public is infeasible, such as private property. If public contact with wastewater could reasonably occur on public property, warning signs shall be posted.

3. If the Discharger submits a timely and complete Report of Waste Discharge for permit reissuance, this permit continues in force and effect until a new permit is issued or the Regional Water Board rescinds the permit.

J. Storm Water – This section is an addition to Standard Provisions (Attachment D)

These provisions apply to facilities that do not direct all storm water flows from the facility to the wastewater treatment plant headworks.

1. **Storm Water Pollution Prevention Plan (SWPP Plan**)

The SWPP Plan shall be designed in accordance with good engineering practices and shall address the following objectives:

a. To identify pollutant sources that may affect the quality of storm water discharges; and

b. To identify, assign, and implement control measures and management practices to reduce pollutants in storm water discharges.

The SWPP Plan may be combined with the existing Spill Prevention Plan as required in accordance with Section C.2. The SWPP Plan shall be retained on-site and made available upon request of a representative of the Regional Water Board.

2. Source Identification

The SWPP Plan shall provide a description of potential sources that may be expected to add significant quantities of pollutants to storm water discharges, or may result in non-storm water discharges from the facility. The SWPP Plan shall include, at a minimum, the following items:

a. A topographical map (or other acceptable map if a topographical map is unavailable), extending one-quarter mile beyond the property boundaries of the facility, showing the wastewater treatment facility process areas, surface water bodies (including springs and wells), and discharge point(s) where the facility's storm water discharges to a municipal storm drain system or other points of discharge to waters of the State. The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.

b. A site map showing the following:

1) Storm water conveyance, drainage, and discharge structures;

2) An outline of the storm water drainage areas for each storm water discharge point;

3) Paved areas and buildings;

4) Areas of actual or potential pollutant contact with storm water or release to storm water, including but not limited to outdoor storage and process areas; material loading, unloading, and access areas; and waste treatment, storage, and disposal areas;

5) Location of existing storm water structural control measures (i.e., berms, coverings, etc.);

6) Surface water locations, including springs and wetlands; and

7) Vehicle service areas.

c. A narrative description of the following:

1) Wastewater treatment process activity areas;

2) Materials, equipment, and vehicle management practices employed to minimize contact of significant materials of concern with storm water discharges;

3) Material storage, loading, unloading, and access areas;

4) Existing structural and non-structural control measures (if any) to reduce pollutants in storm water discharges; and

5) Methods of on-site storage and disposal of significant materials.

d. A list of pollutants that have a reasonable potential to be present in storm water discharges in significant quantities.

3. Storm Water Management Controls

The SWPP Plan shall describe the storm water management controls appropriate for the facility and a time schedule for fully implementing such controls. The appropriateness and priorities of controls in the SWPP Plan shall reflect identified potential sources of pollutants. The description of storm water management controls to be implemented shall include, as appropriate:

a. Storm water pollution prevention personnel

Identify specific individuals (and job titles) that are responsible for developing, implementing, and reviewing the SWPP Plan.

b. Good housekeeping

Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm drain conveyance system.

c. Spill prevention and response

Identify areas where significant materials can spill into or otherwise enter storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, and cleanup equipment and procedures shall be identified, as appropriate. The necessary equipment to implement a cleanup shall be available, and personnel shall be trained in proper response, containment, and cleanup of spills. Internal reporting procedures for spills of significant materials shall be established.

d. Source control

Source controls include, for example, elimination or reduction of the use of toxic pollutants, covering of pollutant source areas, sweeping of paved areas, containment of potential pollutants, labeling of all storm drain inlets with "No Dumping" signs, isolation or separation of industrial and non-industrial pollutant sources so that runoff from these areas does not mix, etc.

e. Storm water management practices

Storm water management practices are practices other than those that control the sources of pollutants. Such practices include treatment or conveyance structures, such as drop inlets, channels, retention and detention basins, treatment vaults, infiltration galleries, filters, oil/water separators, etc. Based on assessment of the potential of various sources to contribute pollutants to storm water discharges in significant quantities, additional storm water management practices to remove pollutants from storm water discharges shall be implemented and design criteria shall be described.

f. Sediment and erosion control

Measures to minimize erosion around the storm water drainage and discharge points, such as riprap, revegetation, slope stabilization, etc., shall be described.

g. Employee training

Employee training programs shall inform all personnel responsible for implementing the SWPP Plan. Training shall address spill response, good housekeeping, and material management practices. New employee and refresher training schedules shall be identified.

h. Inspections

All inspections shall be done by trained personnel. Material handling areas shall be inspected for evidence of, or the potential for, pollutants entering storm water discharges. A tracking or follow up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded. Inspection records shall be retained for five years.

i. Records

A tracking and follow-up procedure shall be described to ensure that adequate response and corrective actions have been taken in response to inspections.

4. Annual Verification of SWPP Plan

An annual facility inspection shall be conducted to verify that all elements of the SWPP Plan are accurate and up-to-date. The results of this review shall be reported in the Annual Report to the Regional Water Board described in Section V.C.f.

K. Biosolids Management – This section is an addition to Standard Provisions (Attachment D)

Biosolids must meet the following requirements prior to land application. The Discharger must either demonstrate compliance or, if it sends the biosolids to another party for further treatment or distribution, must give the recipient the information necessary to ensure compliance.

1. Exceptional quality biosolids meet the pollutant concentration limits in Table III of 40 CFR Part 503.13, Class A pathogen limits, and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8). Such biosolids do not have to be tracked further for compliance with general requirements (503.12) and management practices (503.14).

2. Biosolids used for agricultural land, forest, or reclamation shall meet the pollutant limits in Table I (ceiling concentrations) and Table II or Table III (cumulative loadings or pollutant concentration limits) of 503.13. They shall also meet the general requirements (503.12) and management practices (503.14) (if not exceptional quality biosolids) for Class A or Class B pathogen levels with associated access restrictions (503.32) and one of the 10 vector attraction reduction requirements in 503.33(b)(1)-(b)(10).

3. Biosolids used for lawn or home gardens must meet exceptional quality biosolids limits.

4. Biosolids sold or given away in a bag or other container must meet the pollutant limits in either Table III or Table IV (pollutant concentration limits or annual pollutant loading rate limits) of 503.13. If Table IV is used, a label or information sheet must be attached to the biosolids packing that explains Table IV (see 503.14). The biosolids must also meet the Class A pathogen limits and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8).

II. STANDARD PROVISIONS – PERMIT ACTION – Not Supplemented

III. STANDARD PROVISIONS – MONITORING

A. Sampling and Analyses – This section is a supplement to III.A and III.B of Standard Provisions (Attachment D)

1. Use of Certified Laboratories

Water and waste analyses shall be performed by a laboratory certified for these analyses in accordance with California Water Code Section 13176.

2. Use of Appropriate Minimum Levels

Table C lists the suggested analytical methods for the 126 priority pollutants and other toxic pollutants that should be used, unless a particular method or minimum level (ML) is required in the MRP.

For priority pollutant monitoring, when there is more than one ML value for a given substance, the Discharger may select any one of those cited analytical methods for compliance determination provided the ML is below the effluent limitation and the water quality objective. If no ML value is below the effluent limitation and water quality objective, then the Regional Water Board will assign the lowest ML value indicated in Table C, and its associated analytical method for inclusion in the MRP. For effluent monitoring, this alternate method shall also be U.S. EPA-approved (such as the 1600 series) or one of those listed in Table C. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

3. Frequency of Monitoring

The minimum schedule of sampling analysis is specified in the MRP portion of the permit.

a. Timing of Sample Collection

i. The Discharger shall collect samples of influent on varying days selected at random and shall not include any plant recirculation or other sidestream wastes, unless otherwise stipulated by the MRP.

ii. The Discharger shall collect samples of effluent on days coincident with influent sampling unless otherwise stipulated by the MRP or the Executive Officer. The Executive Officer may approve an alternative sampling plan if it is demonstrated to be representative of plant discharge flow and in compliance with all other permit requirements.

iii. The Discharger shall collect grab samples of effluent during periods of day-time maximum peak effluent flows (or peak flows through secondary treatment units for facilities that recycle effluent flows).

iv. Effluent sampling for conventional pollutants shall occur on at least one day of any multiple-day bioassay test the MRP requires. During the course of the test, on at least one day, the Discharger shall collect and retain samples of the discharge. In the event a bioassay test does not comply with permits limits, the Discharger shall analyze these retained samples for pollutants that could be toxic to aquatic life and for which it has effluent limits.

1) The Discharger shall perform bioassay tests on final effluent samples; when chlorine is used for disinfection, bioassay tests shall be performed on effluent after chlorination-dechlorination; and

2) The Discharger shall analyze for total ammonia nitrogen and calculate the amount of un-ionized ammonia whenever test results fail to meet the percent survival specified in the permit.

b. Conditions Triggering Accelerated Monitoring

i. If the results from two consecutive samples of a constituent monitored in a 30-day period exceed the monthly average limit for any parameter (or if the required sampling frequency is once per month and the monthly sample exceeds the monthly average limit), the Discharger shall, within 24 hours after the results are received, increase its sampling frequency to daily until the results from the additional sampling shows that the parameter is in compliance with the monthly average limit.

ii. If any maximum daily limit is exceeded, the Discharger shall increase its sampling frequency to daily within 24 hours after the results are received that indicate the exceedance of the maximum daily limit until two samples collected on consecutive days show compliance with the maximum daily limit.

iii. If final or intermediate results of an acute bioassay test indicate a violation or threatened violation (e.g., the percentage of surviving test organisms of any single acute bioassay test is less than 70 percent), the Discharger shall initiate a new test as soon as practical, and the Discharger shall investigate the cause of the mortalities and report its findings in the next self-monitoring report (SMR).

iv. The Discharger shall calibrate chlorine residual analyzers against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, the Discharger shall collect grab samples at least every 30 minutes until compliance with the limit is achieved, unless the Discharger monitors chlorine residual continuously. In such cases, the Discharger shall continue to conduct continuous monitoring as required by its permit.

v. When any type of bypass occurs, the Discharger shall collect samples on a daily basis for all constituents at affected discharge points that have effluent limits for the duration of the bypass, unless otherwise stipulated by the MRP.

c. Storm Water Monitoring

The requirements of this section only apply to facilities that are not covered by an NPDES permit for storm water discharges and where not all site storm drainage from process areas (i.e., areas of the treatment facility where chemicals or wastewater could come in contact with storm water) is directed to the headworks. For storm water not directed to the headworks during the wet season (October 1 to April 30), the Discharger shall:

i. Conduct visual observations of the storm water discharge locations during daylight hours at least once per month during a storm event that produces significant storm water discharge to observe the presence of floating and suspended materials, oil and grease, discoloration, turbidity, and odor, etc.

ii. Measure (or estimate) the total volume of storm water discharge, collect grab samples of storm water discharge from at least two storm events that produce significant storm water discharge, and analyze the samples for oil and grease, pH, TSS, and specific conductance.

The grab samples shall be taken during the first 30 minutes of the discharge. If collection of the grab samples during the first 30 minutes is impracticable, grab samples may be taken during the first hour of the discharge, and the Discharger shall explain in the Annual Report why the grab sample(s) could not be taken in the first 30 minutes.

iii. Testing for the presence of non-storm water discharges shall be conducted no less than twice during the dry season (May 1 to September 30) at all storm water discharge locations. Tests may include visual observations of flows, stains, sludges, odors, and other abnormal conditions; dye tests; TV line surveys; or analysis and validation of accurate piping schematics. Records shall be maintained describing the method used, date of testing, locations observed, and test results.

iv. Samples shall be collected from all locations where storm water is discharged. Samples shall represent the quality and quantity of storm water discharged from the facility. If a facility discharges storm water at multiple locations, the Discharger may sample a reduced number of locations if it establishes and documents through the monitoring program that storm water discharges from different locations are substantially identical.

v. Records of all storm water monitoring information and copies of all reports required by the permit shall be retained for a period of at least three years from the date of sample, observation, or report.

d. Receiving Water Monitoring

The requirements of this section only apply when the MRP requires receiving water sampling.

i. Receiving water samples shall be collected on days coincident with effluent sampling for conventional pollutants.

ii. Receiving water samples shall be collected at each station on each sampling day during the period within one hour following low slack water. Where sampling during lower slack water is impractical, sampling shall be performed during higher slack water. Samples shall be collected within the discharge plume and down current of the discharge point so as to be representative, unless otherwise stipulated in the MRP.

iii. Samples shall be collected within one foot of the surface of the receiving water, unless otherwise stipulated in the MRP.

B. Biosolids Monitoring – This section supplements III.B of Standard Provisions (Attachment D)

When biosolids are sent to a landfill, sent to a surface disposal site, or applied to land as a soil amendment, they must be monitored as follows:

1. Biosolids Monitoring Frequency

Biosolids disposal must be monitored at the following frequency:

Metric tons biosolids/365 days	Frequency
0-290	Once per year
290-1500	Quarterly
1500-15,000	Six times per year
Over 15,000	Once per month

(Metric tons are on a dry weight basis)

2. Biosolids Pollutants to Monitor

Biosolids shall be monitored for the following constituents:

Land Application: arsenic, cadmium, chromium, copper, mercury, molybdenum, nickel, lead, selenium, and zinc

Municipal Landfill: Paint filter test (pursuant to 40 CFR 258)

Biosolids-only Landfill or Surface Disposal Site (if no liner and leachate system): arsenic, chromium, and nickel

C. Standard Observations – This section is an addition to III of Standard Provisions (Attachment D)

1. Receiving Water Observations

The requirements of this section only apply when the MRP requires standard observations of the receiving water. Standard observations shall include the following:

a. *Floating and suspended materials* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.

b. *Discoloration and turbidity*: description of color, source, and size of affected area.

c. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.

d. *Beneficial water use*: presence of water-associated waterfowl or wildlife, fisherpeople, and other recreational activities in the vicinity of each sampling station.

e. *Hydrographic condition*: time and height of corrected high and low tides (corrected to nearest National Oceanic and Atmospheric Administration location for the sampling date and time of sample collection).

f. *Weather conditions*:

1) Air temperature; and

2) Total precipitation during the five days prior to observation.

2. Wastewater Effluent Observations

The requirements of this section only apply when the MRP requires wastewater effluent standard observations. Standard observations shall include the following:

a. *Floating and suspended material of wastewater origin* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence.

b. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.

3. Beach and Shoreline Observations

The requirements of this section only apply when the MRP requires beach and shoreline standard observations. Standard observations shall include the following:

a. *Material of wastewater origin*: presence or absence, description of material, estimated size of affected area, and source.

b. *Beneficial use*: estimate number of people participating in recreational water contact, non-water contact, or fishing activities.

4. Land Retention or Disposal Area Observations

The requirements of this section only apply to facilities with on-site surface impoundments or disposal areas that are in use. This section applies to both liquid and solid wastes, whether confined or unconfined. The Discharger shall conduct the following for each impoundment:

a. Determine the amount of freeboard at the lowest point of dikes confining liquid wastes.

b. Report evidence of leaching liquid from area of confinement and estimated size of affected area. Show affected area on a sketch and volume of flow (e.g., gallons per minute [gpm]).

c. Regarding odor, describe presence or absence, characterization, source, distance of travel, and wind direction.

d. Estimate number of waterfowl and other water-associated birds in the disposal area and vicinity.

5. Periphery of Waste Treatment and/or Disposal Facilities Observations

The requirements of this section only apply when the MRP specifies periphery standard observations. Standard observations shall include the following:

a. *Odor*: presence or absence, characterization, source, and distance of travel.

b. *Weather conditions*: wind direction and estimated velocity.

IV. STANDARD PROVISIONS – RECORDS

A. Records to be Maintained – This supplements IV.A of Standard Provisions (Attachment D)

The Discharger shall maintain records in a manner and at a location (e.g., wastewater treatment plant or Discharger offices) such that the records are accessible to Regional Water Board staff. The minimum period of retention specified in Section IV, Records, of the Federal Standard Provisions shall be extended during the course of any unresolved litigation regarding the subject discharge, or when requested by the Regional Water Board or Regional Administrator of USEPA, Region IX.

A copy of the permit shall be maintained at the discharge facility and be available at all times to operating personnel.

B. Records of monitoring information shall include – This supplements IV.B of Standard Provision (Attachment D)

1. Analytical Information

Records shall include analytical method detection limits, minimum levels, reporting levels, and related quantification parameters**.**

2. Flow Monitoring Data

For all required flow monitoring (e.g., influent and effluent flows), the additional records shall include the following, unless otherwise stipulated by the MRP:

a. Total volume for each day; and

b. Maximum, minimum, and average daily flows for each calendar month.

3. Wastewater Treatment Process Solids

a. For each treatment unit process that involves solids removal from the wastewater stream, records shall include the following:

1) Total volume or mass of solids removed from each unit (e.g., grit, skimmings, undigested biosolids) for each calendar month or other time period as appropriate, but not to exceed annually; and

2) Final disposition of such solids (e.g., landfill, other subsequent treatment unit).

b. For final dewatered biosolids from the treatment plant as a whole, records shall include the following:

1) Total volume or mass of dewatered biosolids for each calendar month;

2) Solids content of the dewatered biosolids; and

3) Final disposition of dewatered biosolids (disposal location and disposal method).

4. Disinfection Process

For the disinfection process, these additional records shall be maintained documenting process operation and performance:

a. For bacteriological analyses:

1) Wastewater flow rate at the time of sample collection; and

2) Required statistical parameters for cumulative bacterial values (e.g., moving median or geometric mean for the number of samples or sampling period identified in this Order).

b. For the chlorination process, when chlorine is used for disinfection, at least daily average values for the following:

1) Chlorine residual of treated wastewater as it enters the contact basin (mg/L);

2) Chlorine dosage (kg/day); and

3) Dechlorination chemical dosage (kg/day).

5. **Treatment Process Bypasses**

A chronological log of all treatment process bypasses, including wet weather blending, shall include the following:

a. Identification of the treatment process bypassed;

b. Dates and times of bypass beginning and end;

c. Total bypass duration;

d. Estimated total bypass volume; and

e. Description of, or reference to other reports describing, the bypass event, the cause, the corrective actions taken (except for wet weather blending that is in compliance with permit conditions), and any additional monitoring conducted.

6. **Treatment Facility Overflows**

This section applies to records for overflows at the treatment facility. This includes the headworks and all units and appurtenances downstream. The Discharger shall retain a chronological log of overflows at the treatment facility and records supporting the information provided in section V.E.2.

C. Claims of Confidentiality – Not Supplemented

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information – Not Supplemented

B. Signatory and Certification Requirements – Not Supplemented

C. Monitoring Reports – This section supplements V.C of Standard Provisions (Attachment D)

1. Self-Monitoring Reports

For each reporting period established in the MRP, the Discharger shall submit an SMR to the Regional Water Board in accordance with the requirements listed in this document and at the frequency the MRP specifies. The purpose of the SMR is to document treatment performance, effluent quality, and compliance with the waste discharge requirements of this Order.

a. Transmittal letter

Each SMR shall be submitted with a transmittal letter. This letter shall include the following:

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

2) Details regarding violations: parameters, magnitude, test results, frequency, and dates;

3) Causes of violations;

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

5) Data invalidation (Data should not be submitted in an SMR if it does not meet quality assurance/quality control standards. However, if the Discharger wishes to invalidate any measurement after it was submitted in an SMR, a letter shall identify the measurement suspected to be invalid and state the Discharger's 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 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.);

6) If the Discharger blends, the letter shall describe the duration of blending events and certify whether blended effluent was in compliance with the conditions for blending; and

7) Signature (The transmittal letter shall be signed according to Section V.B of this Order, Attachment D – Standard Provisions.).

b. Compliance evaluation summary

Each report shall include a compliance evaluation summary. This summary shall include each parameter for which the permit specifies effluent limits, the number of samples taken during the monitoring period, and the number of samples that exceed applicable effluent limits.

c. Results of analyses and observations

1) Tabulations of all required analyses and observations, including parameter, date, time, sample station, type of sample, test result, method detection limit, method minimum level, and method reporting level, if applicable, signed by the laboratory director or other responsible official.

2) When determining compliance with an average monthly effluent limitation and more than one sample result is available in a month, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of detected but not quantified (DNQ) or nondetect (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

i. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

ii. 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.

If a sample result, or the arithmetic mean or median of multiple sample results, is below the reporting limit, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the Discharger conducts a Pollutant Minimization Program, the Discharger shall not be deemed out of compliance.

3) Dioxin-TEQ Reporting: The Discharger shall report for each dioxin and furan congener the analytical results of effluent monitoring, including the quantifiable limit (reporting level), and the method detection limit, and the measured concentration. Estimated concentrations shall be reported for individual congeners, but shall be set equal to zero in determining the dioxin-TEQ value. The Discharger shall multiply each measured or estimated congener concentration by its respective toxicity equivalency factor (TEF) shown in Table A and report the sum of these values.

Table A: Toxic Equivalency Factors for 2,3,7,8-TCDD Equivalents

Congener	**TEF**
2,3,7,8-TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01
1,2,3,4,7,8,9-HeptaCDF	0.01
OctaCDF	0.0001

d. Data reporting for results not yet available

The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in a timely manner. Certain analyses require additional time to complete analytical processes and report results. For cases where required monitoring parameters require additional time to complete analytical processes and reports, and results are not available in time to be included in the SMR for the subject monitoring period, the Discharger shall describe such circumstances in the SMR and include the data for these parameters and relevant discussions of any observed exceedances in the next SMR due after the results are available.

e. Flow data

The Discharger shall provide flow data tabulation pursuant to Section IV.B.2.

f. Annual self-monitoring report requirements

By the date specified in the MRP, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the following:

1) Annual compliance summary table of treatment plant performance, including documentation of any blending events;

2) Comprehensive discussion of treatment plant performance and compliance with the permit (This discussion shall include any corrective actions taken or planned, such as changes to facility equipment or operation practices that may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment, or disposal practices.);

3) Both tabular and graphical summaries of the monitoring data for the previous year if parameters are monitored at a frequency of monthly or greater;

4) List of approved analyses, including the following:

(i) List of analyses for which the Discharger is certified;

(ii) List of analyses performed for the Discharger by a separate certified laboratory and copies of reports signed by the laboratory director of that laboratory shall not be submitted but retained onsite;

(iii) List of "waived" analyses, as approved;

5) Plan view drawing or map showing the Discharger's facility, flow routing, and sampling and observation station locations;

6) Results of annual facility inspection to verify that all elements of the SWPP Plan are accurate and up to date (only required if the Discharger does not route all storm water to the headworks of its wastewater treatment plant); and

7) Results of facility report reviews (The Discharger shall regularly review, revise, and update, as necessary, the O&M Manual, the Contingency Plan, the Spill Prevention Plan, and Wastewater Facilities Status Report so that these documents remain useful and relevant to current practices. At a minimum, reviews shall be conducted annually. The Discharger shall include, in each Annual Report, a description or summary of review and evaluation procedures, recommended or planned actions, and an estimated time schedule for implementing these actions. The Discharger shall complete changes to these documents to ensure they are up-to-date.).

g. Report submittal

The Discharger shall submit SMRs to:

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

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 a process approved by the Executive Officer (see, for example, the letter dated December 17, 1999, "Official Implementation of Electronic Reporting System [ERS]" and the progress report letter dated December 17, 2000).

2) *Monthly or Quarterly Reporting Requirements*: For each reporting period (monthly or quarterly as specified in the MRP), the Discharger shall submit an electronic SMR to the Regional Water Board in accordance with the provisions of Section V.C.1.a-e, except for requirements under Section V.C.1.c(1) where ERS does not have fields for dischargers to input certain information (e.g., sample time). However, until USEPA approves the electronic signature or other signature technologies, Dischargers that use ERS shall submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, and a violation report (a receipt of the electronic transmittal shall be retained by the Discharger). This electronic SMR submittal suffices for the signed tabulations specified under Section V.C.1.c(1).

3) *Annual Reporting Requirements*: Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting the portion of the annual report required under Section V.C.1.f(1) and (3).

D. Compliance Schedules – Not supplemented

E. Twenty-Four Hour Reporting – This section supplements V.E of Standard Provision (Attachment D)

1. Spill of Oil or Other Hazardous Material Reports

a. Within 24 hours of becoming aware of a spill of oil or other hazardous material that is not contained onsite and completely cleaned up, the Discharger shall report by telephone to the Regional Water Board at (510) 622-2369.

b. The Discharger shall also report such spills to the State Office of Emergency Services [telephone (800) 852-7550] only when the spills are in accordance with applicable reporting quantities for hazardous materials.

c. The Discharger shall submit a written report to the Regional Water Board within five working days following telephone notification unless directed otherwise by Regional Water Board staff. A report submitted electronically is acceptable. The written report shall include the following:

1) Date and time of spill, and duration if known;

2) Location of spill (street address or description of location);

3) Nature of material spilled;

4) Quantity of material involved;

5) Receiving water body affected, if any;

6) Cause of spill;

7) Estimated size of affected area;

8) Observed impacts to receiving waters (e.g., oil sheen, fish kill, water discoloration);

9) Corrective actions taken to contain, minimize, or clean up the spill;

10) Future corrective actions planned to be taken to prevent recurrence, and schedule of implementation; and

11) Persons or agencies notified.

2. Unauthorized Discharges from Municipal Wastewater Treatment Plants[1]

The following requirements apply to municipal wastewater treatment plants that experience an unauthorized discharge at their treatment facilities and are consistent with and supercede requirements imposed on the Discharger by the Executive Officer by letter of May 1, 2008, issued pursuant to California Water Code Section 13383.

a. Two (2)-Hour Notification

For any unauthorized discharges that result in a discharge to a drainage channel or a surface water, the Discharger shall, as soon as possible, but not later than two (2) hours after becoming aware of the discharge, notify the State Office of Emergency Services (telephone 800-852-7550), the local health officers or directors of environmental health with jurisdiction over the affected water bodies, and the Regional Water Board. The notification to the Regional Water Board shall be via the Regional Water Board's online reporting system at www.wbers.net, and shall include the following:

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

1) Incident description and cause;

2) Location of threatened or involved waterway(s) or storm drains;

3) Date and time the unauthorized discharge started;

4) Estimated quantity and duration of the unauthorized discharge (to the extent known), and the estimated amount recovered;

5) Level of treatment prior to discharge (e.g., raw wastewater, primary treated, undisinfected secondary treated, and so on); and

6) Identity of the person reporting the unauthorized discharge.

b. 24-hour Certification

Within 24 hours, the Discharger shall certify to the Regional Water Board, at www.wbers.net, that the State Office of Emergency Services and the local health officers or directors of environmental health with jurisdiction over the affected water bodies have been notified of the unauthorized discharge.

c. 5-Day Written Report

Within five business days, the Discharger shall submit a written report, via the Regional Water Board's online reporting system at www.wbers.net, that includes, in addition to the information required above, the following:

1) Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters;

2) Efforts implemented to minimize public exposure to the unauthorized discharge;

3) Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted;

4) Corrective measures taken to minimize the impact of the unauthorized discharge;

5) Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future;

6) Summary of Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges; and

7) Quantity and duration of the unauthorized discharge, and the amount recovered.

d. Communication Protocol

To clarify the multiple levels of notification, certification, and reporting, the current communication requirements for unauthorized discharges from municipal wastewater treatment plants are summarized in Table B that follows.

F. Planned Changes – Not supplemented

G. Anticipated Noncompliance – Not supplemented

H. Other Noncompliance – Not supplemented

I. Other Information – Not supplemented

VI. STANDARD PROVISIONS – ENFORCEMENT – Not Supplemented

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS – Not Supplemented

Table B

Summary of Communication Requirements for Unauthorized Discharges[1] from Municipal Wastewater Treatment Plants

Discharger is required to:	Agency Receiving Information	Time frame	Method for Contact
1. Notify	State Office of Emergency Services (OES)	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Telephone – (800) 852-7550 (obtain a control number from OES)
	Local health department	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Depends on local health department
	Regional Water Board	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Electronic[2] www.wbers.net
2. Certify	Regional Water Board	As soon as possible, but not later than **24 hours** after becoming aware of the unauthorized discharge.	Electronic[3] www.wbers.net
3. Report	Regional Water Board	Within **5 business days** of becoming aware of the unauthorized discharge.	Electronic[4] www.wbers.net

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

[2] In the event that the Discharger is unable to provide online notification within 2 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board's spill hotline at (510) 622-2369 and convey the same information contained in the notification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the notification information into the Regional Water Board's online system in electronic format.

[3] In most instances, the 2-hour notification will also satisfy 24-hour certification requirements. This is because the notification form includes fields for documenting that OES and the local health department have been contacted. In other words, if the Discharger is able to complete all the fields in the notification form within 2 hours, certification requirements are also satisfied. In the event that the Discharger is unable to provide online certification within 24 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board's spill hotline at (510) 622-2369 and convey the same information contained in the certification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the certification information into the Regional Water Board's online system in electronic format.

[4] If the Discharger cannot satisfy the 5-day reporting requirements via the Regional Water Board's online reporting system, it shall submit a written report (preferably electronically in pdf) to the appropriate Regional Water Board case manager. In cases where the Discharger cannot satisfy the 5-day reporting requirements via the online reporting system, it must still complete the Regional Water Board's online reporting requirements within 15 calendar days of becoming aware of the unauthorized discharge.

VIII. DEFINITIONS – This section is an addition to Standard Provisions (Attachment D)

More definitions can be found in Attachment A of this NPDES Permit.

1. Arithmetic Calculations

   a. Geometric mean is the antilog of the log mean or the back-transformed mean of the logarithmically transformed variables, which is equivalent to the multiplication of the antilogarithms. The geometric mean can be calculated with either of the following equations:

   $$\text{Geometric Mean} = Anti\log\left(\frac{1}{N}\sum_{i=1}^{N} Log(C_i)\right)$$

   or

   $$\text{Geometric Mean} = (C_1 * C_2 * \ldots * C_N)^{1/N}$$

   Where "N" is the number of data points for the period analyzed and "C" is the concentration for each of the "N" data points.

   b. Mass emission rate is obtained from the following calculation for any calendar day:

   $$\text{Mass emission rate (lb/day)} = \frac{8.345}{N}\sum_{i=1}^{N} Q_i C_i$$

   $$\text{Mass emission rate (kg/day)} = \frac{3.785}{N}\sum_{i=1}^{N} Q_i C_i$$

   In which "N" is the number of samples analyzed in any calendar day and "Q_i" and "C_i" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" grab samples that may be taken in any calendar day. If a composite sample is taken, "C_i" is the concentration measured in the composite sample and "Q_i" is the average flow rate occurring during the period over which the samples are composited. The daily concentration of a constituent measured over any calendar day shall be determined from the flow-weighted average of the same constituent in the combined waste streams as follows:

   $$C_d = \text{Average daily concentration} = \frac{1}{Q_t}\sum_{i=1}^{N} Q_i C_i$$

   In which "N" is the number of component waste streams and "Q" and "C" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" waste streams. "Q_t" is the total flow rate of the combined waste streams.

   c. Maximum allowable mass emission rate, whether for a 24-hour, weekly 7-day, monthly 30-day, or 6-month period, is a limitation expressed as a daily rate determined with the

formulas in the paragraph above, using the effluent concentration limit specified in the permit for the period and the specified allowable flow.

d. POTW removal efficiency is the ratio of pollutants removed by the treatment facilities to pollutants entering the treatment facilities (expressed as a percentage). The Discharger shall determine removal efficiencies using monthly averages (by calendar month unless otherwise specified) of pollutant concentration of influent and effluent samples collected at about the same time and using the following equation (or its equivalent):

Removal Efficiency (%) = 100 × [1-(Effluent Concentration/Influent Concentration)]

2. Biosolids means the solids, semi-liquid suspensions of solids, residues, screenings, grit, scum, and precipitates separated from or created in wastewater by the unit processes of a treatment system. It also includes, but is not limited to, all supernatant, filtrate, centrate, decantate, and thickener overflow and underflow in the solids handling parts of the wastewater treatment system.

3. Blending is the practice of recombining wastewater that has been biologically treated with wastewater that has bypassed around biological treatment units.

4. Bottom sediment sample is (1) a separate grab sample taken at each sampling station for the determination of selected physical-chemical parameters, or (2) four grab samples collected from different locations in the immediate vicinity of a sampling station while the boat is anchored and analyzed separately for macroinvertebrates.

5. Composite sample is a sample composed of individual grab samples collected manually or by an automatic sampling device on the basis of time or flow as specified in the MRP. For flow-based composites, the proportion of each grab sample included in the composite sample shall be within plus or minus five percent (+/-5%) of the representative flow rate of the waste stream being measured at the time of grab sample collection. Alternatively, equal volume grab samples may be individually analyzed with the flow-weighted average calculated by averaging flow-weighted ratios of each grab sample analytical result. Grab samples comprising time-based composite samples shall be collected at intervals not greater than those specified in the MRP. The quantity of each grab sample comprising a time-based composite sample shall be a set of flow proportional volumes as specified in the MRP. If a particular time-based or flow-based composite sampling protocol is not specified in the MRP, the Discharger shall determine and implement the most representative sampling protocol for the given parameter subject to Executive Officer approval.

6. Depth-integrated sample is defined as a water or waste sample collected by allowing a sampling device to fill during a vertical traverse in the waste or receiving water body being sampled. The Discharger shall collect depth-integrated samples in such a manner that the collected sample will be representative of the waste or water body at that sampling point.

7. Flow sample is an accurate measurement of the average daily flow volume using a properly calibrated and maintained flow measuring device.

8. Grab sample is an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples represent only the condition that exists at the time the wastewater is collected.

9. Initial dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with receiving water around the point of discharge.

10. Overflow is the intentional or unintentional spilling or forcing out of untreated or partially treated wastes from a transport system (e.g., through manholes, at pump stations, and at collection points) upstream from the treatment plant headworks or from any part of a treatment plant facility.

11. Priority pollutants are those constituents referred to in 40 CFR Part 122 as promulgated in the Federal Register, Vol. 65, No. 97, Thursday, May 18, 2000, also known as the California Toxics Rule, the presence or discharge of which could reasonably be expected to interfere with maintaining designated uses.

12. Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

13. Toxic pollutant means any pollutant listed as toxic under federal Clean Water Act section 307(a)(1) or under 40 CFR 401.15.

14. Untreated waste is raw wastewater.

15. Waste, waste discharge, discharge of waste, and discharge are used interchangeably in the permit. The requirements of the permit apply to the entire volume of water, and the material therein, that is disposed of to surface and ground waters of the State of California.

Table C

List of Monitoring Parameters and Analytical Methods

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
1.	Antimony	204.2					10	5	50	0.5	5	0.5		1000
2.	Arsenic	206.3				20		2	10	2	2	1		1000
3.	Beryllium						20	0.5	2	0.5	1			1000
4.	Cadmium	200 or 213				10	0.5	10	0.25	0.5				1000
5a.	Chromium (III)	SM 3500												
5b.	Chromium (VI)	SM 3500				10	5							1000
6.	Copper	200.9					25	5	10	0.5	2			1000
7.	Lead	200.9					20	5	5	0.5	2			10,000
8.	Mercury	1631 (note)[3]												
9.	Nickel	249.2					50	5	20	1	5			1000
10.	Selenium	200.8 or SM 3114B or C						5	10	2	5	1		1000
11.	Silver	272.2					10	1	10	0.25	2			1000
12.	Thallium	279.2					10	2	10	1	5			1000
13.	Zinc	200 or 289					20		20	1	10			
14.	Cyanide	SM 4500 CN^- C or I				5								
15.	Asbestos (only required for dischargers to MUN waters)[4]	0100.2 [5]												
16.	2,3,7,8-TCDD and 17 congeners (Dioxin)	1613												
17.	Acrolein	603	2.0	5										
18.	Acrylonitrile	603	2.0	2										
19.	Benzene	602	0.5	2										
33.	Ethylbenzene	602	0.5	2										

[1] The suggested method is the USEPA Method unless otherwise specified (SM = Standard Methods). The discharger may use another USEPA-approved or recognized method if that method has a level of quantification below the applicable water quality objective. Where no method is suggested, the Discharger has the discretion to use any standard method.

[2] Minimum levels are from the *State Implementation Policy*. They are the concentration of the lowest calibration standard for that technique based on a survey of contract laboratories. Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., U.S. EPA 200.9); Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; DCP = Direct Current Plasma.

[3] The Discharger shall use ultra-clean sampling (USEPA Method 1669) and ultra-clean analytical methods (USEPA Method 1631) for mercury monitoring. The minimum level for mercury is 2 ng/l (or 0.002 ug/l).

[4] MUN = Municipal and Domestic Supply. This designation, if applicable, is in the Findings of the permit.

[5] *Determination of Asbestos Structures over 10 [micrometers] in Length in Drinking Water Using MCE Filters*, U.S. EPA 600/R-94-134, June 1994.

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
39.	Toluene	602	0.5	2										
20.	Bromoform	601	0.5	2										
21.	Carbon Tetrachloride	601	0.5	2										
22.	Chlorobenzene	601	0.5	2										
23.	Chlorodibromomethane	601	0.5	2										
24.	Chloroethane	601	0.5	2										
25.	2-Chloroethylvinyl Ether	601	1	1										
26.	Chloroform	601	0.5	2										
75.	1,2-Dichlorobenzene	601	0.5	2										
76.	1,3-Dichlorobenzene	601	0.5	2										
77.	1,4-Dichlorobenzene	601	0.5	2										
27.	Dichlorobromomethane	601	0.5	2										
28.	1,1-Dichloroethane	601	0.5	1										
29.	1,2-Dichloroethane	601	0.5	2										
30.	1,1-Dichloroethylene or 1,1-Dichloroethene	601	0.5	2										
31.	1,2-Dichloropropane	601	0.5	1										
32.	1,3-Dichloropropylene or 1,3-Dichloropropene	601	0.5	2										
34.	Methyl Bromide or Bromomethane	601	1.0	2										
35.	Methyl Chloride or Chloromethane	601	0.5	2										
36.	Methylene Chloride or Dichlorormethane	601	0.5	2										
37.	1,1,2,2-Tetrachloroethane	601	0.5	1										
38.	Tetrachloroethylene	601	0.5	2										
40.	1,2-Trans-Dichloroethylene	601	0.5	1										
41.	1,1,1-Trichloroethane	601	0.5	2										
42.	1,1,2-Trichloroethane	601	0.5	2										
43.	Trichloroethene	601	0.5	2										
44.	Vinyl Chloride	601	0.5	2										
45.	2-Chlorophenol	604	2	5										
46.	2,4-Dichlorophenol	604	1	5										
47.	2,4-Dimethylphenol	604	1	2										
48.	2-Methyl-4,6-Dinitrophenol or Dinitro-2-methylphenol	604	10	5										
49.	2,4-Dinitrophenol	604	5	5										
50.	2-Nitrophenol	604		10										
51.	4-Nitrophenol	604	5	10										
52.	3-Methyl-4-Chlorophenol	604	5	1										
53.	Pentachlorophenol	604	1	5										
54.	Phenol	604	1	1		50								
55.	2,4,6-Trichlorophenol	604	10	10										
56.	Acenaphthene	610 HPLC	1	1	0.5									
57.	Acenaphthylene	610 HPLC		10	0.2									
58.	Anthracene	610 HPLC		10	2									
60.	Benzo(a)Anthracene or 1,2 Benzanthracene	610 HPLC	10	5										
61.	Benzo(a)Pyrene	610 HPLC		10	2									
62.	Benzo(b)Fluoranthene or 3,4 Benzofluoranthene	610 HPLC		10	10									

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
63.	Benzo(ghi)Perylene	610 HPLC		5	0.1									
64.	Benzo(k)Fluoranthene	610 HPLC		10	2									
74.	Dibenzo(a,h)Anthracene	610 HPLC		10	0.1									
86.	Fluoranthene	610 HPLC	10	1	0.05									
87.	Fluorene	610 HPLC		10	0.1									
92.	Indeno(1,2,3-cd) Pyrene	610 HPLC		10	0.05									
100.	Pyrene	610 HPLC		10	0.05									
68.	Bis(2-Ethylhexyl)Phthalate	606 or 625	10	5										
70.	Butylbenzyl Phthalate	606 or 625	10	10										
79.	Diethyl Phthalate	606 or 625	10	2										
80.	Dimethyl Phthalate	606 or 625	10	2										
81.	Di-n-Butyl Phthalate	606 or 625		10										
84.	Di-n-Octyl Phthalate	606 or 625		10										
59.	Benzidine	625		5										
65.	Bis(2-Chloroethoxy)Methane	625		5										
66.	Bis(2-Chloroethyl)Ether	625	10	1										
67.	Bis(2-Chloroisopropyl)Ether	625	10	2										
69.	4-Bromophenyl Phenyl Ether	625	10	5										
71.	2-Chloronaphthalene	625		10										
72.	4-Chlorophenyl Phenyl Ether	625		5										
73.	Chrysene	625		10	5									
78.	3,3'-Dichlorobenzidine	625		5										
82.	2,4-Dinitrotoluene	625	10	5										
83.	2,6-Dinitrotoluene	625		5										
85.	1,2-Diphenylhydrazine (note)[6]	625		1										
88.	Hexachlorobenzene	625	5	1										
89.	Hexachlorobutadiene	625	5	1										
90.	Hexachlorocyclopentadiene	625	5	5										
91.	Hexachloroethane	625	5	1										
93.	Isophorone	625	10	1										
94.	Naphthalene	625	10	1	0.2									
95.	Nitrobenzene	625	10	1										
96.	N-Nitrosodimethylamine	625	10	5										
97.	N-Nitrosodi-n-Propylamine	625	10	5										
98.	N-Nitrosodiphenylamine	625	10	1										
99.	Phenanthrene	625		5	0.05									
101.	1,2,4-Trichlorobenzene	625	1	5										
102.	Aldrin	608	0.005											
103.	α-BHC	608	0.01											
104.	β-BHC	608	0.005											
105.	γ-BHC (Lindane)	608	0.02											
106.	δ-BHC	608	0.005											
107.	Chlordane	608	0.1											
108.	4,4'-DDT	608	0.01											
109.	4,4'-DDE	608	0.05											

[6] Measurement for 1,2-Diphenylhydrazine may use azobenzene as a screen: if azobenzene is measured at >1 ug/l, then the Discharger shall analyze for 1,2-Diphenylhydrazine.

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
110.	4,4'-DDD	608	0.05											
111.	Dieldrin	608	0.01											
112.	Endosulfan (alpha)	608	0.02											
113.	Endosulfan (beta)	608	0.01											
114.	Endosulfan Sulfate	608	0.05											
115.	Endrin	608	0.01											
116.	Endrin Aldehyde	608	0.01											
117.	Heptachlor	608	0.01											
118.	Heptachlor Epoxide	608	0.01											
119-125	PCBs: Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260	608	0.5											
126.	Toxaphene	608	0.5											

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-5 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 (July 21, 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 98-054 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.

APPENDIX B

Comment Letters

June 26, 2009 Sent via electronic mail and U.S. mail

Mr. Bruce Wolfe, Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite #1400
Oakland, CA 94612

Attn: Ms. Tong Yin, NPDES Division

Subject: **City of Sunnyvale Comments on the Reissued Tentative Order NPDES No. CA00337621 for the Sunnyvale Water Pollution Control Plant**

Dear Mr. Wolfe:

The City of Sunnyvale submits the following comments on the reissued Tentative Order (TO) NPDES No. CA00337621 for the Sunnyvale Water Pollution Control Plant (WPCP) dated May 28, 2009. The reissued TO, that replaces in its entirety the one distributed December 19, 2008, responds to most of the concerns previously raised by the City.

The City's primary remaining concern with the reissued TO regards the new proposed numeric chronic toxicity effluent limits that would become effective October 1, 2014.

The City's secondary concern is with potential requirements to construct additional ammonia removal facilities. As written, there is significant potential that the permit may require the City to initiate design and construction of new facilities based solely on "*Water Quality Criteria that may forseeably become applicable standards or objectives...*"

These two issues and recommended resolutions are summarized below. Other chronic toxicity and ammonia effluent limit and special study related comments are addressed in Attachment A. Minor comments on other items in the TO are provided in Attachment B. Attachment C contains the City's additional comments on several

issues it anticipates may be raised with respect to the reissued TO. Attachment D provides background information on the WPCP, ammonia effluent and receiving water limits, and results of ammonia related receiving water studies.

CHRONIC TOXICITY LIMITS

The reissued TO contains proposed chronic toxicity numeric effluent limits that are to automatically become effective October 1, 2014 (one day after the permit expires) if in the preceding 12 months more than 10% of the effluent samples exceed either monitoring trigger (page 14, IV.D.2.(c)). The proposed *numeric* effluent limits are legally improper and could, as a more practical matter, pose a compliance problem for the City absent it making a huge investment which may ultimately prove to be misdirected or unnecessary.

Since the mid-1990's, NPDES permits issued by this Water Board to the City and other POTWs have contained narrative limits for chronic toxicity, numeric effluent monitoring triggers, accelerated monitoring if there is persistent toxicity above trigger levels, and Toxicity Reduction Evaluations. This approach is consistent with 1995 findings of the Public Advisory Toxicity Task to the State Water Board (SWB) regarding development of the Inland Surface Waters Plan and the Enclosed Bays and Estuaries Plan.

More recently, the SWB has issued several remand rulings regarding the need for and type of chronic toxicity limits to include in POTW NPDES permits. Beginning with WQO 2003-0013 (Los Coyotes/Long Beach), the SWB found that it was *inappropriate* to include numeric limits for chronic toxicity in NPDES permits pending update of the toxicity section of the State Implementation Plan (SIP). This was reaffirmed in WQO 2008-0008 (City of Davis) and again on May 19, 2009 in WQO 2009-0003 (City of Tracy) where the SWB stated that "no numeric effluent limitation was appropriate."

These precedential rulings found that a narrative effluent limit effective within the permit term should be required where there is reasonable potential for chronic toxicity and that numeric effluent limits for chronic toxicity should *not* be imposed pending refinement of the SIP toxicity provisions.

The reissued TO already and adequately contains a narrative toxicity limit (p. 15, Receiving Water Limitations Provision V.A. 1.e), numeric monitoring triggers (p. 14, WET D.2.a.(2)), and, if they should prove necessary to utilize, various permit reopeners (p. 17, C.1). Collectively, these requirements of the reissued TO are sufficient. In addition, the City is continuing to conduct efforts to identify and reduce the source of the intermittent, low level, non-persistent chronic toxicity detected at

times in the effluent. These efforts are complementary to, and in advance of, the extensive requirements contained in the reissued TO Special Provision VI.C.2.d.*i.* Table 10. "*Chronic Toxicity Identification and Reduction Tasks and Schedule*" (pp. 18-19).

Requested Change: The City requests that Whole Effluent Chronic Toxicity Numeric Effluent Limitation IV.D.2.(c) be deleted to achieve consistency with the SWB Orders.

Additional comments on and requested minor changes to chronic toxicity related requirements in the TO are provided in Attachment A. The comments address requested modifications to the testing protocol to eliminate potential artifactual unionized ammonia toxicity that may be occurring due to the effluent sample pH increase that occurs when the samples are "salted up" as required for the marine species (Mysid shrimp) testing.

AMMONIA SPECIAL STUDY

The reissued TO contains Special Provision VI.C.2.e. Table 11. "*Receiving Water Ammonia Characterization Study Tasks and Schedule*" (pp. 20-21). Task (4) in Table 11 requires submittal of a final study report that includes, in part, receiving water sampling results and a determination if there is reasonable potential (RP) for the discharge to cause receiving water to exceed applicable ammonia objectives. If there is an RP finding, Task (4)(d) further requires that the City calculate "total ammonia effluent concentration goals that account for (1) applicable ammonia objectives and (2) WQC that may foreseeably become applicable standards or objectives within the term of this permit or the next permit term, such as USEPA's *1999 Update of Ambient Water Quality Criteria for Ammonia* (EPA-822-R-99-014) (emphasis added).

The City understands and does not object to the intent of this requirement -- to investigate what potential new effluent limits might be if the USEPA criteria were adopted during the term of the permit. However, the City has significant concerns with the requirements of the subsequent tasks. Per Task (5), if there would be "compliance difficulty with the total ammonia concentration goals in Task (4)," including the (4)(d)(2) goals based on standards/objectives that are yet to be adopted and may never be (since site specific objectives could be considered as an alternative at that point), the City would nevertheless be required to begin funding tasks leading to construction of new facilities beginning 09/15/2013.

Because, as a legal matter, this places the cart before the horse, and, as a practical matter, could represent a waste or misplacement of public resources, the City believes

that implementation of the Task (5) study plan elements should only be required for tasks related to potential non-compliance with goals based on *currently applicable* water quality objectives. If new USEPA criteria were adopted during the term of the permit, the Water Board would have several options available to it in working with the City to update applicable ammonia objectives and then determine if plant changes were necessary to address them.

Requested Change: The City requests that Task (6) be edited to only be applicable to the goal calculated from currently applicable objectives by adding the following underlined language to the Task (6) wording:

(6) Begin implementation of the study plan developed for Task (5) <u>for those tasks necessary to comply with the total ammonia effluent concentration goals based on the currently applicable ammonia objectives.</u>

Once again, additional comments from the City are provided in Attachments A-C and supporting information is provided in Attachment D.

Thank you for the opportunity to comment on the Reissued Tentative Order. If you have any questions, please contact Lorrie R. Gervin, Environmental Division Manager at (408) 730-7260.

Very truly yours,

Marvin A. Rose

Marvin Rose
Director of Public Works

Attachments:

A. City of Sunnyvale Reissued Tentative Order Chronic Toxicity and Ammonia Issues, Concerns, and Proposed Resolutions
B. Additional Minor Comments on Reissued Tentative Order
C. Additional Comments on Other Issues Which May Be Raised With Respect to the Reissued TO
D. Background Information

cc: EOA, Inc.
Robert Falk, Morrison & Foerster

Attachment A - City of Sunnyvale Reissued Tentative Order Other Chronic Toxicity and Ammonia Issues, Concerns and Proposed Resolutions		
Issue	**Concern/Reasoning**	**Suggested Resolution**
Other Chronic Toxicity Issues		
A) The Mysid (shrimp) chronic toxicity test requires that the effluent sample before testing be "salted up" to a salinity of approximately 25 ppt.	The "salted up" requirement has the unavoidable side effect of increasing the typical effluent pH of approximately 7.5 units up to approximately 8.2 units. The fraction of total ammonia that is unionized (UI) (toxic) increases from about 1.8% at pH 7.5 to about 5.4% at pH 8.0 to about 8.3% at pH 8.2. This uncontrolled increase in pH results in an artifactual increase in UIA related toxicity in the test. The IC_{25} for Mysids is about 0.3 mg/L UI NH3. If there were 10 mg/L total ammonia in the effluent, there would likely be measurable UIA toxicity induced simply by the pH being elevated from 7.5 to 8 or above. Because of the above, the EPA Mysid test Method 1007.0, p. 214, Section 14.3.4 Interferences states that "pH drift during the test may contribute to artifactual toxicity when ammonia or other pH-dependent toxicants (such as metals) are present." "In situations were sample toxicity is confirmed to be artifactual and due to pH drift (as determined by parallel testing as described in Subsection 14.3.4.1), the regulatory authority may allow for control of sample pH during testing using procedures outlined in Subsection 14.3.4.2."	Add the following underlined sentence to the end of Page E-9, MRP Section V.B.1.e Dilution Series (consistent with approach in EBDA NPDES permit): **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. <u>Test sample pH in each dilution in the series may be controlled to the level of the effluent sample as received prior to being salted up</u>.

	An USEPA April 10, 1994 guidance memo "Clarifications Regarding Flexibility in 40 CFR Part 136 Whole Effluent Toxicity (WET) Test Methods" also notes that "the manuals do provide flexibility to the analyst to control artifactual toxicity caused by pH drift provided that the analyst verifies the source of the toxicity is, in fact, artifactual." NPDES permits for 1) EBDA allows for use of a buffer in the test solution to control pH rise (Order R2-2006-0053, MRP p.E-10), and 2) Stockton allows for "removal of the toxicant ammonia prior to conducting the WET analysis."(Order No. R5-2008-0154, p. F-53).	
B) The chronic toxicity study (Special Provision VI.C.2.d.*i.* Table 10 Task (2)(g)) requires initiating a TIE if chronic toxicity is detected in any single sample.	As written, this requirement is impractical since chronic toxicity needs to be both persistent and at a level above the TRE workplan TIE trigger level ($100/EC_{50}$ or IC_{50}) to have the likelihood of a successful TIE. USEPA guidance also recognizes that there can be instances when "inconclusive TREs" occur and "special technical evaluation may be warranted and civil penalty relief granted." (August 14, 1995 Memorandum "National Policy Regarding Whole Effluent Toxicity Enforcement)	Insert the words "above the TRE workplan TIE trigger level" to Table 10 (2)(g), e.g., (g) Conduct chronic toxicity tests at least twice per month during December, January, February, and March. Conduct chronic toxicity test at least once per month during other times of the year; if chronic toxicity is observed in any sample <u>above the TRE workplan TIE trigger level</u>, initiate TIE to identify the cause.
C) The MRP (p. E-8, V.B.1.c.(2) Accelerated Monitoring provides that "*Monitoring conducted pursuant to a TIE/TRE effort shall satisfy the requirements for routine and accelerated monitoring while the TIE/TRE investigation is underway."*	Table 10 Task (2)(g) and Special Provision VI.C.2.d.*ii.*(2) monitoring language does not include the cited MRP TIE/TRE replacement for routine/accelerated monitoring language leading to potentially conflicting monitoring frequency requirements.	Insert the MRP Accelerated Monitoring statement "*Monitoring conducted pursuant to a TIE/TRE effort shall satisfy the requirements for routine and accelerated monitoring while the TIE/TRE investigation is underway"* to both

		Table 10 Task (2)(g) and Special Provision VI.C.2.d.*ii.*(2).
D) The Fact Sheet (Page F-40, IV.D.6.d. Whole Effluent Chronic Toxicity) states that "This limit does not allow for additional dilution because mixing is incomplete within the shallow waters."	Without correction or better placement in context, the sentence in question could be misleading and unnecessarily constrain the Water Board and City in the future. As noted in this same section, the Basin Plan allows for dilution credits when deriving chronic toxicity limits. SWB Order WQ 2009-0003 (Tracy) pp. 10-11 states that "When a discharge is not completely mixed, then mixing zones and dilution credits may only be granted based on site-specific data and special studies."	Add the underlined sentence shown below to reflect the cited SWB Order language regarding dilution credit: The single sample maximum effluent limit of 2 TUc represents a no observed effects concentration (NOEC) of 50% effluent, which is effectively 2:1 dilution. <u>Additional dilution credit for this incompletely mixed discharge may only be granted based on site-specific data and special studies.</u>
E) Chronic toxicity study requires receiving water monitoring for *acute* (as well as chronic) toxicity.	This requirement is unnecessary and unjustified. Effluent has been in consistent compliance with acute toxicity limitations.	Delete words "acute and" from p. 18, Table 10 Item (2), first sentence.
F) The Fact Sheet (Page F-39, IV.D.6.a. Whole Effluent Chronic Toxicity) states that "The last TIE study suggested the possibility that ammonia may cause or contribute to toxicity. The Discharger took no measures to reduce the toxicity."	The final sentence of this statement is inaccurate and is unfair to the City. It is assumed this reference is to the December 2008 TIE work. The City followed the measures as prescribed in the TRE workplan: continued accelerated monitoring and focused TIE work when the toxicity was persistent and above the TRE workplan trigger value. For unknown (and therefore uncontrollable) reasons, effluent ammonia concentrations during winter 2008 and early spring 2009 were intermittently among the highest recorded.	Delete the sentence "The Discharger took no measures to reduce the toxicity." Insert the following: <u>"As part of the on-going WPCP Master Planning effort the City has been investigating alternative measures and technologies to enhance nitrification performance. Per the design consultant's recommendations, in Fall 2009 the City will be implementing WPCP process changes to attempt to improve winter nitrifying trickling filter performance</u>."

Other Ammonia Issues		
F) In Table 11 Receiving Water Ammonia Characterization Study Tasks and Schedule there are two Task (7)s (Pages 21-22).	This creates confusion, particularly regarding the compliance deadline associated with the final task in Table 11.	Renumber the second Tasks (7) to become Task (8) and then renumber current Task (8) to become Task (9). In the text, under the "Task" column for new Task (9), change the reference to "Task (8). Under the Compliance Date column for the new Task (9), change the reference to Task (8) as well. Also delete the sentence "Within 90 days of completion of Task (7)" and replace it with the following: "Annually each February 28 in the Annual Self-Monitoring Report required by Permit Attachment E, Monitoring and Reporting Program."
G) The statement in the Fact Sheet that there is a steady upward trend in average winter season total ammonia concentrations appears taken out of context and is not necessarily reflective of long-term plant performance (Page F-20 in Section IV.C.2.g Total Ammonia).	There is considerable variability in historic winter effluent concentrations (see EOA July 9, 2008 Ammonia Limits Analysis memo, Attachment A-1 time series plots). Effluent concentrations decreased from the winters of 1998-1999 through 2002-2003, and levels in 1999-2001 were higher than in 2008.	Further qualify the sentence in question from the Fact Sheet based on the longer-term history. Consider adding a 10-year time series plot of effluent ammonia concentrations.

ATTACHMENT B

ADDITIONAL MINOR COMMENTS ON REISSUED TENTATIVE ORDER

Effluent Limitations and Discharge Requirements

1) VI.C.2.h. Total Suspended Solids (TSS) Removal (pp. 22-23)

Comment: The City is unclear on the need for this TSS Removal Study required under the Special Studies, Technical Reports, and Additional Monitoring Special Provisions portion of the Tentative Order. The Fact Sheet (p. F-48) states that "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."

The historic receiving water concern in the South Bay has been low dissolved oxygen (DO) concentrations due to naturally occurring benthic and sediment oxygen demand. This low DO concern was the basis for upgrading the three South Bay POTWs to tertiary in the late 1970's (see ammonia treatment facility and permit limit chronology and in Attachment C Background Information). In the South Bay, the critical time period for maintenance of oxygen levels necessary for protection of aquatic life occurs in the summer and fall when stream flows are minimal and water temperatures are highest.

From 1981-1986 the South Bay Dischargers Authority (SBDA), consisting of Palo Alto, San Jose, and Sunnyvale conducted a 5-year monitoring program to assess impacts of continued discharge of highly treated effluent on the South Bay environment. This extremely comprehensive, RWB mandated, and Clean Water Grant funded program collected samples twice a month at 27 stations from December 1981 through November 1986 for multiple water quality parameters including unionized ammonia and DO.

The study found that dissolved oxygen (DO) concentrations in South Bay receiving waters averaged at least 5 mg/L during the summer and fall. The SBDA discharges were shown to "enhance dissolved concentrations in the discharge sloughs as compared to "natural: conditions, most dramatically at the Sunnyvale and Palo Alto discharge points." The SBDA study concluded that the high quality, highly oxygenated effluent from the three south bay POTWs provided a net environmental benefit to the south bay.

The direct indicator measurement of the oxygen demand of the effluent is Carbonaceous Biochemical Oxygen Demand (CBOD) not TSS. Sunnyvale has had and continues to have the same CBOD effluent limits as San Jose and Palo Alto: 10 mg/L. Sunnyvale consistently and conservatively complies with its 10 mg/l monthly average CBOD effluent limit. During 2003 – 2008 the CBOD concentration averaged 5 mg/L, 50% below the permit limit. During that same time period the TSS concentration averaged 9.9 mg/L, similarly 50% below the 20 mg/l monthly average effluent limit.

The characteristics of the TSS in Sunnyvale effluent have been shown to be different from the other South Bay POTWs given its use of oxidation ponds and dissolved air flotation thickeners for secondary treatment. A study conducted in 1981 concluded that algae from the oxidation ponds (particularly the small ~1 um unicellular alga *Chlorella*) were responsible for the higher TSS levels intermittently observed. The presence of algae that are innocuous in the receiving water and difficult to flocculate and/or filter in the plant effluent is unique to the Sunnyvale plant, compared to most plants that use activated sludge for secondary treatment. The study concluded that the 10 mg/L CBOD limit would continue to be met under a 20 mg/L average monthly TSS limit

It is not clear what the water quality basis would be for requiring Sunnyvale to further reduce its effluent TSS concentrations, when its CBOD concentrations are already 50% below the South Bay Discharger's common 10 mg/L CBOD effluent limit. The Sunnyvale effluent turbidity is below 10 NTU, well below the approximately fifty to several hundred NTU values commonly observed in the receiving water (see continuous turbidity results from the San Jose datasonde deployment in Guadalupe Slough in January and February 2000). The effluent discharge with the current TSS levels is improving the clarity of the receiving water. The SBDA study documented that receiving water clarity was greatest in proximity to the outfalls and lowest over areas with subtidal mudflats.

Requested Change: The City questions the need for the proposed TSS Removal Study, but is willing to prepare a historic chronology and report of available information consistent with the description in the Fact Sheet "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." The City believes that the last bullet in the permit TSS Removal Study description is unnecessary given the City's consistent compliance with its CBOD effluent limits and requests that the last bullet be deleted as shown below:

- ~~Evaluation, including cost estimates, of treatment Plant modifications and/or upgrades, if necessary, to attain more stringent TSS effluent limits.~~

2) VI.C.6.c. Table 14 Dioxin-TEQ Compliance Schedule (p. 31)

Comment: The Interim Effluent Limitation for Dioxin-TEQ listed under IV.C. Effluent Limitations and Discharge Specifications Table 9 (p. 13) is an Average Monthly Effluent Limit (AMEL). Fact Sheet Item IV.D.4.d.(4).vi. *Interim Effluent Limits* (p. F-36) also indicates that the "interim limit is established as a monthly average limit …"

However, Permit Item VI.6.c Table 14 Dioxin (1) contains the same numeric interim limit but mistakenly labels it as a MDEL.

Requested Change: Delete ~~MDEL~~. Replace with <u>AMEL</u> for the interim limit in Task (1) in Table 14.

Attachment E – Monitoring and Reporting Program

3) II. Monitoring Location, Table E-2. Monitoring Location Description for E-002 (p. E-3)

Comment: The City understands the intent of this monitoring location, which is to provide a measure of advanced secondary plant flow for comparison to design flows, without deducting flow diversions that occur at the end of the process (i.e. the recycled water stream). RWB staff correctly excluded the filter backwash flow from the E-002 flow description, because filter backwash was already accounted for in the "derating" of the advanced secondary plant's design flow (from the design value of 32 mgd to the current ADWF of 29.5 mgd). The City requests that flow diverted for in-plant process use (referred to as "No. 3 water") also be excluded, because No. 3 water was also a component of the flow "derating", and is thus accounted for in the current ADWF.

Using 2007 flow data as an example, the average daily backwash flow was 1.1 mgd, while the average No. 3 water flow was 1.0 mgd. Deducting these from the advanced secondary plant's nominal design flow of 32 mgd results in a value of 29.9 mgd, very close to the permitted 29.5 mgd AWDF. The City also notes as a point of information that the E-002 flow will be calculated based on flow meter readings immediately upstream (filter effluent flowmeters) and downstream (backwash and No. 3 water flow meter) of the specified E-002 monitoring location. All of these flow values are recorded continuously by the plant SCADA system.

Requested Change: Add "*and plant No. 3 water* to the EFF-002 definition as shown below.

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 *and plant No. 3 water*)

Fact Sheet

4) II.A.1 Facility Description, Biological Treatment (pp. F-4 – F-5)

Comment: The flow equalization capability of the oxidation ponds is relevant to issues of influent flow management and operation of the subsequent advanced secondary processes. The Sunnyvale Ponds most likely provide the greatest volume equalization volume of any POTW in the Region.

Suggested changes: Add the language underlined and italicized below:

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. *The oxidation ponds simultaneously provide flow equalization for primary effluent, so that advanced treatment processes can be operated at a constant flow rate. The flow equalization capacity varies depending on pond depth, but is typically in the range of 50 to 100 million gallons.*

Attachment G

5) Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits. March 2009.

Comment: Attachment G to the Reissued TO contains new Regional Standard Provisions that were first released for public comment with the California Great America's NPDES Permit TO. That TO is scheduled for RWB hearing for adoption July 9, 2009. The Bay Area Clean Water Agencies (BACWA) submitted timely comments on the Great America's TO including the same Attachment G Regional Standard Provisions contained in the City's TO.

Suggested changes: The City fully supports the May 18, 2009 BACWA comments with regards to changes to Attachment G and adopts by reference the BACWA comments into the City's comments on Attachment G in the City's reissued TO.

ATTACHMENT C

Additional Comments by the City of Sunnyvale on Additional Issues which may be Raised or Discussed before the Regional Water Board concerning the Reissued Tentative Order

1. To the extent an issue is raised that: (a) the proposed permit fails to contain an Effluent Limitation for total coliform organisms that is protective of the contact recreational beneficial use of the receiving stream contrary to Federal Regulation 40 CFR 122.44 and CWC 13377, (b) the proposed permit allows for the Bypass of parts of the disinfection treatment processes contrary to Federal Regulation 122.41 (m)(1) resulting in a less restrictive bacteria discharge standard, and/or (c) the proposed permit "backslides" by removing a daily maximum effluent limitation for bacteria, the City submits that such positions would be erroneous for the following reasons:

(a) The proposed Permit contains enterococci bacteriological effluent limits maintained from the prior permit (Order No. R2-2003-0079). The technical rationale for the change from total coliform to enterococci was put forth in the Fact Sheet for that permit (pp. 14-15). That Fact Sheet stated in part that "*USEPA's draft implementation guidance for bacteriological water quality criteria (May 2002) recommended either enterococcus or E. coli, or both together, as superior bacteriological indicators of human health pathogenic risk as compared to total or fecal coliform*." The proposed Enterococcus limit is addressed in the Fact Sheet for the proposed Permit pages F-19 – F-20. The proposed limit is fully protective of REC-1 beneficial uses since it is met end-of-pipe (i.e. prior to the effluent being discharged into the receiving water). Furthermore, an 18 month receiving water user survey conducted by the City in 2003-2004 found no REC-1 uses occurring in Moffett Channel or Guadalupe slough. (See related discussion in Comment 2 below.)

(b) Attachment D – Standard Provisions 1.G. Bypass 1. Definitions (a) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 122.41(m)(1)(i).) The City WPCP processes its wastewater through all of its unit processes, including disinfection processes, at all times in compliance with NPDES permit effluent limits. City production and distribution of recycled water is regulated by a separate Regional Water Board Order No. 94-069. The City does not bypass any unit processes going into or out of its periodic (based on user demand) recycled water production mode. The City increases the dosages of polymer and chlorine to comply with the Title 22 Water Reclamation Criteria for turbidity and total coliform bacteria as cited in Order No. 94-069. It is a voluntary action on the part of the City to incur the significant additional costs to produce and distribute recycled water. To minimize these costs, the City reduces flow rate during batch recycled water production so that there is no concurrent NPDES discharge to the Bay. This is feasible at Sunnyvale since the 400 acres of oxidation ponds also function as equalization ponds. It is also

desirable to not discharge to the Bay while producing recycled water since the higher dosages of chlorine added to meet Title 22 requirements can generate higher effluent levels of disinfection byproducts (e.g., dichlorobromomethane).

(c) As described in the Fact Sheet on pages F-19 – F-20 the proposed Permit does NOT backslide by removing the daily maximum Enterococcus limit. Inclusion of the limit in the prior permit was a determined to be a "technical mistake", thus qualifying for one of the exception criteria to the backsliding provisions in the Clean Water Act and Federal Regulations as cited below (emphasis added):

"40 CFR 122.44 (l)(2)(i)*(B)(1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);"*

2. To the extent an issue is raised that the proposed permit fails to include an effluent limitation for turbidity that is protective of the contact recreational beneficial use of the receiving stream contrary to Federal Regulation 40 CFR 122.44 and CWC 13377, the City contends that such a position would be erroneous for the following reasons:

Title 22 is not directly applicable to surface waters and Title 22's 2.2 MPN total coliform and 2 NTU turbidity requirements are intended to be protective of contact recreational use in an impoundment containing 100% recycled water, not surface water. As discussed in 1(a) above, the past and proposed permit Enterococcus effluent limit is fully protective of any potential full body contact that might occur. Again as noted, an 18 month receiving water user survey detected no REC-1 uses occurring in the receiving waters (limited and difficult access, deep mud flats, low water levels at low tide, narrow channels). The 10 NTU effluent limits serves primarily as a real-time process control indicator. When the effluent quality is below 10 NTU, it should be in full compliance with TSS and BOD limits. The 10 NTU limit for effluent turbidity is more than adequate to allow for the level of disinfection required for NPDES discharge, and it is well below ambient receiving water turbidity levels. In addition, there is no legal basis upon which to impose, or underlying water quality need to provide, Title 22 specified turbidity nor Title 22 levels of disinfection for NPDES discharge.

3. To the extent an issue is raised that the proposed permit fails to contain an effluent limitation for total chlorine residual that is protective of the aquatic life beneficial uses of the receiving stream and is contrary to Federal Regulation 40 CFR 122.44, the City believes such would be erroneous for the following reasons:

The Permit *does* contain an effluent limit for residual chlorine of 0.0 mg/L which is protective of beneficial uses and no discharge of residual chlorine is allowed.

> Discussion of detection limit appears in the table only in order to address the practicality of enforcing this permit limit. If any chlorine residual in the discharge is reliably detected by the continuous monitoring equipment, it may constitute grounds for further appropriate RWB action. The approach taken is consistent with the effluent limit contained in Basin Plan Table 4-2 and is unchanged from the previous Order.

4. To the extent an issue is raised that the proposed permit does not contain a final effluent limitation for chronic toxicity and therefore does not comply with Federal regulations, at 40 CFR 122.44 (d)(1)(i) and the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP), as set forth in the City's main comment letter, such a position would be erroneous because:

> The permit contains a *narrative* limit for chronic toxicity and numeric effluent monitoring triggers *that will be in effect* throughout its operative term. The State Board has indicated in several precedential rulings that it is *inappropriate* to include numeric limits for chronic toxicity in NPDES permits pending update of the toxicity section of the SIP. Recently (May 19, 2009) the SWB adopted WQO 2009-0003 where it reaffirmed its prior rulings that "no numeric effluent limitation was appropriate." This Order was issued in response to the petition by ELF and CSPA concerning the City of Tracy Wastewater Treatment Plant NPDES permit and addressed head on the same contention that "the Permit does not contain a final effluent limit for chronic toxicity." Here, the case is even stronger as there is no indication of any chronic toxicity in the receiving water regardless of source. The City continues to carry out extensive investigations to identify whether the occasional and very low level chronic toxicity measured in the effluent prior to discharge is due to anything else besides a mere laboratory effect, i.e., the ammonia positive interference which EPA guidance documents indicate can be a pH induced "artifact of ammonia" in the chronic toxicity testing.

5. To the extent an issue is raised that the proposed permit does not contain a protective effluent limitation for ammonia in violation of Federal Regulations 40 CFR 122.44 and California Water Code Section 13377, the City submits that such would be erroneous for the following reasons:

> As set forth at length in the City's comments on the prior Tentative Order, there is no need or evidentiary basis for water quality-based effluent limits (WQBELs) to be imposed here. Several receiving water monitoring studies have been carried out which demonstrated that receiving water un-ionized ammonia concentrations are always *far below* the Basin Plan's water quality objectives for un-ionized ammonia. In addition, the reasonable potential analysis (RPA) concerning the need for an ammonia WQBEL set forth in the Fact Sheet accompanying the reissued Tentative Order has now properly been conducted by RWB staff in accordance with guidance in the USEPA Technical Support Document (TSD). The staff's RPA correctly finds <u>no</u> Reasonable Potential based on either the

effluent data or the receiving water data (see Fact Sheet pages F-27 – F-28). Performance-based ammonia limits have instead been included in the proposed Permit to ensure that current WPCP performance is maintained and that current ammonia conditions in the receiving water are maintained.

Regarding potential biostimulatory effects, there is no evidence of aquatic growths at nuisance levels in the South Bay. James Cloern of USGS has conducted extensive phytoplankton monitoring and investigations in the Bay, particularly the South Bay. He has written extensively about the patterns and causes of seasonal phytoplankton blooms. In a 2007 technical article (Proceedings of the National Academy of Sciences (104)) Cloern et al. stated:

> "Nutrient inputs are comparable to those delivered to Chesapeake Bay, but SFB is a low productivity estuary with no recurrent problems of hypoxia or harmful algal blooms. This eutrophication resistance has manifested over 20 years of observation as persistent low phytoplankton biomass and high nutrient concentrations."

6. To the extent an issue is raised that effluent limitations for dichlorobromomethane, 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene which are contained in the existing permit have been removed from the proposed permit contrary to the antibacksliding requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1), the City submits that such would be erroneous for the following reasons:

The former effluent limitations in question have been removed from the permit because, as the Fact Sheet (F-41 – F-42) discusses, monitoring data gathered over the past five years indicate that there is no reasonable potential that the discharge will cause or contribute to violations of receiving water objectives for the pollutants in question; hence, there is sufficient new information to justify an exception to the Clean Water Act's presumptive anti-backsliding proscription. 40 CFR 122.44 (l)(2)(i)(B)(1). This antibacksliding contention has been raised multiple times in permit petitions to the State Water Board and been rejected by it. For example, in WQO 2003-0012 (Los Coyotes/Long Beach) pages 15-16:

"The BayKeeper does not challenge the Regional Board's determination that there was no reasonable potential for any of these pollutants to be discharged at levels that would cause or contribute to exceedance of water quality standards. Thus, the permits do not allow an increase in pollutants compared to the limitations in the prior permits; they simply do not include effluent limitation for constituents for which the Regional Board found there was no reasonable potential to cause or contribute to exceedance of water quality standards. The procedure followed by the Regional Board was consistent with the SIP. It is not clear that the deletion of effluent limitations even falls under the antibacksliding rule, but if it does, if falls within an exception to the rule. Water quality-based effluent limitations may be relaxed in a later permit based on new information.

The new information consists of the monitoring studies conducted that showed a lack of reasonable potential. The absence of these effluent limitations also does not violate the antidegradation policies stated in State Board Resolution 68-16 and 40 Code of Federal Regulations section 131.12 since the permits will result in improved water quality because effluent limitations are more stringent for pollutants that do have the potential to affect water quality."

7. To the extent an issue is raised that the proposed permit contains an inadequate antidegradation analysis that does not comply with the requirements of Section 101(a) of the Clean Water Act, Federal Regulations 40 CFR § 131.12, the State Board's Antidegradation Policy (Resolution 68-16) and California Water Code (CWC) Sections 13146 and 13247, the City believes such would be erroneous because:

> An antidegradation analysis is not required here. As a threshold matter, such an analysis is only necessary where a reissued NPDES permit will authorize a degradation of receiving water quality and there is no such authorization being provided here. Pages F-41 – F-42 of the Fact Sheet provide confirmation that removal of certain prior effluent limits from the proposed permit will not result in a reduction of existing receiving water quality since, among other things, they do not portend any changes in the City's existing treatment process or performance. The approach taken is fully consistent with State Water Board Administrative Procedures Update on Antidegradation Policy Implementation for NPDES Permitting No. 90-004 which indicates that a Regional Board may decide that an antidegradation finding is *not required* if the Regional Board has no reason to believe that existing water quality will be reduced due to the proposed action and/or because prohibitions on discharges violating water quality objectives will nevertheless remain in place. Even if this were not the case, Update 90-004 further indicates that a Regional Board may also determine that it is *not necessary* to do a complete antidegradation analysis if, using its best professional judgment, it decides: 1) the reduction of water quality will be spatially localized or limited, such as within a mixing zone, 2) the reduction is temporally limited and will not result in any long-term deleterious effects, and/or 3) the proposed effects are minor.

ATTACHMENT D

Background Information On Sunnyvale Water Pollution Control Plant, Rationale For Seasonal Technology-Based Ammonia Effluent Limits, Receiving Water Unionized Ammonia Study Results, and History of Current Unionized Ammonia Water Quality Objectives

Sunnyvale Wastewater Treatment Background

The City of Sunnyvale (City) operates a unique treatment facility consisting of over 400 acres of energy efficient secondary treatment oxidation ponds and nitrifying trickling filters. These low carbon footprint biological treatment facilities convert ammonia nitrogen to nitrate (i.e. nitrify) most efficiently during warmer portions of the year. The resulting seasonal variability in effluent ammonia concentrations complicates efforts to ascertain potential sources of toxicity. Over the last 20 years, the Sunnyvale Water Pollution Control Plant (WPCP) has had seasonal effluent ammonia limits. These technology based limits have been shown to be protective of water quality and beneficial uses throughout the year while being attainable by the unique WPCP oxidation pond and nitrifying trickling filter treatment processes.

The City believes that the proposed seasonal limits are appropriate for the WPCP. The appropriateness of the limits is supported by the results of several treatment plant and receiving water studies mandated by prior NPDES permits and approved by Water Board staff, compliance with treatment plant ammonia limits and compliance with receiving water unionized ammonia objective. The City does not find any information or analysis in the record indicating problems in the receiving water attributable to WPCP ammonia discharges. To the contrary, all available information indicates compliance with Basin Plan receiving water ammonia objectives.

The WPCP has for over 30 years consistently provided a very high level of wastewater treatment. Secondary treatment is provided via 400 acres of facultative biological oxidation ponds. Oxidation ponds are relatively uncommon in the urbanized Bay Area. The Sunnyvale ponds are an environmentally desirable treatment process given their low energy requirements and the fact that the ponds reduce green house gases through their low energy requirements and photosynthetic carbon dioxide uptake. Most every other wastewater treatment in the Bay Area uses the much more energy intensive activated sludge systems for secondary treatment. Professor Perry L. McCarty, Chairman of Stanford University's Department of Civil and Environmental Engineering and recipient of the 2007 Stockholm Water Prize has highlighted the Sunnyvale WPCP facilities for these "green" design features in several recent public presentations including the Keynote Address at WEFTEC '07 in San Diego.

Historically, low dissolved oxygen conditions were observed to occur in the South Bay due to benthic (sediment) oxygen demand. Water quality modeling studies conducted during the 1970s determined that additional removals of carbonaceous and nitrogenous oxygen demanding wastes were needed to help address naturally occurring summer-time low dissolved oxygen conditions (Water Quality Management Plan for the South Bay, Final Report, 1972). This Plan identified the Ultimate Oxygen Demand (UOD) allowable for each of the three South Bay POTWs.

Ammonia is a common constituent in wastewater that is non-conservative and rapidly decays once in the receiving water. Ammonia is also an essential plant nutrient that is taken up by rooted and aquatic plants and/or biologically converted (nitrified) to nitrate. The conversion of ammonia to nitrate consumes oxygen.

Studies conducted for the WPCP in the mid-1970s (City of Sunnyvale Project Report Water Pollution Control Plant Stage 3B Improvements, Brown and Caldwell Consulting Engineers, February 1974) determined that fixed growth reactor nitrifying trickling filter fixed growth reactors (FGRs) were the best practicable treatment technology (BPT) to install at the WPCP to provide additional ammonia removal capabilities beyond those provided by the ponds.

Ammonia removal in the ponds and FGRs occurs via biological processes. Ammonia removal rates are therefore temperature dependent, decreasing by a factor of two for every 8 to 10^0C decrease in water temperatures. The FGRs installed at the WPCP in the late 1970s have performed as designed with the expected temperature dependent seasonal variation in ammonia removal. Given the seasonal pond and FGR performance, the WPCP has had corresponding seasonal technology based ammonia effluent limits in its NPDES permits since 1988.

Additional information on these WPCP processes, their performance, effluent and receiving water quality, ammonia special study results, rationale for alternative initial dilution ratios, rationale for prior NPDES permit seasonal technology based ammonia limits, and a chronology of prior NPDES permits and special studies is included in the EOA memorandum "*Analysis of Potential Ammonia Effluent Limits and Recommended Action, March 27, 2008."* A copy was included in the City's April 3, 2008 Application for Renewal of NPDES Permit submittal. The memo was updated July 9, 2008 in response to Water Board staff comments and resubmitted to Water Board staff at that time and also was attached to the City comment letter (February 12, 2009) on the prior TO.

The City has received input from its engineering consultants (EOA, Inc. and Brown & Caldwell) indicating that extensive additional full scale operational testing would be required to determine a reliably achievable technology based wintertime effluent ammonia limit. Based on this input, the City is preparing to implement operational changes during 2009 to evaluate potential enhancements to cold season nitrification performance.

Ammonia Effluent Limits

1) **Seasonal Technology Based Ammonia Limits Have Been Shown to be Protective**

   The WPCP has had seasonal technology based ammonia effluent limits in its RWB permits since 1988. This reflects the fact that during colder and wetter months, the biological treatment processes at the WPCP are by nature less efficient at reducing effluent ammonia concentrations. The City has had summer only ammonia limits since 1998. The summer only 2 mg/L average monthly effluent limit (AMEL) was shown to be protective of dissolved oxygen water quality objectives by receiving water monitoring studies. Summer is the period of highest temperature, sunlight, and photosynthesis and therefore is the period when there is the greatest potential for lower dissolved oxygen due to naturally occurring benthic and sediment oxygen demand.

There is a very high level (~99%) of ammonia removal by the ponds and FGRs during the warmer summer months. Summer effluent ammonia concentrations averaged 0.3 mg/L between 2000 – 2007 with a median of 0.14 mg/L and a 95th percentile of 1.0 mg/L.

A three year winter receiving water study required by the 1998 permit was completed in 2001. It documented the absence of adverse unionized ammonia impacts in the receiving water during 23 sampling events at six receiving water stations. These stations extended from Moffett Channel out into the South Bay. Monitoring was conducted monthly during the 1997-2000 winter seasons. Winter is the time when the WPCP is typically discharging the highest ammonia concentrations. The complete ammonia receiving water special study report titled "*City of Sunnyvale WPCP, Receiving Water Ammonia Investigations 2001 Final Report, NPDES Permit Provision #9*" was submitted to the Water Board June 29, 2001. An additional copy was provided to Water Board staff, at their request, subsequent to submittal of the April 2008 NPDES permit application.

2) **A Number of Receiving Water Monitoring Programs Collected Data from 1981 thru 2007 and did Not Identify a Receiving Water Compliance Problem with the San Francisco Bay Basin Plan Ammonia Water Quality Objective**

Readily available unionized ammonia receiving water data as contained in a number of reports prepared by the SFEI/RMP, City of San Jose, City of Sunnyvale, USGS, and South Bay Dischargers Authority starting in the early 1980's show over 2,700 data points, most in the South Bay, that clearly and unequivocally document that San Francisco Bay unionized ammonia receiving water objectives[1] are being attained. Further, the monitoring data indicate that water quality is significantly better than the Basin Plan water quality objectives require.

For example, in 2008, the City of San Jose provided the City with un-ionized ammonia results from 12 sampling stations throughout the Lower South Bay taken approximately monthly from January 2003 to December 2007. Approximately 560 data points are available and have an overall median value of 0.0037 mg/L unionized ammonia with overall maximum value of 0.026 mg/L, well below the San Francisco bay water quality objectives. **All of the individual unionized ammonia concentrations at all monitoring stations for all sample events are considerably below the 0.025 mg/L Basin Plan annual median objective**. Further, the vast majority of values were less than 0.010 mg/L, over an order of magnitude below the 0.4 mg/L Basin Plan daily maximum objective, the applicable objective against which to evaluate compliance of individual samples.

Unionized ammonia concentrations at receiving water station C-1-3 in Guadalupe Slough calculated from samples collected by the Regional Monitoring Program (RMP) and during the City's "Receiving Water Ammonia Investigations" study again showed all values nearly an order of magnitude below the 0.4 mg/L maximum objective. The median values were approximately 0.01 mg/L, well below the annual median 0.025 mg/L objective.

The 138 unionized ammonia results from the 1997-2000 Sunnyvale Ammonia Special Study along the length of Guadalupe Slough found all individual values to be well below 0.4 mg/L.

[1] The San Francisco bay unionized ammonia water quality objectives are 0.025 mg/L annual median and 0.4 mg/L maximum.

The **medians** of each of the three individual winter season sampling events at station C-1-3 (the point of compliance determination in Guadalupe Slough at the edge of the defined mixing zone) were all well below the 0.025 mg/L annual median Basin Plan unionized ammonia water quality objective as shown below:

Station C-1-3	Median Unionzied Ammonia (UIA)
1997 – 1998	0.0081 mg/L
1998 – 1999	0.0096 mg/L
1999 – 2000	0.019 mg/L

The highest individual sample values were generally at stations C-3-0, where Moffett Channel enters Guadalupe Slough, and at C-2-0 in Guadalupe Slough 2,000 feet upstream of where Moffett Channel enters Guadalupe Slough.

Days with the highest reported unionized ammonia concentrations often corresponded with days when the far-field South Bay stations (C-5-0 and C-8-0) showed elevated pH levels (> pH 8). For example at station C-5-0 at the mouth of Guadalupe Slough the pH was 8.10 in November 1998 and 8.43 in November 1999. The corresponding Sunnyvale effluent pH values were 7.45 and 7.12 respectively.

The USGS collected continuous monitoring data near station C-4-0 in summer 2007 to evaluate the impacts of tidal exchange from recently breached former salt pond A-3 on Guadalupe Slough (see reference on Fact Sheet p. F-33). The USGS focus was on dissolved oxygen impacts but pH was also measured. The average pH in pond A-3 was about 8.7 and the diurnal maximum about 9. The average pH measured in the slough was about 8.2 with the average bay value above about pH 8. At low tide, bay water was pulled out of the pond and slough and pH rose to the pond A-3 value (approaching a value of 9) downstream in Guadalupe Slough. The high-pH water that came out of the pond during low tide was transported upstream (i.e. towards and/or beyond C-1-3) during the subsequent floodtide.

The A-3 high pH discharge will further complicate future unionized ammonia monitoring and evaluation of data especially compliance determinations using any Guadalupe Slough stations. The percent unionized fraction increases dramatically as the pH increases about 8. As noted above, Sunnyvale has no control over background Bay, Guadalupe Slough, or Pond A-3 pH levels. However, it is clear that the WPCP discharge provides a net environmental benefit to Guadalupe Slough due to the discharge's lower pH and higher dissolved oxygen levels.

3) **Technical Rationale for Historic Ammonia Effluent Limits**.

As summarized in Item 1 and 2 above, the available information supports the fact that the receiving waters are in compliance with the Basin Plan annual median and maximum unionized ammonia water quality objectives. WPCP effluent flows are also 2-3 mgd lower than they were when the 1998 permit mandated receiving water ammonia special study was conducted. Therefore, ambient concentrations attributable to the discharge should be correspondingly lower.

In 1979 the State Water Board transmitted guidance to the RWBs for determining the need for ammonia removal processes for discharges to inland waters (Internal Memo from Larry F. Walker, Executive Director to Regional Board Executive Officers, Date: April 30, 1979,

Subject: Dechlorination and Ammonia Removal). Excerpts from this transmittal memo are provided below.

> "Consideration of the conditions under which dechlorination and ammonia removal processes are needed will help to assure effective requirements resulting in important water quality benefits. **It will also help to avoid unnecessary levels of treatment and expenditure of public funds in situations where beneficial uses are neither threatened or impaired**."

> "The water quality objective for ammonia is based on the toxicity of unionized ammonia to aquatic life. The need for ammonia removal processes to meet the recommended objective is expected to be highly site specific, requiring ammonia removal in only a limited number of cases. There can be other reasons for requiring ammonia removal or even total nitrogen removal, such as the protection against groundwater mineralization and the **prevention of surface water oxygen depletion** and/or eutrophication. **However, in view of the substantial additional costs that would accompany ammonia removal requirements, it is essential that any such requirements be factually supportable as needed to protect beneficial uses**." (emphasis added)

4) **The Water Board's 1975 Unionized Ammonia Water Quality Objective Applies to the Main Water Mass and was Reviewed in 1986 and Re-Affirmed**

The rationale for the 0.025 mg/L unionized ammonia WQO included in the 1975 Basin Plan was provided in a March 14, 1975 Memorandum from Griff L. Johnson, Chief of Planning to Fred H. Dierker, Executive Officer, titled "Proposed Water Quality Objective for Unionized Ammonia." As stated in that memo:

> "The value of 0.025 mg/l was recommended by the Basin Contractor based upon a paper entitled "Water Quality Criteria for European Freshwater Fish – Report on Ammonia and Inland Fisheries" (1970) by the European Inland Fisheries Advisory Commission Working Party on Water Quality Criteria for European Freshwater Fish."

The 0.025 mg/L was based on a laboratory study that found the absence of chronic toxic effects below 12 percent of the threshold LC_{50} to salmonids fishes of 0.2 mg/L unionized ammonia. The memo cited other studies in support of a value in the 0.025 mg/l range and that "Concentrations of unionized ammonia in marine or estuarine waters in excess of 0.4 mg/l are unacceptable."

The memo concluded with the following statement:

> "**The objective is intended to apply to the main mass of the receiving water** and allows the Regional Board the flexibility to allow larger areas of dilution on a case-by-case basis if the facts of the case warrant it." (emphasis added)

In 1986 RWB staff reviewed the technical basis for the water quality objective in the South Bay and Lower South Bay and reaffirmed the 0.4 mg/l maximum value for the South Bay (Internal Memo from Richard H. Whitsel to Roger B. James, Executive Officer, Date: August 19, 1986, Subject: Proposed Water Quality Objective for Maximum Unionized Ammonia – Central and North San Francisco Bay and Suisun Bay).

> **The present objective of 0.4 mg/l as N maximum unionized ammonia should remain in effect in Lower and South San Francisco Bay**." (emphasis added)

The study plan for proposed receiving water ammonia monitoring studies (Reissued TO Table 10) needs, at a minimum, to take into account USGS findings regarding factors that control pH in Guadalupe Slough and the clear intent that the water quality objective applies in the main water mass and not the shallow water sloughs. In addition, such studies should also attempt to assess the relative importance of factors that affect the rate of total ammonia reduction in the receiving water (e.g., decay, dilution, nitrification, biological uptake).

There is no evidence of adverse impacts on the Bay due to ammonia such as aquatic toxicity or eutrophication. The RMP 2009 Workplan does not include any aquatic toxicity monitoring:

> "After the RMP Status and Trends aquatic toxicity monitoring showed little toxicity over several years, aquatic toxicity monitoring has been scaled back to a screening effort every five years. The next aquatic toxicity testing is scheduled for 2012." (p. 24)

James Cloern of USGS has conducted extensive phytoplankton monitoring and investigations in the Bay, particularly the South Bay. He has written extensively about the patterns and causes of seasonal phytoplankton blooms. A recent technical article by Cloern et al. in the RMP Pulse of the Estuary (pp. 62-70) describes the complexity of factors influencing phytoplankton productivity. These authors describe San Francisco Bay "as an estuary with inherent resistance to the harmful consequences of nutrient enrichment due to (1) light limitation of phytoplankton growth rate caused by high suspended sediment concentrations, and (2) fast consumption by clams and mussels."

The authors describe a trend of increasing phytoplankton biomass in the Bay and five possible hypotheses that might be influencing the observed increase. These five hypotheses include: (1) decreased turbidity allowing greater light penetration; (2) decreased metals toxicity; (3) increased oceanic upwelling; (4) decreased grazing due to higher predation of clams by fish; (5) predation on phytoplankton grazers by invasive species. The observed increase in phytoplankton biomass over the past decade was described a having transformed San Francisco Bay form a low-productivity estuary to one having primary productivity typical of temperate-latitude estuaries.

Nutrients were deemed **not** to be a factor in the increasing biomass observed. The authors reported insignificant changes in dissolved inorganic nitrogen concentrations at most stations in the Bay, **except at some lower South Bay stations where *decreases* were significant**.

Excerpts from another article by Cloern et al. in 2007 (Proceedings of the National Academy of Sciences (104): 18561-18565) reaffirm the above conclusions about San Francisco Bay:

> "This phytoplankton increase is paradoxical because it occurred in an era of decreasing wastewater nutrient inputs and reduced nitrogen and phosphorus concentrations, contrary to the guiding paradigm that algal biomass in estuaries increases in proportion to nutrient inputs from their watersheds."
>
> "Nutrient inputs are comparable to those delivered to Chesapeake Bay, but SFB is a low-productivity estuary with no recurrent problems of hypoxia or harmful algal blooms. This

> eutrophication resistance has manifested over 20 years of observation as persistent low phytoplankton biomass and high nutrient concentrations. Median summer–autumn concentrations of dissolved inorganic nitrogen and phosphorus were 32.3 and 2.3 mM, respectively, in South SFB over the period 1977–1998. These values are 10 times higher than nutrient concentrations that limit phytoplankton growth …"

As noted above, the City has had site specific technology based ammonia effluent limits, receiving water limits, and monitoring requirements since 1988. As summarized in Item 1) above, there has been extensive receiving water monitoring since 1981 by City, South Bay Dischargers, San Jose, and the RMP that has consistently shown the receiving water to be in compliance with the unionized ammonia objectives.

Bay Area Clean Water Agencies

Leading the Way to Protect Our Bay

A Joint Powers Public Agency

P.O. Box 24055, MS 702

Oakland, California 94623

June 29, 2009

VIA EMAIL

Ms. Tong Yin, Water Resources Control Engineer
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: BACWA Comments on the Reissued Tentative Order NPDES No. CA00337621 for the Sunnyvale Water Pollution Control Plant

Dear Ms. Yin:

The Bay Area Clean Water Agencies (BACWA) appreciate the opportunity to comment on the Reissued Tentative Order (TO) for the City of Sunnyvale (Sunnyvale), as well as to make comments on policy issues related to the NPDES permit. BACWA members own and operate publicly-owned treatment works (POTWs) that discharge to San Francisco Bay and its tributaries. Collectively, BACWA members serve over 6.5 million people in the nine-county Bay Area, treating domestic, commercial and a significant amount of industrial wastewater. BACWA was formed to develop a region-wide understanding of the watershed protection and enhancement needs through reliance on sound technical, scientific, environmental and economic information and to ensure that this understanding leads to long-term stewardship of the San Francisco Bay Estuary. BACWA member agencies are public agencies, governed by elected officials and managed by professionals who are dedicated to protecting our water environment and the public health.

BACWA hopes that the following comments will result in changes made to the TO prior to issuance of the final NPDES permit for Sunnyvale. Further, in order to avoid repetition, but to preserve these arguments, BACWA supports and incorporates by reference the comments made by Sunnyvale in its comment letter.

1. BACWA objects to including numeric final limits for dioxin-TEQ.

BACWA requests that the dioxin-TEQ numeric final effluent limits be removed because there is no approved numeric water quality objective for dioxin-TEQ, it is unclear if POTWs will be able to meet this limit, and there are no analytical methods that can accurately detect dioxins at these levels. BACWA believes that the Regional Water Board has the discretion to maintain the narrative standard that exists in the San Francisco Bay Basin Plan because numeric effluent

limitations are infeasible. *See* 40 C.F.R. §122.44(k)(3). There is no value in developing a numerical standard at this time since dioxin-TEQ at these levels cannot be measured. The dioxin sources are air emissions and combustion, neither of which BACWA member agencies can control or prevent. *See Communities for a Better Environment v. SWRCB,* 109 Cal. App. 4th 1089, 1099 (2003).

2. The compliance schedule action plan for dioxin-TEQ (Provision VI.C.6.c., Table 14) is neither realistic nor commensurate with actual water quality impacts, and overly burdensome.

Based on our understanding of the sources and controllability of dioxin, there is nothing a municipal wastewater treatment plant could do to its effluent to reduce the concentrations of dioxin congeners found in fish tissue, which is the basis for these requirements. It is highly unlikely that compliance schedule action plan activities will result in compliance with proposed final limits. Although an optional offset provision (as described in Task (9)) may provide an alternative to compliance with a final effluent limit for dioxin-TEQ, such an offset program does not currently exist. Even though the State Water Board directed Regional Water Board staff to develop such a program, there do not appear to be any plans in place. Until such a program is developed with a feasible implementation strategy, BACWA believes this is not a realistic alternative and it is misleading to expect that such a program would lead to compliance.

3. BACWA objects to the proposed inclusion of numeric chronic toxicity effluent limits in POTW NPDES permits.

The reissued TO contains proposed chronic toxicity numeric effluent limits that are to automatically become effective October 1, 2014 (one day after the permit expires) if in the preceding 12 months more than 10% of the effluent samples exceed either monitoring trigger (page 14, IV.D.2.(c)). This is contrary to the existing permitting approach, implemented throughout this Region since the mid-1990's, where NPDES permits issued by this Water Board have contained narrative limits for chronic toxicity, numeric effluent monitoring triggers, accelerated monitoring if there is persistent toxicity above the numeric trigger levels, and Toxicity Reduction Evaluations.

The appropriateness of the existing permitting approach has been affirmed by the State Water Board (SWB). The SWB has issued several remand rulings regarding the need for and type of chronic toxicity limits to include in POTW NPDES permits. Beginning with WQO 2003-0013 (Los Coyotes/Long Beach), the SWB found that it was *inappropriate* to include numeric limits for chronic toxicity in NPDES permits pending update of the toxicity section of the State Implementation Plan (SIP). This was reaffirmed in WQO 2008-0008 (City of Davis) and again on May 19, 2009 in WQO 2009-0003 (City of Tracy) where the SWB stated that "no numeric effluent limitation was appropriate."

BACWA supports the City's request that that the Whole Effluent Chronic Toxicity Numeric Effluent Limitation IV.D.2.(c) be deleted to achieve consistency with the SWB Orders.

4. BACWA objects to requiring a POTW to begin funding tasks leading to construction of new facilities based on non-compliance with yet to be adopted water quality objectives.

The reissued TO contain Special Provision VI.C.2.e. Table 11. "*Receiving Water Ammonia Characterization Study Tasks and Schedule*" (pp. 20-21). Task (4) in Table 11 requires that the City calculate "total ammonia effluent concentration goals that account for (1) applicable ammonia objectives and (2) WQC that may foreseeably become applicable standards or objectives within the term of this permit or the next permit term, such as USEPA's *1999 Update of Ambient Water Quality Criteria for Ammonia* (EPA-822-R-99-014) (emphasis added).

Per Task (5), if there would be "compliance difficulty with the total ammonia concentration goals in Task (4)," including the (4)(d)(2) goals based on standards/objectives that are yet to be adopted and may never be, *the City would nevertheless be required to begin funding tasks leading to construction of new facilities beginning 09/15/2013*. Although it may be appropriate to assess potential compliance with future standards/objectives, if those standards/objectives were never adopted, implementing tasks leading to construction of new facilities that would not otherwise be required would represent a waste or misplacement of public resources.

BACWA supports the City's position that implementation of the Task (5) study plan elements should only be required for tasks related to potential non-compliance with goals based on *currently applicable* water quality objectives. BACWA requests that Table 11 Task (6) be edited to only be applicable to the goal calculated from currently applicable objectives by adding the following underlined language to the Task (6) wording:

(6) Begin implementation of the study plan developed for Task (5) for those tasks necessary to comply with the total ammonia effluent concentration goals based on the currently applicable ammonia objectives.

5. Standard permit language regarding response to ammonia related toxicity detected during whole effluent acute toxicity testing should be included in the TO (Effluent Limitation IV.D.1 Whole Effluent Acute Toxicity)

Ammonia is a non-conservative toxicant as recognized in the Basin Plan "rapidly decays in the receiving water. Consistent with the fact and the Basin Plan, POTW NPDES permits (e.g., City of Palo Alto, Fairfield Suisun Sewer District) have included the language cited as "d" below as part of the acute toxicity effluent limitation. BACWA understands that Sunnyvale has a long history of consistent compliance with acute toxicity limits. To continue to move towards more consistent permits, BACWA requests that the standard permit language underlined below be added to Sunnyvale Effluent Limitation IV.D.1. Whole Effluent Acute Toxicity.

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 limits, then such toxicity does not constitute a violation of this effluent limitation.

6. **BACWA's previously requested changes to Attachment G (Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits, March 2009) should be made to Attachment G in the Sunnyvale TO.**

Attachment G to the Reissued TO contains the same new Regional Standard Provisions that were first released for public comment with the California Great America's NPDES Permit TO. BACWA submitted timely comments May 18, 2009 on the Great America's TO, including Attachment G. BACWA incorporates by reference the May 18, 2009 comments with regards to changes to Attachment G and requests that the same changes be made to Attachment G in Sunnyvale's reissued TO.

BACWA appreciates the Regional Water Board's close attention to the comments made herein. I would be more than happy to meet with you to discuss our comments and concerns in more detail as you wish.

Respectfully submitted,

Michele Pla
BACWA Executive Director

cc: BACWA Executive Board
Robert Cole, BACWA Permits Committee Chair
Bruce Wolfe, Regional Water Board
Lila Tang, Regional Water Board
Bill Johnson, Regional Water Board

California Sportfishing Protection Alliance
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8 June 2009

Ms. Tong Yin
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
TYin@waterboards.ca.gov.

VIA: Electronic Submission
Hardcopy if Requested

RE: Tentative Order, NPDES Permit No. CA0037621, for City of Sunnyvale, Santa Clara County

Dear Ms. Tong Yin,

The California Sportfishing Protection Alliance (CSPA) has reviewed the Tentative Order, NPDES Permit No. CA0037621, for City of Sunnyvale, Santa Clara County (Permit) and submits the following comments.

Wastewater treatment processes at the City of Sunnyvale Wastewater Treatment 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. In addition to a surface water discharge, recycled water is distributed throughout the northern portion of Sunnyvale. The treatment system is capable of producing a tertiary quality of effluent that complies with the California Code of Regulation requirements in Title 22 for reclaimed water. The proposed Permit however allows for bypass of the full level of treatment when discharging to surface waters; stating that the receiving water is only lightly used for contact recreational uses. Under the proposed Permit, the recreational users of downstream waters are not afforded the same level of protection as the citizens of Sunnyvale who may come in contact with the treated wastewater.

1. **The proposed Permit fails to contain an Effluent Limitation for total coliform organisms that is protective of the contact recreational beneficial use of the receiving stream contrary to Federal Regulation 40 CFR 122.44 and CWC 13377. The proposed Permit allows for the Bypass of parts of the disinfection treatment processes contrary to Federal Regulation 122.41 (m)(1) resulting in a less restrictive bacteria discharge standard. The proposed Permit "backslides" by removing a daily maximum Effluent Limitation for bacteria.**

Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Contact recreation is a beneficial

use of the receiving stream. The proposed permit fails to include an Effluent Limitation for total coliform organisms necessary to protect the contact recreational beneficial use. The California Water Code (CWC), Section 13377 states in part that: "…the state board or the regional boards shall…issue waste discharge requirements… which apply and ensure compliance with …water quality control plans, or for the protection of beneficial uses…" The proposed Permit ignores the Basin Plan's total coliform organism objective for wastewater discharges (Table 4-2) contrary to CWC 13377.

The proposed Permit contains an Effluent Limitation for Enterococcus Bacteria of 35 colonies/100 ml as a 30-day mean for discharges to surface waters. The limitation is based on Basin Plan Table 3-2 for coastal recreational waters, which is based on US EPA's water quality criteria. The proposed Permit fails to recognize that US EPA's water quality criteria for bacteria were established for the protection of beaches and were not intended to regulate wastewater discharges. The California Department of Public Health's (CDPH) California Code of Regulations (CCR) Title 22 contains total coliform organism limitations of 2.2 MPN/100 ml as a seven day median to protect public health in recreational impoundments. Unlike US EPA's bacteria criteria; the Title 22 coliform organism is applicable to domestic wastewater discharges. DPH has developed reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, school-yards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 m*l* as a 7-day median. Title 22 is not directly applicable to surface waters; however, it is appropriate to apply DPH's science used to develop the reclamation criteria because the surface water is used for contact recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens. Title 22 specifies the level necessary to protect the public health during recreational activities, regardless of whether in a "recreational impoundment" or surface water. This standard for total coliform organisms has also been included in the Basin Plan Table 4-2 as a water quality objective; *Effluent Limitations for Conventional Pollutants*. The proposed Permit fails to recognize the science behind DPH's Title 22 for protecting contact recreational use and ignores the Basin Plan water quality objective for total coliform organisms. It must be noted that Footnote No. d of Basin Plan Table 4-2 states that fecal coliform organisms <u>may</u> be used to replace total coliform organisms; however the replacement with Enterococcus is not designated as acceptable.

The wastewater treatment plant has the capability to meet the Basin Plan's objective for total coliform objectives. The proposed Permit Fact Sheet contains the following discussion: "Recycled Water Production**.** The Plant may enter into two different treatment modes – slough discharge wastewater treatment and recycled water production. During periods of recycled water production in high recycled water demand seasons (typically 12–16 hours a day), 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. During recycled water production, there is no discharge to Moffett Channel." Failure to utilize the capability of the wastewater treatment

plant, allowing a reduced effluent quality when discharging to surface waters, constitutes a bypass of treatment processes contrary to Federal Regulation 40 CFR 122.41 (m)(1).

US EPA's ambient criteria for bacteria also contain a single sample maximum criteria; such was included in the previous NPDES permit for this facility. The proposed Permit however states that: "The single sample maximum effluent limit for Enterococcus is not retained. As stated under Section C.2.f above, the removal of this limit complies with antibacksliding requirement and is not expected to cause degradation of water quality because the Discharger will maintain its treatment at current levels and the 5-day geometric mean limit will hold the Discharger to its current performance."

Under the Clean Water Act (CWA), point source dischargers are required to obtain federal discharge (NPDES) permits and to comply with water quality based effluent limits (WQBELs) in NPDES permits sufficient to make progress toward the achievement of water quality standards or goals. The antibacksliding and antidegradation rules clearly spell out the interest of Congress in achieving the CWA's goal of continued progress toward eliminating all pollutant discharges. Congress clearly chose an overriding environmental interest in clean water through discharge reduction, imposition of technological controls, and adoption of a rule against relaxation of limitations once they are established.

Upon permit reissuance, modification, or renewal, a discharger may seek a relaxation of permit limitations. However, according to the CWA, relaxation of a WQBEL is permissible only if the requirements of the antibacksliding rule are met. The antibacksliding regulations prohibit EPA from reissuing NPDES permits containing interim effluent limitations, standards or conditions less stringent than the final limits contained in the previous permit, with limited exceptions. These regulations also prohibit, with some exceptions, the reissuance of permits originally based on best professional judgment (BPJ) to incorporate the effluent guidelines promulgated under CWA §304(b), which would result in limits less stringent than those in the previous BPJ-based permit. Congress statutorily ratified the general prohibition against backsliding by enacting §§402(o) and 303(d)(4) under the 1987 Amendments to the CWA. The amendments preserve present pollution control levels achieved by dischargers by prohibiting the adoption of less stringent effluent limitations than those already contained in their discharge permits, except in certain narrowly defined circumstances.

When attempting to backslide from WQBELs under either the antidegradation rule or an exception to the antibacksliding rule, relaxed permit limits must not result in a violation of applicable water quality standards. The general prohibition against backsliding found in §402(o)(1) of the Act contains several exceptions. Specifically, under §402(o)(2), a permit may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant *if*: (A) material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation; (B)(i) information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (ii) the Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B) of this section; (C) a less stringent effluent limitation is

necessary because of events over which the permittee has no control and for which there is no reasonably available remedy [(e.g., Acts of God)]; (D) the permittee has received a permit modification under section 1311(c), 1311(g), 1311(h), 1311(i), 1311(k), 1311(n), or 1326(a) of this title; or (E) the permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit, and has properly operated and maintained the facilities, but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

Even if a discharger can meet either the requirements of the antidegradation rule under §303(d)(4) or one of the statutory exceptions listed in §402(o)(2), there are still limitations as to how far a permit may be allowed to backslide. Section 402(o)(3) acts as a floor to restrict the extent to which BPJ and water quality-based permit limitations may be relaxed under the antibacksliding rule. Under this subsection, even if EPA allows a permit to backslide from its previous permit requirements, EPA may never allow the reissued permit to contain effluent limitations which are less stringent than the current effluent limitation guidelines for that pollutant, or which would cause the receiving waters to violate the applicable state water quality standard adopted under the authority of §303.49.

Federal regulations 40 CFR 122.44 (l)(1) have been adopted to implement the antibacksliding requirements of the CWA:

> (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under Sec. 122.62.)
>
> (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.
>
> (i) Exceptions--A permit with respect to which paragraph (l)(2) of this section applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if:
>
> (A) Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;

(B) (1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);

(C) A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;

(D) The permittee has received a permit modification under section 301(c), 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or

(E) The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

(ii) Limitations. In no event may a permit with respect to which paragraph (l)(2) of this section applies be renewed, reissued, or modified to contain an effluent limitation which is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. In no event may such a permit to discharge into waters be renewed, issued, or modified to contain a less stringent effluent limitation if the implementation of such limitation would result in a violation of a water quality standard under section 303 applicable to such waters.

The proposed Permit does not contain any discussion or defense for removal of the daily maximum Effluent Limitation for Enterococcus Bacteria. The proposed Permit must be revised to include Effluent Limitations for total coliform organisms as required by 40 CFR 122.44 and the Basin Plan Table 4.2 and to be equivalently protective of the public's health as CCR Title 22.

2. The proposed Permit fails to include an Effluent Limitation for turbidity that is protective of the contact recreational beneficial use of the receiving stream contrary to Federal Regulation 40 CFR 122.44 and CWC 13377.

Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Contact recreation is a beneficial use of the receiving stream. The proposed permit fails to include an Effluent Limitation for

turbidity necessary to protect the contact recreational beneficial use. The California Water Code (CWC), Section 13377 states in part that: "…the state board or the regional boards shall…issue waste discharge requirements… which apply and ensure compliance with …water quality control plans, or for the protection of beneficial uses…"

The proposed Permit states that: "Recycled Water Production**.** The Plant may enter into two different treatment modes – slough discharge wastewater treatment and recycled water production. During periods of recycled water production in high recycled water demand seasons (typically 12–16 hours a day), 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 California Department of Public Health (DPH) has developed reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 m*l* as a 7-day median. Title 22 is not directly applicable to surface waters; however, it is appropriate to apply DHS's reclamation criteria because the surface water is used for contact recreational purposes. As stated in the above comment coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens. In addition to coliform testing, turbidity is a second indicator of the effectiveness of the treatment process and assures compliance with the required level of treatment. The tertiary treatment process, or equivalent, is also capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. The proposed Permit includes an Effluent Limitation of 10 NTUs as an instantaneous maximum but does not contain a daily average concentration of 2 NTUs.

The wastewater treatment plant has the capability to meet the Basin Plan's objective for turbidity. The proposed Permit Fact Sheet contains the following discussion: "Recycled Water Production**.** The Plant may enter into two different treatment modes – slough discharge wastewater treatment and recycled water production. During periods of recycled water production in high recycled water demand seasons (typically 12–16 hours a day), 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. During recycled water production, there is no discharge to Moffett Channel." Failure to utilize the capability of the wastewater treatment plant, allowing a reduced effluent quality when discharging to surface waters, constitutes a bypass of treatment processes contrary to Federal Regulation 40 CFR 122.41 (m)(1).

Note: The application of the full tertiary treatment processes results in the ability to achieve lower levels for BOD and TSS than the level of treatment currently prescribed in the proposed Permit. The proposed Permit states in Finding No. (h) that the established 20 mg/l for TSS is unacceptably high and requires the Discharger prepare a report detailing why the lower level of 10 mg/l cannot be achieved. Application of the full treatment process, as is required for "recycled" water, will reduce the TSS as the turbidities are decreased. The Regional Board staff should review the Discharger Self Monitoring reports for TSS concentrations when the "reclaimed" water system is fully operational and processes are not being bypassed.

3. The proposed Permit fails to contain an Effluent Limitation for total chlorine residual that is protective of the aquatic life beneficial uses of the receiving stream contrary to Federal Regulation 40 CFR 122.44.

The proposed Permit contains an Effluent Limitation for total chlorine, as an instantaneous maximum, of 0.0 mg/l. Proposed Permit Table 6, Footnote No. 3, states that:

> "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."

Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. The proposed Permit recognizes this fact in Finding No. G, which states that:

> "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)." (Emphasis added)

US EPA has established water quality criteria for the protection of fresh water aquatic life for chlorine of 19 ug/l as a 1-hour average and 11 ug/l as a 4-day average. The use of chlorine at the wastewater treatment plant for disinfection establishes reasonable potential for this toxic

pollutant to be discharged to surface waters. The Basin Plan establishes a water quality objective as Effluent Limitations for chlorine in Table 4-2. The Basin Plan only establishes an objective of 0.0 mg/l, which is not tied to a detection limit. Regional Board staff could have reviewed *Standard Methods* and determined whether their means of regulating chlorine would be as restrictive as the Ambient Criteria, but did not do so. Wastewater dischargers and the associated laboratories in California routinely meet a detection limit of 0.01 mg/l for chlorine, although consultants debate this topic. There is no legal or technical defense for establishing an Effluent Limitation based on a laboratory detection level. The proposed Permit must be modified to utilize US EPA's ambient criteria for the protection of freshwater aquatic life for chlorine in developing the Effluent Limitation.

4. The proposed Permit does not contain a final Effluent Limitation for chronic toxicity and therefore does not comply with Federal regulations, at 40 CFR 122.44 (d)(1)(i) and the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP).

The Sunnyvale wastewater discharge has been shown to be chronically toxic. This is evidenced by the following discussion found on page F-8: "Compliance with Chronic Toxicity Trigger. The chronic toxicity trigger of 2.0 chronic toxicity units (TUc) as a single-sample maximum was exceeded on 20 occasions (out of 97 samples), and the trigger of 1.0 TUc as a three-sample median was exceeded on 44 occasions out of 92 3-sample median values during the previous permit term (November 2003-March 2009). This Order imposes additional requirements for the Discharger to reduce chronic toxicity." Clearly the discharge presents a reasonable potential to cause toxicity within the receiving stream thereby degrading the aquatic life beneficial use.

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. The SIP, Section 4, Toxicity Control Provisions, Water Quality-Based Toxicity Control, states that: "A chronic toxicity effluent limitation is required in permits for all dischargers that will cause, have a reasonable potential to cause, or contribute to chronic toxicity in receiving waters." The SIP is a state *Policy* and CWC Sections 13146 and 13247 require that the Board in carrying out activities which affect water quality shall comply with state policy for water quality control unless otherwise directed by statute, in which case they shall indicate to the State Board in writing their authority for not complying with such policy.

Federal regulations, at 40 CFR 122.44 (d)(1)(i), require that limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, or contribute to an excursion above any State water quality standard, including state narrative criteria for water quality. There has been no argument that domestic

sewage contains toxic substances and presents a reasonable potential to cause toxicity if not properly treated and discharged. The Water Quality Control Plan (Basin Plan) contains a narrative criteria which states that all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. The proposed Permit requires the Discharger to conduct an investigation of the possible sources of toxicity. However, this language is not a limitation and essentially eviscerates the Regional Board's authority, and the authority granted to third parties under the Clean Water Act, to find the Discharger in violation for discharging chronically toxic constituents. An effluent limitation for chronic toxicity must be included in the proposed Permit.

Proposed Permit is quite simply wrong; by failing to include effluent limitations prohibiting chronic toxicity the proposed Permit does not "…implement the SIP". Accordingly, the proposed Permit must be revised to prohibit chronic toxicity (mortality and adverse sublethal impacts to aquatic life, (sublethal toxic impacts are clearly defined in EPA's toxicity guidance manuals)) in accordance with Federal regulations, at 40 CFR 122.44 (d)(1)(i) and the Basin Plan and the SIP.

5. The proposed Permit does not contain a protective Effluent Limitation for ammonia in violation of Federal Regulations 40 CFR 122.44 and California Water Code Section 13377.

The proposed Permit Fact Sheet contains the following discussion of toxicity caused by the discharge:

> "During this period, the Discharger used a three-sample median "trigger" of 1.25 TUc based on IC_{50} or EC_{50} to initiate the TIE process. Based on this criterion, the Discharger conducted or attempted to conduct several TIE studies in February 2004, March 2005, May 2005, June 2006, February 2008, and December 2008. The February 2004 and June 2006 Phase I TIE study found that the toxicity was not persistent; therefore, additional efforts were discontinued; the March 2005 and May 2005 attempts failed due to lack of effluent samples. The February 2008 TIE study suggested that the observed toxicity was caused by a contaminant that is not amenable to removal by centrifugation or C18SPE or alternatively that there are polar organic compounds present in concentrations high enough to cause toxicity. <u>The last TIE study suggested the possibility that ammonia may cause or contribute to the toxicity. The Discharger took no measures to reduce the toxicity</u>." (Emphasis added)

Clearly the discharge has a reasonable potential to exceed the Basin Plan water quality objective for toxicity. The proposed Permit is for a domestic wastewater treatment plant. Domestic wastewater treatment plants, by their nature, receive ammonia in concentrations ranging from 30 mg/l to 60 mg/l and present a reasonable potential to exceed the Basin Plan narrative toxicity water quality objective. Ammonia is toxic to aquatic life in fairly low concentrations. Federal Regulations, 40 CFR 122.44(d), requires that limits must be included in permits where pollutants will cause, have reasonable potential to cause, or contribute to an exceedance of the State's water quality standards. US EPA has interpreted 40 CFR 122.44(d) in *Central Tenets of the National Pollutant Discharge Elimination System (NPDES) Permitting Program* (Factsheets and Outreach

Materials, 08/16/2002) that although States will likely have unique implementation policies there are certain tenets that may not be waived by State procedures. These tenets include that "where the preponderance of evidence clearly indicates the potential to cause or contribute to an exceedance of State water quality standards (even though the data may be sparse or absent) a limit MUST be included in the permit." Ammonia need not be physically measured in a laboratory for domestic wastewater since its presence has been well established. The presence of ammonia in domestic wastewater alone warrants an Effluent Limitation in accordance with 40 CFR 122.44 (d) and US EPA's interpretation of that regulation.

Nitrification, the treatment process used to convert ammonia to nitrate, is technically and economically available as evidenced by the large number of wastewater treatment plants that have been required to nitrify by the Regional Board. BPTC is required by the State and Regional Board's Antidegradation Policy (resolution 68-16), which has also been incorporated into the Basin Plan. Failure to operate a wastewater treatment plant in a nitrification mode allows ammonia concentrations to pass through the system. The nitrification process can be a fairly unstable treatment process; even POTWs that employ nitrification should be limited for ammonia to ensure the system is properly operated.

The Basin Plan contains Receiving Water WQOs for un-ionized ammonia of 0.025 mg/L as an annual median and 0.4 mg/L as a maximum for Lower San Francisco Bay. In determining whether ammonia concentrations present a reasonable potential to exceed water quality standards the Regional Water Board staff translated total ammonia concentrations into un-ionized ammonia concentrations (as nitrogen) to compare with the Basin Plan Receiving Water un-ionized ammonia objectives based on the following equations [Ambient Water Quality Criteria for Ammonia (saltwater) – 1989, USEPA Publication 440/5-88-004, USEPA, 1989; 1999 Update of Ambient Water Quality Criteria for Ammonia, USEPA Publication No. 822-R-99-014, US EPA, 1999]. In those calculations however the Regional Board staff concluded that the salinity levels represented freshwater but failed to use the freshwater equations from the ambient criteria. In any case a reasonable potential has been established by chronic toxicity testing and the results of the TRE and by the fact that domestic wastewater contains ammonia in toxic concentrations.

Once a reasonable potential has been established Effluent Limitations must be developed in accordance with 40 CFR 122.44. The proposed Permit contains Effluent Limitations for ammonia of 2.0 mg/l (N)(as a monthly average) and 5.0 mg/l (N)(as a daily maximum) for the period from June through September and 18.0 mg/l (N)(as a monthly average) and 26.0 mg/l (N)(as a daily maximum) for the period from October through May.

The ammonia Effluent Limitations for the period from October through May are based on the performance and capability of the wastewater treatment plant; not water quality-based effluent Limitations. These performance-based Effluent Limitations are not protective of water quality or the aquatic life beneficial uses of the receiving stream. The California Water Code (CWC), Section 13377 states in part that: "…the state board or the regional boards shall…issue waste discharge requirements…which apply and ensure compliance with …water quality control plans, or for the protection of beneficial uses…" Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

The proposed permit does not contain Effluent Limitations for ammonia that are protective of the aquatic life beneficial use of the receiving stream for the period from October through May.

Notes:

Ammonia is a form of nitrogen, a biostimulatory substance. Failure to adequately regulate ammonia concentrations during the winter months also threatens to violate the Receiving water Limitation for Nutrients which requires that 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.

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. Ammonia is an oxygen demanding substance, which can contribute to reductions in receiving water dissolved oxygen concentrations.

The effluent limits for dichlorobromomethane, 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene are not retained in this Order because monitoring data during the past five years do not exhibit reasonable potential for these pollutants.

6. Effluent Limitations for dichlorobromomethane, 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene which are contained in the existing permit have been removed from the proposed Permit contrary to the Antibacksliding requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1).

Under the Clean Water Act (CWA), point source dischargers are required to obtain federal discharge (NPDES) permits and to comply with water quality based effluent limits (WQBELs) in NPDES permits sufficient to make progress toward the achievement of water quality standards or goals. The antibacksliding and antidegradation rules clearly spell out the interest of Congress in achieving the CWA's goal of continued progress toward eliminating all pollutant discharges. Congress clearly chose an overriding environmental interest in clean water through discharge reduction, imposition of technological controls, and adoption of a rule against relaxation of limitations once they are established.

Upon permit reissuance, modification, or renewal, a discharger may seek a relaxation of permit limitations. However, according to the CWA, relaxation of a WQBEL is permissible only if the requirements of the antibacksliding rule are met. The antibacksliding regulations prohibit EPA from reissuing NPDES permits containing interim effluent limitations, standards or conditions less stringent than the final limits contained in the previous permit, with limited exceptions. These regulations also prohibit, with some exceptions, the reissuance of permits originally based on best professional judgment (BPJ) to incorporate the effluent guidelines promulgated under

CWA §304(b), which would result in limits less stringent than those in the previous BPJ-based permit. Congress statutorily ratified the general prohibition against backsliding by enacting §§402(o) and 303(d)(4) under the 1987 Amendments to the CWA. The amendments preserve present pollution control levels achieved by dischargers by prohibiting the adoption of less stringent effluent limitations than those already contained in their discharge permits, except in certain narrowly defined circumstances.

When attempting to backslide from WQBELs under either the antidegradation rule or an exception to the antibacksliding rule, relaxed permit limits must not result in a violation of applicable water quality standards. The general prohibition against backsliding found in §402(o)(1) of the Act contains several exceptions. Specifically, under §402(o)(2), a permit may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant *if*: (A) material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation; (B)(i) information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (ii) the Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B) of this section; (C) a less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy [(e.g., Acts of God)]; (D) the permittee has received a permit modification under section 1311(c), 1311(g), 1311(h), 1311(i), 1311(k), 1311(n), or 1326(a) of this title; or (E) the permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit, and has properly operated and maintained the facilities, but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

Even if a discharger can meet either the requirements of the antidegradation rule under §303(d)(4) or one of the statutory exceptions listed in §402(o)(2), there are still limitations as to how far a permit may be allowed to backslide. Section 402(o)(3) acts as a floor to restrict the extent to which BPJ and water quality-based permit limitations may be relaxed under the antibacksliding rule. Under this subsection, even if EPA allows a permit to backslide from its previous permit requirements, EPA may never allow the reissued permit to contain effluent limitations which are less stringent than the current effluent limitation guidelines for that pollutant, or which would cause the receiving waters to violate the applicable state water quality standard adopted under the authority of §303.49.

Federal regulations 40 CFR 122.44 (l)(1) have been adopted to implement the antibacksliding requirements of the CWA:

> (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the

previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under Sec. 122.62.)

(2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

(i) Exceptions--A permit with respect to which paragraph (l)(2) of this section applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if:

(A) Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;

(B) (1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);

(C) A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;

(D) The permittee has received a permit modification under section 301(c), 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or

(E) The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

(ii) Limitations. In no event may a permit with respect to which paragraph (l)(2) of this section applies be renewed, reissued, or modified to contain an effluent limitation which is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. In no event may such

> a permit to discharge into waters be renewed, issued, or modified to contain a less stringent effluent limitation if the implementation of such limitation would result in a violation of a water quality standard under section 303 applicable to such waters.

None of the exceptions have been met to justify removal of the Effluent Limitations for dichlorobromomethane, 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene.

- Material and substantial alterations or additions to the permitted facility have not occurred after permit issuance, which justify the application of a less stringent effluent limitation;

- Information is not available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (2) The Administrator has not determined that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);

- A less stringent effluent limitation is not necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;

- The permittee has not received a permit modification under section 301(c), 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or

- The permittee has not installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the previous effluent limitations.

7. The proposed Permit contains an inadequate antidegradation analysis that does not comply with the requirements of Section 101(a) of the Clean Water Act, Federal Regulations 40 CFR § 131.12, the State Board's Antidegradation Policy (Resolution 68-16) and California Water Code (CWC) Sections 13146 and 13247.

CWC Sections 13146 and 13247 require that the Board in carrying out activities which affect water quality shall comply with state policy for water quality control unless otherwise directed by statute, in which case they shall indicate to the State Board in writing their authority for not complying with such policy. The State Board has adopted the Antidegradation Policy (Resolution 68-16), which the Regional Board has incorporated into its Basin Plan. The Regional Board is required by the CWC to comply with the Antidegradation Policy.

Section 101(a) of the Clean Water Act (CWA), the basis for the antidegradation policy, states that the objective of the Act is to "restore and maintain the chemical, biological and physical integrity of the nation's waters." Section 303(d)(4) of the CWA carries this further, referring

explicitly to the need for states to satisfy the antidegradation regulations at 40 CFR § 131.12 before taking action to lower water quality. These regulations (40 CFR § 131.12(a)) describe the federal antidegradation policy and dictate that states must adopt both a policy at least as stringent as the federal policy as well as implementing procedures.

California's antidegradation policy is composed of both the federal antidegradation policy and the State Board's Resolution 68-16 (State Water Resources Control Board, Water Quality Order 86-17, p. 20 (1986) ("Order 86-17); Memorandum from Chief Counsel William Attwater, SWRCB to Regional Board Executive Officers, "federal Antidegradation Policy," pp. 2, 18 (Oct. 7, 1987) ("State Antidegradation Guidance")). As a state policy, with inclusion in the Water Quality Control Plan (Basin Plan), the antidegradation policy is binding on all of the Regional Boards (Water Quality Order 86-17, pp. 17-18).

Implementation of the state's antidegradation policy is guided by the State Antidegradation Guidance, SWRCB Administrative Procedures Update 90-004, 2 July 1990 ("APU 90-004") and USEPA Region IX, "Guidance on Implementing the Antidegradation Provisions of 40 CFR 131.12" (3 June 1987) (" Region IX Guidance"), as well as Water Quality Order 86-17.

Actions that trigger use of the antidegradation policy include issuance, re-issuance, and modification of NPDES and Section 404 permits and waste discharge requirements, waiver of waste discharge requirements, issuance of variances, relocation of discharges, issuance of cleanup and abatement orders, increases in discharges due to industrial production and/or municipal growth and/other sources, exceptions from otherwise applicable water quality objectives, etc. (State Antidegradation Guidance, pp. 7-10, Region IX Guidance, pp. 2-3). Both the state and federal policies apply to point and nonpoint source pollution (State Antidegradation Guidance p. 6, Region IX Guidance, p. 4).

Even a minimal antidegradation analysis would require an examination of: 1) existing applicable water quality standards; 2) ambient conditions in receiving waters compared to standards; 3) incremental changes in constituent loading, both concentration and mass; 4) treatability; 5) best practicable treatment and control (BPTC); 6) comparison of the proposed increased loadings relative to other sources; 7) an assessment of the significance of changes in ambient water quality and 8) whether the waterbody was a ONRW. A minimal antidegradation analysis must also analyze whether: 1) such degradation is consistent with the maximum benefit to the people of the state; 2) the activity is necessary to accommodate important economic or social development in the area; 3) the highest statutory and regulatory requirements and best management practices for pollution control are achieved; and 4) resulting water quality is adequate to protect and maintain existing beneficial uses. A BPTC technology analysis must be done on an individual constituent basis; while tertiary treatment may provide BPTC for pathogens, dissolved metals may simply pass through.

There is nothing in the Permit resembling an analysis that ensures that existing beneficial uses are protected. While the Permit identifies the constituents that are included on the 303(d) list as impairing receiving waters, it fails to discuss how and to what degree the identified beneficial uses will be additionally impacted by the discharge. Nor does the Permit analyze the incremental

and cumulative impact of increased loading of non-impairing pollutants on beneficial uses. In fact, there is almost no information or discussion on the composition and health of the identified beneficial uses. Any reasonably adequate antidegradation analysis must discuss the affected beneficial uses (i.e., numbers and health of the aquatic ecosystem; extent, composition and viability of agricultural production; people depending upon these waters for water supply; extent of recreational activity; etc.) and the probable effect the discharge will have on these uses.

The antidegradation analysis in the proposed Permit is simply deficient: Page F-11 "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." The brief discussion of antidegradation requirements, in the Findings and Fact Sheet, consist only of skeletal, unsupported, undocumented conclusory statements totally lacking in factual analysis. The proposed Permit fails to properly implement the Basin Plan's Antidegradation Policy.

Thank you for considering these comments. If you have questions or require clarification, please don't hesitate to contact us.

Sincerely,

Bill Jennings, Executive Director
California Sportfishing Protection Alliance

APPENDIX C

Response to Comments

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

Response to Written Comments
on May 2009 Draft NPDES Permit for
City of Sunnyvale Water Pollution Control Plant and Collection System
Sunnyvale, Santa Clara County

The Regional Water Board received written comments on a tentative order distributed for public comment from the following parties:

1. City of Sunnyvale, dated June 26, 2009
2. Bay Area Clean Water Agencies, dated June 29, 2009
3. California Sportsfishing Protection Alliance, dated June 9, 2009

This response to those comments summarizes each comment in *italics* (often quoted and sometimes paraphrased for brevity) followed by the Regional Water Board staff response. For the full context and content of each comment, refer to the comment letters.

RESPONSE TO CITY OF SUNNYVALE (CITY) COMMENTS

City Comment No. 1. *The City objected to the inclusion of numeric chronic toxicity effluent limits that are to become effective October 1, 2014, if in the preceding 12 months more than 10% of the effluent samples exceed either monitoring trigger (page 14, section IV.D.2.(c)). The City contended that the proposed numeric effluent limits are legally improper and could pose a compliance problem for the City absent it making a huge investment, which may ultimately prove to be misdirected or unnecessary. The City indicated that the State Water Board adopted remand Orders WQO 2003-0013 (Los Coyotes/Long Beach), WQO 2008-0008 (City of Davis), and WQO 2009-0003 (City of Tracy) finding that it was inappropriate to include numeric limits for chronic toxicity in NPDES permits pending an update of the State Implementation Plan's (SIP's) toxicity requirements. The City requested that Whole Effluent Chronic Toxicity Numeric Effluent Limitation IV.D.2.(c) be deleted to achieve consistency with the State Water Board Orders.*

Response to City Comment No. 1. We revised the draft permit to remove the numeric chronic toxicity effluent limits from section IV.D.2.(c). In its place, we revised the narrative limit so that it is clearer and more consistent with the Basin Plan and the State Water Board remand orders identified by the City. This revision is necessary as it is unclear if the previous requirement was an actual effluent limit since it involved only a series of tasks to demonstrate compliance with the Basin Plan's objective. We also added a re-opener clause that allows the Regional Water Board to re-open the permit to revise the chronic toxicity requirements if the State Water Board provides further direction on this matter. The accelerated monitoring and toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) requirements and triggers for these actions remain the same. We made similar revisions to Fact Sheet Section IV.C.6.d.

City Comment No. 2. *The City objected to the requirement to take measures to address potential non-attainment of total ammonia effluent concentration goals that account for "WQC that may*

foreseeably become applicable standards or objectives within the term of this permit or the next permit term, such as USEPA's 1999 Update of Ambient Water Quality Criteria for Ammonia (EPA-822-R-99-014)" in Provision VI.C.2.e, Table 11, Receiving Water Ammonia Characterization Study Tasks and Schedule, Task 6 (pp. 20-21). The City requested that Task 6 be edited to only apply to currently applicable objectives by adding the following underlined language to Task 6:

"(6) Begin implementation of the study plan developed for Task (5) <u>for those tasks necessary to comply with the total ammonia effluent concentration goals based on the currently applicable ammonia objectives."</u>

Response to City Comment No. 2. We revised the draft permit to include similar language.

ATTACHMENT A – Other Chronic Toxicity and Ammonia Issues

City Comment No. A-A. *The City uses Mysid (shrimp) for chronic toxicity tests. The Mysid chronic toxicity test requires that, before testing, the effluent sample be "salted up" to a salinity of approximately 25 ppt. The City indicated that the "salted up" requirement has the unavoidable side effect of increasing the typical effluent pH of approximately 7.5 units up to approximately 8.2 units. The fraction of total ammonia that is unionized (toxic) therefore increases from about 1.8% at pH 7.5 to about 5.4% at pH 8.0 to about 8.3% at pH 8.2. The City is concerned that this uncontrolled increase in pH results in an artifactual increase in unionized ammonia and related toxicity. The City requested to add the following underlined sentence to the end of page E-9, MRP Section V.B.1.e, Dilution Series:*

"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. <u>Test sample pH in each dilution in the series may be controlled to the level of the effluent sample as received prior to being salted up</u>."

Response to City Comment No. A-A. We revised the draft permit as requested.

City Comment No. A-B. *The chronic toxicity study (Special Provision VI.C.2.d.i, Table 10, Task (2)(g)) requires initiating a TIE if chronic toxicity is detected in any single sample. The City contended that this requirement is impractical since chronic toxicity needs to be both persistent and at a level above the TRE workplan TIE trigger (100/EC_{50} or IC_{50}) to have the likelihood of a successful TIE. The City requested the following underlined wording:*

"(g) Conduct chronic toxicity tests at least twice per month during December, January, February, and March. Conduct chronic toxicity test at least once per month during other times of the year; if chronic toxicity is observed in any sample <u>above the TRE workplan TIE trigger level</u>, initiate TIE to identify the cause."

Response to City Comment No. A-B. We revised the draft permit as requested.

City Comment No. A-C. *The MRP (p. E-8, section V.B.1.c.(2), Accelerated Monitoring) provides that "Monitoring conducted pursuant to a TIE/TRE effort shall satisfy the requirements for routine and accelerated monitoring while the TIE/TRE investigation is underway." The City is concerned that Table 10, Task (2)(g) and Special Provision VI.C.2.d.ii.(2) monitoring language does not include the cited MRP TIE/TRE replacement for routine/accelerated monitoring, which could lead to potential confusion. The City requested to insert the MRP Accelerated Monitoring statement "Monitoring conducted pursuant to a TIE/TRE effort shall satisfy the requirements for routine and accelerated monitoring while the TIE/TRE investigation is underway" into both Table 10 Task (2)(g) and Special Provision VI.C.2.d.ii.*

Response to City Comment No. A-C. We revised the draft permit as requested.

City Comment No. A-D. *The Fact Sheet (page F-40, section IV.D.6.d, Whole Effluent Chronic Toxicity) states, "This limit does not allow for additional dilution because mixing is incomplete within the shallow waters." The City contended that the Basin Plan allows for dilution credits when deriving chronic toxicity limits. State Water Board Order WQ 2009-0003 (Tracy), pp. 10-11, states, "When a discharge is not completely mixed, then mixing zones and dilution credits may only be granted based on site-specific data and special studies." The City requested to add the underlined sentence below to reflect the cited State Water Board Order language regarding dilution credit:*

"The single sample maximum effluent limit of 2 TUc represents a no observed effects concentration (NOEC) of 50% effluent, which is effectively 2:1 dilution. "Additional dilution credit for this incompletely mixed discharge may only be granted based on site-specific data and special studies."

Response to City Comment No. A-D. Because the draft permit has been revised to delete the numeric chronic toxicity effluent limits, this comment is moot. See our response to Comment 1.

City Comment No. A-E. *The proposed chronic toxicity study requires receiving water monitoring for acute (as well as chronic) toxicity. The City contended that this requirement is unnecessary and unjustified, saying that the effluent has consistently complied with acute toxicity limitations. The City requested to delete the words "acute and" from p. 18, Table 10, Item 2, first sentence.*

Response to City Comment No. A-E. We revised the draft permit as requested.

City Comment No. A-F. *The Fact Sheet (page F-39, section IV.D.6.a, Whole Effluent Chronic Toxicity) states, "The last TIE study suggested the possibility that ammonia may cause or contribute to toxicity. The Discharger took no measures to reduce the toxicity." The City requested to delete the sentence "The Discharger took no measures to reduce the toxicity." and insert the following:*

"As part of the on-going WPCP Master Planning effort the City has been investigating alternative measures and technologies to enhance nitrification performance. Per the design

consultant's recommendations, in Fall 2009 the City will be implementing WPCP process changes to attempt to improve winter nitrifying trickling filter performance."

Response to City Comment No. A-F. We revised the draft permit as requested.

City Comment No. A-G (re-numbered from F to G). *In Table 11, Receiving Water Ammonia Characterization Study Tasks and Schedule, there are two Task 7's (pages 21-22). The City requested to correct this error by renumbering the tasks, deleting the sentence "Within 90 days of completion of Task (7)," and replacing it with the following:*

"Annually each February 28 in the Annual Self-Monitoring Report required by Permit Attachment E, Monitoring and Reporting Program

Response to City Comment No. A-G. We corrected the task numbers, added the requested language to require annual updates, but did not delete the sentence "Within 90 days of completion of Task (7)" because, if this study were to be completed within the permit term, the Executive Officer would need a final report to evaluate its results prior to the next permit reissuance. If the task cannot be completed within this permit term, the next reissued permit may specify a new deadline.

City Comment No. A-G (re-numbered from G to H). *According to the City, the statement in the Fact Sheet that there is a steady upward trend in average winter season total ammonia concentrations (page F-20, section IV.C.2.g, Total Ammonia) appears taken out of context and does not necessarily reflect long-term plant performance. The City argued that this is not the case. The City requested to qualify the sentence based on the longer-term history.*

Response to City Comment No. A-H. We revised the draft permit as requested, and did so by considering ammonia effluent data that span more years, from 1998 to 2009, than in our original analysis. The revised analysis includes a box plot illustrating the general trend of ammonia effluent concentrations during the winter seasons of 1998 through 2009. Based on the revised analysis, we conclude there are periods of decreasing ammonia concentrations and periods of increasing ammonia concentrations, with an increasing trend visible in recent years. Because of this recent trend, we retained the performance-based effluent limitations for cold-weather months (October through May) in the Revised Tentative Order.

ATTACHMENT B - Additional Minor Comments on Reissued Tentative Order

City Comment No. B-(1) *The City is unclear on the need for the TSS Removal Study (section VI.C.2.h, Total Suspended Solids (TSS) Removal, pp. 22-23). The City is unclear what the water quality basis would be for requiring it to further reduce its effluent TSS concentrations when its CBOD concentrations are already 50% below the 10 mg/L CBOD effluent limit in all South Bay discharger NPDES permits. The City's effluent turbidity is below 10 NTU, well below the approximately fifty to several hundred NTUs commonly observed in the receiving water. The effluent discharge with the current TSS levels is improving the clarity of the receiving water. Receiving water clarity is greatest in proximity to the outfall and lowest over areas with subtidal mudflats. The City questioned the need for the proposed TSS Removal Study, but is willing to*

prepare a historic chronology and report of available information consistent with the description in the Fact Sheet "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." The City believes that the last bullet in the permit TSS Removal Study description is unnecessary given the City's consistent compliance with its CBOD effluent limits and requested to delete the last bullet as shown below:

- ~~*Evaluation, including cost estimates, of treatment Plant modifications and/or upgrades, if necessary, to attain more stringent TSS effluent limits.*~~

Response to City Comment No. B-1. We revised the draft permit as requested.

City Comment No. B-(2). *The City noted that the interim effluent limitation for dioxin-TEQ listed under section IV.C, Effluent Limitations and Discharge Specifications, Table 9 (p. 13) is an Average Monthly Effluent Limit (AMEL). Fact Sheet item IV.D.4.d.(4).vi, Interim Effluent Limits (p. F-36) indicates that the interim limit is established as a monthly average limit. However, Permit section VI.6.c, Table 14, Dioxin, contains the same numeric interim limit but mistakenly labels it as an MDEL. The City requested to delete ~~MDEL~~ and ~~r~~eplace it with AMEL for the interim limit in Task 1 in Table 14.*

Response to City Comment B-1. We revised the draft permit to correct this inconsistency. The interim limit for dioxin-TEQ is an AMEL as presented in Table 14.

City Comment No. B-(3). *With respect to Table E-2, Monitoring Location Description for E-002 (p. E-3), for flows measured at monitoring station E-002, the City requested that flow diverted for in-plant process use (referred to as "No. 3 water") also be excluded because No. 3 water was a component of the "de-rating" (i.e., reduction) of the advanced secondary plant's design flow (from 32 mgd to 29.5 mgd) and is thus accounted for in the current average dry weather flow. The City requested to make the following change:*

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 and plant No. 3 water)*

Response to City Comment B-3. We revised the draft permit as requested.

City Comment No. B-4. *The City requested to add the following sentence to finding II.A.1, Facility Description, Biological Treatment (pp. F-4 – F-5).*

"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. The oxidation ponds simultaneously provide flow equalization for primary effluent, so that advanced treatment processes can be operated at a constant flow rate. The flow equalization capacity varies depending on pond depth, but is typically in the range of 50 to 100 million gallons."*

Response to City Comment No. B-4. We revised the draft permit as requested.

City Comment No. B-5 *The Bay Area Clean Water Agencies (BACWA) submitted comments on the Great America Tentative Order, which included the same Attachment G, Regional Standard Provisions, contained in the City's Tentative Order. The City supports the May 18, 2009, BACWA comments regarding changes to Attachment G and adopts by reference the BACWA comments into the City's comments on Attachment G in the City's Tentative Order.*

Response to City Comment No. B-5. Regional Water Board staff responded to BACWA's comments on the Great America permit (July 9, 2009, Item 7) and adopts by reference those responses here. We included the Regional Standard Provisions as revised in response to BACWA's comments with this revised draft permit.

ATTACHMENTS C AND D

No response is needed for **Attachment C**, "*Additional Comments by the City of Sunnyvale on Additional Issues which may be Raised or Discussed before the Regional Water Board concerning the Reissued Tentative Order"* because these are not comments on the draft permit. The City included Attachment C to set forth its views regarding comments raised by the California Sportfishing Protection Alliance. Staff responses to those comments appear below.

Likewise, no response is needed for **Attachment D,** "*Background Information on Sunnyvale Water Pollution Control Plant, Rationale for Seasonal Technology-Based Ammonia Effluent Limits, Receiving Water Unionized Ammonia Study Results, and History of Current Unionized Ammonia Water Quality Objectives*." This attachment provides information previously submitted to Regional Water Board staff, who considered it when developing the draft permit.

RESPONSE TO BAY AREA CLEAN WATER AGENCIES (BACWA) COMMENTS

BACWA Comment No. 1. *BACWA objected to including numeric final limits for dioxin-TEQ. BACWA requests that the dioxin-TEQ numeric final effluent limits be removed because there is no approved numeric water quality objective for dioxin-TEQ, it is unclear if POTWs will be able to meet this limit, and there are no analytical methods that can accurately detect dioxins at these levels. BACWA contended that dioxin at these levels cannot be measured or controlled.*

Response to BACWA Comment No. 1. We have not removed the dioxin limits because they are reasonable and appropriate. We derived them in accordance with 40 CFR 122.44(d)(1)(vi), which states that, regarding establishment of effluent limits for pollutants with reasonable potential to cause or contribute to an excursion above a narrative criterion, a calculated numeric water quality criterion may be used. It further states, "Such a criterion may be derived using a proposed State criterion, or an explicit State policy or regulation interpreting its narrative water quality criterion…." The dioxin-TEQ limits in this draft permit are based on the California Toxics Rule (CTR) objective for 2,3,7,8-TCDD and other relevant information.

The draft permit includes dioxin-TEQ effluent limits because State and federal laws and regulations require them. By adopting the dioxin-TEQ limits, the Regional Water Board is

complying with regulations implementing the Clean Water Act at 40 CFR 122.44(d), which require that permits include effluent limits for all pollutants that may be discharged at levels with a reasonable potential to cause or contribute to exceedances of water quality standards, including narrative objectives, such as the Basin Plan's bioaccumulation objective. The Basin Plan states, "Water quality-based effluent limitations will consist of narrative requirements and, where appropriate, numerical limits for the protection of the most sensitive beneficial uses of the receiving water."

Dioxin and similar compounds have bioaccumulated in San Francisco Bay fish in violation of the Basin Plan's narrative bioaccumulation water quality objective. Therefore, a numeric effluent limit is appropriate to protect San Francisco Bay's beneficial uses, which the bioaccumulation objective is intended to preserve. We used Toxic Equivalency Factors (TEFs) published by USEPA and the World Health Organization, together with the CTR water quality objective for 2,3,7,8-TCDD (the most toxic of the dioxins) to translate the Basin Plan's narrative bioaccumulation objective into numeric water quality-based effluent limits.

We do not intend to enforce compliance with the dioxin limits in situations where we cannot determine whether these limits are exceeded. However, neither 40 CFR 122.44(d) nor the Basin Plan allows consideration of whether analytical methods can actually measure dioxin-TEQ at concentrations as low as the limits. The Basin Plan states, "…when pollutant concentrations in waters are relatively low, the limits of quantification will be taken into account in determining compliance with, rather than the calculation of, effluent limits." Following this policy and the State Implementation Policy's Minimum Level (ML) concept, we developed effluent limits consistent with the water quality objective. We will use analysis-based MLs for compliance determination and enforcement.

We recognize that the ultimate sources of most dioxins in San Francisco Bay are mostly combustion-related air emissions, and that these sources are outside the Discharger's direct control. In the context of the Basin Plan's narrative bioaccumulation objective, however, we disagree that dioxins cannot be controlled. The Basin Plan states, "Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State and that may be reasonably controlled." USEPA concluded that dioxins are controllable when it placed San Francisco Bay on the 303(d) list of impaired waters due to dioxin concentrations in fish and other aquatic organisms. Air emissions, which are created through combustion, are a source of dioxins, but wastewater treatment plants are also sources of dioxins discharged to San Francisco Bay. Dioxins in wastewater are primarily a result of human activity and their discharge to waters can be controlled by removing solids from wastewater (dioxins are hydrophobic and bind to particles). Additional dioxin removal could result from plant upgrades. This may be burdensome and may not be cost effective at this time; however, such actions could be necessary to control dioxin discharges in the future.

BACWA Comment No. 2. *BACWA contended that the compliance schedule action plan for dioxin-TEQ (Provision IV.C.6.d, Table 13) is neither realistic nor commensurate with actual water quality impacts, and is overly burdensome. It is highly unlikely that compliance schedule action plan activities will result in compliance with proposed final limits. Although an optional*

offset may provide an alternative to compliance with a final effluent limit, such a program does not currently exist.

Response to BACWA Comment No. 2. We disagree. The compliance schedule requirements are based on the State Water Board's new Compliance Schedule Policy, which requires dischargers to provide justifications for a compliance schedule, such as past diligent efforts in quantifying the pollutant in the influent and effluent; existing and accomplished source control measures; pollutant minimization program activities; and a proposed schedule for future additional source control actions, pollutant minimization program activities, etc. Therefore, some activities specified in this provision should be in place already. We believe some limited source control and pollutant minimization program actions can be implemented to reduce the amount of dioxin entering the wastewater treatment plant and being discharged to receiving waters. We acknowledge that a formal mass offset program does not currently exist. The tentative order refers to such a program simply as one possible means to overcome any technical infeasibility in meeting the dioxin-TEQ limits.

BACWA Comment No. 3. *BACWA objected to the proposed inclusion of numeric chronic toxicity effluent limits in POTW NPDES permits.*

Response to BACWA Comment No. 3. See our response to City Comment No. 1.

BACWA Comment No. 4. *BACWA objected to requiring a publicly owned treatment works to begin funding tasks leading to construction of new facilities based on non-compliance with yet to be adopted water quality objectives.*

Response to BACWA Comment No. 4. See our response to City Comment No. 2.

BACWA Comment No. 5. *BACWA requested to add the following language to the draft permit, under Effluent Limitations IV.D.1., Whole Effluent Acute Toxicity, to be consistent with other recently adopted permits, such as those for the City of Palo Alto and the Fairfield Suisun Sanitary District.*

"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 discharger is in compliance with effluent limits, then such toxicity does not constitute a violation of this effluent limitation."

Response to BACWA Comment No. 5. We did not include this language in this revised draft permit because it only contains performance-based effluent limits for ammonia, not water quality-based effluent limits. Although Regional Water Board staff has determined, based on available information, that there is no reasonable potential for ammonia in the discharge to violate ammonia water quality objectives in the receiving water, if future acute toxicity tests indicate toxicity caused by ammonia, this toxicity limit must address that ammonia problem. In the other permits cited, there are water-quality-based ammonia limits to ensure that ammonia does not cause toxicity in the receiving water.

BACWA Comment No. 6. *BACWA's previously requested changes to Attachment G (Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits, March 2009) should be made to Attachment G in the Sunnyvale draft permit.*

Response to BACWA Comment No. 6. Regional Water Board staff responded to BACWA's comments on the Great America permit (July 9, 2009, Item 7). We now include the Regional Standard Provisions as revised in response to BACWA's comments with this revised draft permit.

RESPONSE TO CALIFORNIA SPORTFISHING PROTECTION ALLIANCE (ALLIANCE) COMMENTS

Alliance Comment No. 1. *According to the Alliance, the proposed permit fails to contain an effluent limitation for total coliform organisms that is protective of the contact recreational beneficial use of the receiving stream contrary to 40 CFR 122.44 and California Water Code (CWC) 13377. The proposed permit allows for the bypass of parts of the disinfection treatment processes contrary to 40 CFR 122.41(m)(1) resulting in a less restrictive bacteria discharge standard. The proposed permit "backslides" by removing a daily maximum effluent limitation for bacteria.*

[a] The Alliance said the proposed permit ignores the Basin Plan's total coliform organism objective for wastewater discharges (Table 4-2) contrary to CWC 13377. The proposed permit contains an effluent limitation for enterococcus bacteria of 35 colonies/100 ml as a 30-day mean for discharges to surface waters. The limitation is based on Basin Plan Table 3-2 for coastal recreational waters, which is based on USEPA's water quality criteria. The proposed permit fails to recognize that USEPA's water quality criteria for bacteria were established for the protection of beaches and were not intended to regulate wastewater discharges. The California Department of Public Health's (CDPH) regulations in California Code of Regulations (CCR) Title 22 contain total coliform organism limitations of 2.2 MPN/100 ml as a seven day median to protect public health in recreational impoundments. Unlike USEPA's bacteria criteria; the Title 22 coliform organism is applicable to domestic wastewater discharges. Title 22 does not directly apply to surface waters; however, it is appropriate to apply CDPH's science used to develop the reclamation criteria because the surface water is used for contact recreation. Title 22 specifies the level necessary to protect the public health during recreational activities, regardless of whether in a "recreational impoundment" or surface water. This standard for total coliform organisms has also been included in the Basin Plan Table 4-2 as a water quality objective.

[b] The proposed Permit Fact Sheet contains the following discussion: "… The Plant may enter into two different treatment modes – slough discharge wastewater treatment and recycled water production. During periods of recycled water production in high recycled water demand seasons (typically 12–16 hours a day), the DAFT polymer dose, chlorine dose, and chlorine contact time are adjusted to meet Title 22 requirements…." The Alliance asserted that failure to use the capability of the wastewater treatment plant,

allowing a reduced effluent quality when discharging to surface waters, constitutes a bypass of treatment processes contrary to Federal Regulation 40 CFR 122.41(m)(1).

[c] The Alliance contended that USEPA's ambient criteria for bacteria also contain a single sample maximum criteria, such was included in the previous NPDES permit for this facility. The proposed permit however states, "The single sample maximum effluent limit for enterococcus is not retained. As stated under Section C.2.f above, the removal of this limit complies with antibacksliding requirement and is not expected to cause degradation of water quality because the Discharger will maintain its treatment at current levels and the 5-day geometric mean limit will hold the Discharger to its current performance." The Alliance stated that the antibacksliding and antidegradation rules clearly spell out the interest of Congress in achieving the Clean Water Act's goal of continued progress toward eliminating all pollutant discharges. The antibacksliding regulations prohibit USEPA from reissuing NPDES permits containing interim effluent limitations, standards or conditions less stringent than the final limits contained in the previous permit, with limited exceptions. The proposed permit does not contain any discussion or defense for removal of the daily maximum effluent limitation for enterococcus bacteria.

Response to Alliance Comment No. 1. We disagree with the Alliance's three points.

[a] The draft permit's enterococci limits are appropriate and protective. Title 22 regulations for reclaimed water do not apply to surface water discharges, and there is no need to apply the Department of Public Health's total coliform criteria since the duly adopted Basin Plan already contains applicable water quality objectives to protect water contact recreation. The total coliform effluent limitations in Basin Plan Table 4-2 implement the total coliform water quality objectives in Table 3-1.

Consistent with Table 4-2, the draft permit implements USEPA's enterococci water quality criteria (see Basin Plan Table 3-2) by imposing these criteria as effluent limits. USEPA's enterococci criteria became effective on December 16, 2004, and apply to coastal recreational waters, including coastal estuaries, in California. These criteria are designed to protect beaches; therefore, they will clearly protect this receiving water, which is only lightly used for recreational purposes. Enterococci limits are more appropriate than total coliform limits because they are a better indicator of the presence of human pathogens than total Coliform, which may include all manner of bacteria including those from birds and wildlife.

[b] Discharging wastewater not treated to Title 22's tertiary treatment standards for reclaimed water is not a bypass pursuant to 40 CFR 122.41(m). Title 22 requirements only apply to wastewater reclamation, not wastewater disposal. The fact that a discharger operates a plant capable of producing reclaimed water does not obligate the discharger to meet Title 22 requirements at all times. When water is not reclaimed (e.g., when it is discharged to surface water), it need not meet Title 22 requirements.

The regulations at 40 CFR 122.41(m) prohibit bypasses of secondary treatment. This draft permit (section III.B) also prohibits such bypasses: "The bypass of untreated or partially

treated wastewater to waters of the United States is prohibited, except as provided for in the conditions stated in Subsections I.G.2 and I.G.4 of Attachment D of this Order." The exceptions found in Attachment D reflect 40 CFR §122.41(m): "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." They also state, "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…(40 C.F.R. §122.41(m)(4)(ii))."

[c] Including a daily maximum bacteria limit in the previous permit was a technical error, and CWA 402(o)(2)(B)(ii) allows backsliding to correct technical mistakes. As explained in Fact Sheet section IV.C.2.f:

> 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. … 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)].

We note that the USEPA criteria document further states that "… a decision based on single sample … may be erroneous…." Therefore, removing the daily maximum bacteria limit is both prudent, and consistent with the Clean Water Act's backsliding provisions.

Alliance Comment No. 2. *According to the Alliance, the proposed permit fails to include an effluent limitation for turbidity that is protective of the contact recreational beneficial use of the receiving stream contrary to 40 CFR 122.44 and CWC 13377.*

[a] The Alliance stated that the proposed permit fails to include an Effluent Limitation for turbidity necessary to protect the contact recreational beneficial use. The proposed permit states, "… The Plant may enter into two different treatment modes – slough discharge wastewater treatment and recycled water production. During periods of recycled water production in high recycled water demand seasons (typically 12–16 hours a day), the DAFT polymer dose, chlorine dose, and chlorine contact time are adjusted to meet Title 22 requirements…." CDPH has developed reclamation criteria for the reuse of wastewater. Title 22 does not apply directly to surface waters; however, it is appropriate to apply CDPH's reclamation criteria because the surface water is used for contact recreational purposes. Turbidity is a second indicator of the effectiveness of the treatment process and assures compliance with the required level of treatment. Failure of the filtration system

such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. …

[b] The Alliance claimed that the proposed permit states in Finding No. (h) that the established 20 mg/l for TSS is unacceptably high and requires the Discharger prepare a report detailing why the lower level of 10 mg/l cannot be achieved. Application of the full treatment process, as is required for "recycled" water, will reduce the TSS as the turbidities are decreased. Regional Board staff should review the Discharger's Self Monitoring Reports for TSS concentrations when the "reclaimed" water system is fully operational and processes are not being bypassed.

Response to Alliance Comment No. 2. We disagree with the Alliance's two points.

[a] The discharge does not have reasonable potential to cause or contribute to an exceedance of the Basin Plan's turbidity objective, so water quality-based effluent limits are not required. Nevertheless, the draft permit includes a receiving water turbidity limit based on the Basin Plan objective. Section V.A.1 of the draft permit states, "The discharges shall not cause the following in Moffett Channel, Guadalupe Slough, or South San Francisco Bay….
c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels."

Title 22 regulations for reclaimed water do not apply to surface water discharges, and there is no need to apply the Department of Public Health's Title 22 criteria since the duly adopted Basin Plan already contains applicable water quality objectives. The fact that a discharger operates a plant capable of producing reclaimed water does not obligate the discharger to meet Title 22 requirements at all times. Although turbidity testing is a quick way to determine the effectiveness of a treatment filter and to signal the need to correct deficiencies in the filter performance, higher turbidity measurements do not necessarily indicate that the effluent exceeds pathogen water quality objectives. This draft permit contains effluent limits for enterococci bacteria that are directly related to the applicable pathogen objectives.

[b] This draft permit does not state that the total suspended solids (TSS) limit is unacceptably high. Section VI.C.2.h states, "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)." We recognize that this plant's treatment process differs from those of other nearby dischargers with advanced-secondary treatment. This draft permit requires a study to help us re-evaluate whether different TSS limits continue to be justified for the different treatment technologies.

Although the Discharger may produce reclaimed water with lower TSS levels, we believe it would be inappropriate to impose Title 22 requirements intended for reclaimed water on an effluent to be discharged to surface water.

Alliance Comment No. 3. *According to the Alliance, the proposed permit fails to contain an effluent limitation for total chlorine residual that is protective of the aquatic life beneficial uses of the receiving stream contrary to 40 CFR 122.44. The proposed permit contains an effluent limitation for total chlorine as an instantaneous maximum, of 0.0 mg/l. Proposed permit Table 6, Footnote No. 3, states, "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. …"*

40 CFR 122.44(d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. USEPA has established water quality criteria for the protection of fresh water aquatic life for chlorine of 19 ug/l as a 1-hour average and 11 ug/l as a 4-day average. Basin Plan Table 4-2 establishes the chlorine water quality objectives as effluent limitations. The Basin Plan only establishes an objective of 0.0 mg/l, which is not tied to a detection limit. The Alliance stated that Regional Board staff could have reviewed Standard Methods and determined whether its means of regulating chlorine would be as restrictive as the ambient criteria, but did not do so. Wastewater dischargers and the associated laboratories in California routinely meet a detection limit of 0.01 mg/l for chlorine, although consultants debate this topic. The Alliance asserted there is no legal or technical defense for establishing an effluent limitation based on a laboratory detection level. The proposed permit must be modified to use USEPA's ambient criteria for the protection of freshwater aquatic life for chlorine in developing the Effluent Limitation.

Response to Alliance Comment No. 3. We disagree. We did not base the draft permit's chlorine limit on the laboratory detection level; the limit is 0.0 mg/L and is based on the Basin Plan. Although the draft permit defined this requirement to mean below the level of detection, this definition is unnecessary, and we have deleted it. If chlorine cannot be detected, there can be no basis for concluding that the chlorine concentration exceeds the effluent limit. There is no need to calculate water quality-based effluent limits for chlorine since the draft permit's limit (0.0 mg/L) is already as low as it can be. This requirement is more stringent than any water quality-based effluent limit we could possibly calculate.

Alliance Comment No. 4. *The Alliance claimed the proposed permit does not contain a final Effluent Limitation for chronic toxicity and therefore does not comply with 40 CFR 122.44(d)(1)(i) and the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). It stated that the Sunnyvale wastewater discharge has been shown to be chronically toxic.The discharge presents a reasonable potential to cause toxicity within the receiving stream, thereby degrading the aquatic life beneficial use. SIP Section 4, Toxicity Control Provisions, Water Quality-Based Toxicity Control, states, "A chronic toxicity effluent limitation is required in permits for all dischargers that will cause, have a reasonable potential to cause, or contribute to chronic toxicity in receiving waters." 40 CFR 122.44 (d)(1)(i) requires that limitations must control all pollutants or pollutant parameters that*

the Director determines are or may be discharged at a level which will cause, or contribute to an excursion above any State water quality standard, including state narrative criteria for water quality. The Basin Plan contains a narrative criteria that states that all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. The proposed permit requires the Discharger to conduct an investigation of the possible sources of toxicity. However, the Alliance pointed out that this language is not a limitation and claimed that it eviscerates the Regional Water Board's authority, and the authority granted to third parties under the Clean Water Act, to find the Discharger in violation for discharging chronically toxic constituents. The Alliance requested an effluent limitation for chronic toxicity be included in the proposed permit.

Response to Alliance Comment No. 4. We agree that a chronic toxicity limit is required. The draft permit circulated for public review contained numeric chronic toxicity limits (section IV.D.2.c), and perhaps less clearly also narrative limits. However, the City of Sunnyvale has pointed out that the State Water Board ruled that numeric chronic toxicity limits are inappropriate at this time (see City Comment No. 1). Narrative limits are appropriate, however, and as discussed in our response to City Comment No. 1, we have revised the draft permit's narrative limit to be more consistent with the Basin Plan language and State Water Board remand orders.

Alliance Comment No. 5. *According to the Alliance, the proposed permit does not contain a protective effluent limitation for ammonia in violation of 40 CFR 122.44 and CWC 13377.*

[a] The proposed Permit Fact Sheet contains the following discussion of toxicity caused by the discharge: "… The last TIE study suggested the possibility that ammonia may cause or contribute to the toxicity. The Discharger took no measures to reduce the toxicity." 40 CFR 122.44(d) requires that limits be included in permits where pollutants will cause, have reasonable potential to cause, or contribute to an exceedance of the State's water quality standards. The Alliance contended that ammonia need not be physically measured in a laboratory for domestic wastewater since its presence has been well established. The presence of ammonia in domestic wastewater alone warrants an effluent limitation in accordance with 40 CFR 122.44(d).

According to the Alliance, nitrification, the treatment process used to convert ammonia to nitrate, is technically and economically available as evidenced by the large number of wastewater treatment plants that nitrify. Failure to operate a wastewater treatment plant in a nitrification mode allows ammonia concentrations to pass through the system. The nitrification process can be a fairly unstable treatment process; even POTWs that employ nitrification should be limited for ammonia to ensure the system is properly operated.

In determining whether ammonia concentrations present a reasonable potential to exceed water quality standards, the Regional Water Board staff translated total ammonia concentrations into un-ionized ammonia concentrations (as nitrogen) to compare with the Basin Plan unionized ammonia objectives based on several following equations. For those calculations, Regional Board staff concluded that the salinity levels represented freshwater conditions, but failed to use the freshwater equations from the ambient criteria.

In any case, the Alliance contended that reasonable potential has been established. Once established, effluent limitations must be developed in accordance with 40 CFR 122.44. The ammonia effluent limitations for the period from October through May are based on the performance and capability of the wastewater treatment plant, not water quality-based effluent limitations. These performance-based effluent limitations are not protective of water quality or the aquatic life beneficial uses of the receiving stream.

[b] Ammonia is a form of nitrogen, a biostimulatory substance. Failure to adequately regulate ammonia concentrations during winter also threatens to violate the Receiving Water Limitation for Nutrients, which requires that 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. Ammonia is an oxygen demanding substance, which can contribute to reductions in receiving water dissolved oxygen concentrations.

Response to Alliance Comment No. 5. We disagree with the Alliance's points.

[a] We disagree that the discharge has reasonable potential for ammonia. We evaluated reasonable potential for ammonia by analyzing effluent concentrations, ambient concentrations, and other factors in accordance with USEPAs *Technical Support Document for Toxics Control* (TSD) (EPA/505/2-90-001, March 1991). Based on this analysis, we conclude that there is no reasonable potential for ammonia. The presence of ammonia in treatment plant influent does not by itself conclusively demonstrate reasonable potential for ammonia. Likewise, the chronic toxicity in this discharge (which may or may not be related to ammonia, and could just as likely relate to many other factors) does not demonstrate reasonable potential for ammonia per se. We find that the discharge does demonstrate reasonable potential for chronic toxicity, and have in the draft permit (section IV.D.2.b) a revised narrative chronic toxicity effluent limit, which states, "There shall be no chronic toxicity in the discharge…." We also address the toxicity by requiring a Chronic Toxicity Identification and Toxicity Reduction Study (section VI.C.2.d of the revised Order).

We point out that the Discharger uses nitrification processes as part of its treatment, and that the permit includes effluent limits on ammonia that will ensure that the nitrification system is properly operated. Furthermore, these limits will protect the quality and beneficial uses of the receiving water. Because there is no reasonable potential for ammonia, WQBELs are not required. Instead the permit retains from the previous permit the ammonia limitations for the months of June through September, and establishes new performance-based limits for the months of October through May. The permit (section VI.C.2.e, Receiving Water Ammonia Characterization Study) also requires further study of ammonia in the receiving water to confirm that water quality and beneficial uses are protected.

As for using the freshwater equation associated with the ambient criteria, our analysis is based on the Basin Plan's ammonia objective, not more recent USEPA criteria that have not been promulgated for use in California as water quality objectives. In translating the

total ammonia concentrations into un-ionized ammonia concentrations, we used scientifically valid equations that account for salinity, pH, and temperature. The equations came from *Ambient Water Quality Criteria for Ammonia (saltwater) – 1989*, USEPA Publication 440/5-88-004, USEPA, 1989; and *1999 Update of Ambient Water Quality Criteria for Ammonia*, USEPA Publication No. 822-R-99-014, US EPA, 1999.

[b] We disagree that the winter (October through May) ammonia effluent limitations do not protect beneficial uses. Nevertheless, we require a receiving water study to confirm that beneficial uses are protected. There is no evidence that the current ammonia levels in the discharge promote aquatic growths that cause nuisance or adversely affect beneficial uses, or reduce dissolved oxygen levels to a degree that harms beneficial uses. Moreover, the winter ammonia effluent limitations are new, and therefore more stringent than the previous permit requirements.

Alliance Comment No. 6. *The Alliance commented that the effluent Limitations for dichlorobromomethane, 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene contained in the existing (previous) permit have been removed from the proposed permit contrary to the antibacksliding requirements of the Clean Water Act and 40 CFR 122.44(l)(1). The antibacksliding and antidegradation rules clearly spell out the interest of Congress in achieving the CWA's goal of continued progress toward eliminating all pollutant discharges. The antibacksliding regulations prohibit USEPA from reissuing NPDES permits containing interim effluent limitations, standards or conditions less stringent than the final limits contained in the previous permit, with limited exceptions. None of the exceptions have been met to justify removal of the Effluent Limitations for dichlorobromomethane, 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene. Information is not now available that was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and that would have justified application of a less stringent effluent limitation at the time of permit issuance.*

Response to Alliance Comment No. 6. We disagree. Anti-backsliding regulations do not require that we retain effluent limits simply because a previous permit contained them. In this case, the draft permit does not retain effluent limits for dichlorobromomethane, 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene because monitoring data obtained during the past five years do not indicate any reasonable potential for the discharge to cause or contribute to exceedence of water quality standards for these pollutants. In State Water Board Order WQ 2001-16, the State Water Board concluded,

> The Board does not view antibacksliding as an absolute bar to removing limits…. Antibacksliding does not necessarily dictate that a pollutant that was limited in a prior permit must have a limit in a later permit, even though the pollutant has never been detected and its discharge does not have the reasonable potential to cause or contribute to a water quality standards violation. It appears that, at a minimum, the antibacksliding exception in Clean Water Act Section 303(d)(4) for attainment waters could apply. … If the receiving waters are in attainment of the applicable water quality standard, the new permit limits may backslide as long as antidegradation requirements are met.

In this case, the receiving waters (Moffett Channel, Guadalupe Slough, and South San Francisco Bay) are in attainment of water quality standards related to these pollutants, with one exception (dieldrin, discussed in the paragraph below). They are not considered impaired pursuant to Clean Water Act §303(d). Moreover, the discharge will not degrade water quality, particularly with respect to these pollutants, because the effluent concentrations will likely remain undetectable and the Discharger will maintain its current treatment performance. For these reasons, removing these limits is in accord with the anti-backsliding exceptions of Clean Water Act §303(d)(4).

Although dieldrin appears on the 303(d) list for South San Francisco Bay, in our view, this fact alone is insufficient to justify retaining a dieldrin effluent limit. The Discharger has not detected dieldrin in its effluent for more than five years, and no evidence indicates any reasonable potential for the discharge to contribute to the dieldrin impairment. The failure to detect dieldrin in recent years is new information available since the Regional Water Board adopted the previous permit. At that time, had the Discharger not detected dieldrin, the circumstances could have justified imposing no effluent limit. Clean Water Act §402(o)(1) allows anti-backsliding exceptions when new information is available that would have justified a less stringent limit in the prior permit.

Alliance Comment No. 7. *The Alliance argued that the proposed permit contains an inadequate antidegradation analysis that does not comply with the requirements of Clean Water Act section 101(a), 40 CFR 131.12, the State Water Board's Antidegradation Policy (Resolution 68-16) and CWC 13146 and 13247. The State Water Board adopted the Antidegradation Policy (Resolution 68-16), and the Regional Water Board incorporated it into its Basin Plan. The Alliance contended that even a minimal antidegradation analysis would require an examination of the following: (1) existing applicable water quality standards; (2) ambient conditions in receiving waters compared to standards; (3) incremental changes in constituent loading, both concentration and mass; (4) treatability; (5) best practicable treatment and control (BPTC); (6) comparison of the proposed increased loadings relative to other sources; (7) an assessment of the significance of changes in ambient water quality and (8) whether the waterbody was an Outstanding National Resource Water. The Alliance asserted that a minimal antidegradation analysis must also analyze whether (1) such degradation is consistent with the maximum benefit to the people of the state; (2) the activity is necessary to accommodate important economic or social development in the area; (3) the highest statutory and regulatory requirements and best management practices for pollution control are achieved; and (4) resulting water quality is adequate to protect and maintain existing beneficial uses. The Alliance claimed a BPTC technology analysis must be done on an individual constituent basis; while tertiary treatment may provide BPTC for pathogens, dissolved metals may simply pass through.*

According to the Alliance, there is nothing in the proposed permit resembling an analysis that ensures that existing beneficial uses are protected. While the permit identifies the constituents included on the 303(d) list as impairing receiving waters, it fails to discuss how and to what degree the discharger will additionally impact the identified beneficial uses. Nor does the permit analyze the incremental and cumulative impact of increased loading of non-impairing pollutants on beneficial uses. The brief discussion of antidegradation requirements, in the Findings and Fact Sheet, consist only of unsupported conclusory statements.

Response to Alliance Comment No. 7. We disagree. The Alliance describes an exhaustive antidegradation analysis. While some circumstances may warrant such an analysis, this permit does not. If the Regional Water Board has no reason to believe that the draft permit will reduce existing water quality, no antidegradation analysis is required. A Regional Water Board may determine that it is unnecessary to do a complete antidegradation analysis if, using its best professional judgment and all available pertinent information, it decides that the discharge will not be adverse to the intent and purpose of antidegradation policies. A complete antidegradation analysis is therefore not required in circumstances such as the following:

- the Regional Water Board finds that the reduction of water quality will be spatially localized or limited with respect to the waterbody,

- the Regional Water Board finds that the reduction in water quality will be temporally limited and will not result in any long-term deleterious effects, or

- the Regional Water Board finds that the proposed action will produce minor effects that will not result in a significant reduction in water quality.

In the case of this draft permit, adoption will produce at most minor effects that will not result in any significant reduction in water quality, as discussed below.

The baseline quality of the receiving water determines the level of water quality protection necessary. Baseline quality is defined as the best quality of the receiving water that has existed since 1968 (State Water Board Resolution 68-16) or 1975 (federal policy), unless a subsequent regulatory action lowered the water quality consistent with antidegradation policies. If poorer water quality was allowed, the most recent water quality resulting from a permitted action is the baseline water quality for any antidegradation analysis. Therefore, the water quality allowed by the previous permit (Order No. R2-2003-0079, adopted November 1, 2003) is the baseline water quality for purposes of any antidegradation analysis for this draft permit.

Only pollutants to be discharged in greater amounts under the draft permit versus the previous permit are therefore subject to an antidegradation analysis. Pollutant discharges could increase if the draft permit were to increase permitted flows, but it does not. The only increases then are those that could result from effluent limits in this draft permit that are higher than those in the previous permit. These higher limits are for enterococci, settleable matter, dichlorobromomethane, 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene. This draft permit does not retain any of these limits, except a 5-day geometric mean enterococci limit.

As stated in Fact Sheet section IV.D.7, the removal of the single sample maximum enterococci limit is not expected to cause degradation because the 5-day geometric mean limit will hold the Discharger to its current performance. Likewise, removal of the settleable matter limits is not expected to cause degradation because the limits for total suspended solids will hold the Discharger at its current performance. Finally, removing the limits for the other pollutants is not expected to cause degradation because these pollutants are expected to stay at non-detectable

levels in the effluent. In all cases, the Discharger is expected to maintain its current performance. In conclusion, a complete antidegradation analysis is not required because the proposed action will produce at most minor effects that will not result in any significant reduction in receiving water quality.