California Regional Water Quality Control Board
San Francisco Bay Region

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Arnold Schwarzenegger
Governor

REVISED TENTATIVE ORDER NO. R2-2008-XXXX
NPDES NO. CA0038091

WASTE DISCHARGE REQUIREMENTS FOR THE
CITY OF BENICIA, WASTEWATER TREATMENT PLANT

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

Table 1. Discharger Information

Discharger	**City of Benicia**
Name of Facility	**City of Benicia Wastewater Treatment Plant and collection system**
Facility Address	**614 East 5th Street**
	Benicia, CA 94510
	Solano 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 City of Benicia from the discharge points 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	POTW Effluent	38 º, 02', 30" N	122º, 09', 03" W	Carquinez Strait

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**<Date>**
This Order shall become effective on:	**<Date>**
This Order shall expire on:	**<Date>**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	**180 days prior to the Order expiration date**

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 **<Date>**.

_____
Bruce H. Wolfe, Executive Officer

Table of Contents

I. Facility Information 4
II. Findings 5
III. Discharge Prohibitions 9
IV. Effluent Limitations and Discharge Specifications 11
A. Effluent Limitations – Discharge Point 001 11
B. Land Discharge Specifications 15
C. Reclamation Specifications 15
V. Receiving Water Limitations 15
A. Surface Water Limitations 15
B. Groundwater Limitations 16
VI. Provisions 16
A. Standard Provisions 16
B. Monitoring and Reporting Program (MRP) Requirements 16
C. Special Provisions 16
1. Reopener Provisions 16
2. Special Studies, Technical Reports and Additional Monitoring Requirements 17
3. Best Management Practices and Pollution Minimization Program 18
4. Construction, Operation and Maintenance Specifications 20
5. Special Provisions for POTWs 22
6. Other Special Provisions 24
7. Compliance Schedules 24
8. Action Plan for Cyanide 25
9. Action Plan for Copper 25
VII. Compliance Determination 26

List of Tables

Table 1. Discharger Information 1
Table 2. Discharge Location 1
Table 3. Administrative Information 1
Table 4. Facility Information 4
Table 5. Basin Plan Beneficial Uses 7
Table 6. Effluent Limitations 11
Table 7. Toxic Substances Effluent Limitations 12
Table 8. Minimum Levels for Pollutants with Effluent Limitations 13
Table 9. Dioxin-TEQ Compliance Schedule 24
Table 10. Cyanide Action Plan 25
Table 11. Copper Action Plan 26

List of Attachments

Attachment A – Definitions A-1
Attachment B – Map B-1
Attachment C – Flow Schematic C-1
Attachment D – Standard Provisions D-1

Attachment E – Monitoring and Reporting Program (MRP).....E-1
Attachment F – Fact Sheet.....F-1
Attachment G - The following documents are part of this Permit, but are not physically attached due to volume. They are available on the internet site at www.waterboards.ca.gov/sanfranciscobay

- Self-Monitoring Program, Part A, adopted August 1993
- Standard Provisions and Reporting Requirements, August 1993
- August 6, 2001 Staff Letter: Requirement for Priority Pollutant Monitoring in Receiving Water and Wastewater Discharges
- Regional Water Board Resolution 74-10

Attachment H – Pretreatment Requirements H-1

I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	**City of Benicia**
Name of Facility	**City of Benicia Wastewater Treatment Plant and collection system**
Facility Address	**614 East 5th Street**
	Benicia, CA 94510
	Solano County
Facility Contact, Title, and Phone	**Gerald Gall, Superintendent, (707) 746-4294**
Mailing Address	**SAME**
Type of Facility	**Publicly Owned Treatment Works**
Facility Design Flow	**4.5 million gallons per day (MGD, average dry weather capacity)** **18 MGD (one hour, peak wet weather capacity)**

II. FINDINGS

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

A. Background. The City of Benicia (hereinafter the Discharger) is currently discharging pursuant to Order No. 01-096 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0038091. The Discharger submitted a Report of Waste Discharge, dated January 30, 2006, and applied to renew its NPDES permit to discharge up to 4.5 MGD of treated wastewater from the City of Benicia WWTP.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policies are held to be equivalent to references to the Discharger herein.

B. Facility Description. The Discharger owns and operates the City of Benicia Wastewater Treatment Plant (WWTP) and collection system. Attachment B provides a map of the area around the facility. The facility provides secondary treatment of wastewater from domestic, commercial and industrial sources within the City of Benicia. The collection system includes 26 lift stations and 148 miles of pipelines.

The facility has a current dry weather design treatment capacity of 4.5 MGD, a peak one hour wet weather secondary treatment capacity of 18 MGD, and a maximum short term hydraulic capacity of 24 MGD. The Discharger reported a daily average flow of 2.96 MGD from 2001 through 2005 and a maximum daily flow rate of 11.4 MGD during that period.

The WWTP includes influent screening and grinding, grit removal basins, primary clarifiers, secondary treatment via two parallel activated sludge basins or three parallel trains of rotating biological contactors (RBCs), followed by secondary clarification, chlorination and dechlorination. Attachment C provides a flow schematic of the Facility. The RBCs are only used when influent flows exceed 10 MGD. The plant can store up to one million gallons in seven flow equalization and "industrial waste" holding basins where influent can be diverted and temporarily stored during peak flows or upsets and subsequently returned to the plant for full treatment.

Solids removed from the wastewater stream are thickened by a gravity thickener or primary sedimentation basins (for primary sludge) and dissolved air flotation (for waste activated sludge). Solids are anaerobically digested and dewatered by a belt filter press. Stabilized, dewatered biosolids are transported off-site for disposal in a permitted landfill.

Treated wastewater is discharged from Discharge Point 001 through a submerged diffuser to the Carquinez Strait, a water of the United States. The diffuser is south of the facility approximately 500 feet offshore and at a water depth of 10 feet.

The City is considering a project to reclaim secondary treated effluent for use as cooling water by local industry. The project would require additional wastewater treatment by reverse osmosis to provide 1 – 2 MGD to industry. Although the project would result in a net decrease in the rate of discharge to Carquinez Strait, the discharge would include a component of reverse osmosis reject water, characterized by elevated levels of dissolved solids. Design and start up of the reclamation facility is contingent upon results of on-going feasibility studies.

In 2005 the City completed a $15 million wet weather upgrade to the collection system and treatment plant.

C. Legal Authorities. This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by USEPA, and chapter 5.5, division 7 of the California 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 the 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 G 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 implementing regulations at 40 CFR 122.44 require that permits, at a minimum, include conditions meeting applicable technology-based requirements, as well as 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 Part 133 and/or Best Professional Judgment (BPJ) pursuant to 40 CFR 125.3. A detailed discussion of the development of technology-based effluent limitations is included in the Fact Sheet.

G. Water Quality-Based Effluent Limitations. 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, water quality-based effluent limitations (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, 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 for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the

State Water Resources Control Board, USEPA, and the Office of Administrative Law, as required. The Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which establishes State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Because of the marine influence on receiving waters of the San Francisco Bay, total dissolved solids levels in the Bay commonly (and often significantly) exceed 3,000 mg/L and thereby meet an exception to State Water Board Resolution No. 88-63. The MUN designation is therefore not applicable to the Carquinez Strait. Beneficial uses applicable to Carquinez Strait are as follows.

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Carquinez Strait	Existing: • Industrial Service Supply (IND) • Ocean, Commercial, and Sport Fishing (COMM) • Estuarine Habitat (EST) • Fish Migration (MIGR) • Preservation of Rare and Endangered Species (RARE) • Fish Spawning (SPWN) • Wildlife Habitat (WILD) • Water Contact Recreation (REC1) • Non-Contact Water Recreation (REC2) • Navigation (NAV)

Requirements of this Order implement the Basin Plan.

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 water quality criteria 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. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order includes a compliance schedule. A detailed discussion of the basis for the compliance schedule is included in the Fact Sheet.

L. Alaska Rule. On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards become effective for CWA purposes. [65 Fed. Reg. 24641 (April 27, 2000) (codified at 40 CFR 131.21)]. Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000 may be used for CWA purposes, whether or not approved by USEPA.

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on total suspended solids (TSS), biochemical oxygen demand (BOD_5), pH, and oil and grease. Establishment 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 federal technology based requirements. These limitations are necessary to meet federal water quality standards.

N. Antidegradation Policy. NPDES regulations at 40 CFR 131.12 require that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters 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. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with the antidegradation provisions of 40 CFR131.12 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. Some effluent limitations in this Order are less stringent that those in the previous Order. As discussed in detail in the Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

P. Endangered Species Act. This Order does not authorize any act that results in the taking of a threatened or endangered specie 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 State and federal law regarding threatened and endangered species.

Q. Monitoring and Reporting. 40 CFR 122.48 requires 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 Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program 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.

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 Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet.

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.

IT IS HEREBY ORDERED, that this Order supersedes Order No. 01-096 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 average dry weather flow, monitored as described in the attached MRP (Attachment E), shall not exceed 4.5 MGD. The average dry weather flow shall be determined for compliance with this prohibition over three consecutive dry weather months each year.

C. Discharge of treated wastewater into the Carquinez Strait at any point where it does not receive an initial dilution of at least 10:1 is prohibited.

D. 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 40 CFR 122.41(m)(4) and in section A.13 of the Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993 (Attachment G).

"Blended" wastewater is secondary treated wastewater blended with wastewater that has been diverted around biological treatment units or advanced treatment units. Discharges of blended wastewater are permissible under the bypass conditions described in 40 CFR 122.41(m)(4) when:

(1) the Discharger's peak wet weather influent flow volumes exceed the secondary treatment capacity (18 MGD),

(2) the plant or its service area has experienced a 20-year storm event or greater,

(3) the discharge complies with the effluent and receiving water limitations contained in this Order, and

(4) the Discharger satisfies provision VI.C.5.c of this Order (Sanitary Sewer Overflows and Sewer System Management Plan).

Furthermore, the Discharger shall operate its facility as designed and in accordance with the Operation & Maintenance Manual developed for the facility; i.e., storage and use of equalization units, biological treatment units, and advanced treatment units, if applicable, shall be fully utilized before an incident of blending occurs. The Discharger shall report incidents of blending in routine monitoring reports and shall conduct monitoring of such discharges as specified in the attached MRP (Attachment E).

E. 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 – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point E-001, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP:

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Oil and Grease	mg/L	10	---	20	---	---
pH [1]	s.u.	---	---	---	6.0	9.0
Total Suspended Solids (TSS)	mg/L	30	45	---	---	---
Biochemical Oxygen Demand, 5-day @ 20°C (BOD_5)	mg/L	30	45	---	---	---
Chlorine, Total Residual [2]	mg/L	---	---	---	---	0.0

[1] 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.

[2] This requirement is defined as below the limit of detection in standard test methods, as defined in the latest edition of *Standard Methods for the Examination of Water and Wastewater*. The Discharger may elect to use a continuous on-line monitoring system(s) for measuring flows, sodium hypochlorite, and sodium bisulfite dosage (including a safety factor) and concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Regional Water Board staff will conclude that these false positive chlorine residual exceedances are not violations of the effluent limitation established by this Order.

b. BOD and TSS 85% Percent Removal: The average monthly percent removal of BOD and TSS values, by concentration, shall not be less than 85 percent.

c. Fecal Coliform Bacteria: The treated wastewater shall meet the following limits of bacteriological quality:

(1) The geometric mean value for all samples analyzed for fecal coliform bacteria within each calendar month shall not exceed a Most Probable Number (MPN) of 200 organisms/100 mL; and

(2) No more than ten percent of all samples collected with a calendar month shall exceed a fecal coliform bacteria MPN of 400 organisms/100 mL.

d. Enterococci Bacteria: The monthly geometric mean enterococci bacteria concentration shall not exceed 35 MPN/100 mL.

2. Effluent Limitations for Toxic Substances – Discharge Point 001

a. 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 attached MRP

Table 7. Toxic Substances Effluent Limitations

Parameter	Units	Average Monthly[1] [2]	Maximum Daily[1] [2]
Copper[3]	µg/L	100	150
Selenium	µg/L	3.9	8.7
Cyanide[5]	µg/L	6.7	17
Dioxin-TEQ[4]	µg/L	1.4×10^{-8}	2.8×10^{-8}
Ammonia (Total as N)	mg/L	35	67

[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 metals limitations are expressed as total recoverable metal.

[2] A daily maximum or average monthly value for a given constituent shall be considered noncompliant with the effluent limitations only if it exceeds the effluent limitation and the Reporting Level for that constituent. As outlined in Section 2.4.5 of the SIP, Table 8, below, indicates the Minimum Level (ML) upon which the Reporting Level is based for compliance determination purposes. In addition, in order to perform reasonable potential analysis for future permit reissuance, the Discharger shall use methods with MLs lower than the applicable water quality objectives or water quality criteria. A Minimum Level is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

[3] Alternate Effluent Limits for Copper:

a. If a copper Site Specific Objective (SSO) for the receiving water becomes legally effective, resulting in adjusted saltwater Criterion Continuous Concentration of 2.5 µg/l and Criterion Maximum Concentration of 3.9 µg/l as documented in the Basin Plan Amendment Resolution R2-2007-0042 and in *Copper Site-Specific Objectives in San Francisco Bay: Proposed Basin Plan Amendment and Draft Staff Report* (dated June 6, 2007) upon its effective date, the following limitations shall supersede those copper limitations listed in Table 7 (the rationale for these effluent limitations can be found in the Fact Sheet [**Attachment F**]).

MDEL of 120 µg/L, and AMEL of 80 µg/L.

b. If a different copper SSO for the receiving water is adopted, the alternate WQBELs based on the SSO will be determined after the SSO effective date.

[4] Final effluent limitations for dioxin-TEQ shall become effective in accordance with the compliance schedule established by section VI.C.7 of this Order.

[5] Alternate Effluent Limits for Cyanide

a. If a cyanide SSO for the receiving water becomes legally effective, resulting in adjusted saltwater Criterion Continuous Concentration of 2.9 µg/l (based on the assumptions in *Staff Report on Proposed Site-Specific Water Quality Objectives for Cyanide for San Francisco* Bay, dated December 4, 2006), upon its effective date, the following limitations shall supersede those cyanide limitations listed in Table 7 (the rationale for these effluent limitations can be found in the Fact Sheet [**Attachment F**]).

MDEL of 47 µg/L, and AMEL of 17 µg/L.

b. If a different cyanide SSO for the receiving water is adopted, the alternate WQBELs based on the SSO will be determined after the SSO effective date.

c. Compliance may be demonstrated by measurement of weak acid dissociable cyanide.

Table 8. Minimum Levels for Pollutants with Effluent Limitations

Parameter	Minimum Level	Units
Copper	2	µg/L
Selenium	1	µg/L
Cyanide	5	µg/L
2,3,7,8-TCDD	5	pg/L
1,2,3,7,8-PeCDD	25	pg/L
1,2,3,4,7,8-HxCDD	25	pg/L
1,2,3,6,7,8-HxCDD	25	pg/L
1,2,3,7,8,9-HxCDD	25	pg/L
1,2,3,4,6,7,8-HpCDD	25	pg/L
OCDD	50	pg/L
2,3,7,8-TCDF	5	pg/L
1,2,3,7,8-PeCDF	25	pg/L
2,3,4,7,8-PeCDF	25	pg/L
1,2,3,4,7,8-HxCDF	25	pg/L
1,2,3,6,7,8-HxCDF	25	pg/L
1,2,3,7,8,9-HxCDF	25	pg/L
2,3,4,6,7,8-HxCDF	25	pg/L
1,2,3,7,8-PeCDF	25	pg/L
2,3,4,7,8-PeCDF	25	pg/L
1,2,3,4,7,8-HxCDF	25	pg/L
1,2,3,6,7,8-HxCDF	25	pg/L
1,2,3,7,8,9-HxCDF	25	pg/L
2,3,4,6,7,8-HxCDF	25	pg/L
1,2,3,4,6,7,8-HpCDF	25	pg/L
1,2,3,4,7,8,9-HpCDF	25	pg/L
OCDF	50	pg/L

3. Acute Toxicity:

a. Representative samples of the effluent at Discharge Point 001 shall meet the following limits for acute toxicity: Bioassays shall be conducted in compliance with Section V.A of the Monitoring and Reporting Program (MRP, **Attachment E**).

The survival of organisms in undiluted effluent shall be:

- an eleven (11) sample median value of not less than 90 percent survival, and

- an eleven (11) sample 90 percentile value of not less than 70 percent survival.

b. These acute toxicity limitations are further defined as follows:

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.

90th percentile: A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit, if one or more of the past ten or less bioassay tests show less than 70 percent survival.

c. Bioassays shall be performed using the most up-to-date USEPA protocol and the most sensitive species as specified in writing by the Executive Officer based on the most recent screening test results. Bioassays shall be conducted in compliance with *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms*" currently 5th Edition (EPA-821-R-02-012), with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP) upon the Discharger's request with justification.

d. If the Discharger can demonstrate to the satisfaction of the Executive Officer that toxicity exceeding the levels cited above is caused by ammonia and that the ammonia in the discharge is in compliance with effluent limits, then such toxicity does not constitute a violation of this effluent limitation.

4. Chronic Toxicity

a. Compliance with the Basin Plan narrative chronic toxicity objective shall be demonstrated according to the following tiered requirements based on results from representative samples of the treated final effluent at Discharge Point 001 meeting test acceptability criteria and Section V.B of the MRP (**Attachment E**). Failure to conduct the required toxicity tests or a TRE within a designated period shall result in the establishment of effluent limitations for chronic toxicity.

(1) Conduct routine monitoring.

(2) Accelerate monitoring after exceeding a three sample median of chronic toxicity units (10 TUc) or a single sample maximum of 20 TUc, consistent with Table 4-5 of the Basin Plan for dischargers monitoring chronic toxicity on a quarterly basis. Accelerated monitoring shall consist of monthly monitoring.

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

(4) If accelerated monitoring confirms consistent toxicity above either "trigger" in (2), above, initiate toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) in accordance with a workplan submitted in accordance with Section V.B.3 of the MRP (Attachment E), and that incorporates any and all comments from the Executive Officer.

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

b. Test Species and Methods

The Discharger shall conduct routine monitoring with the test species and protocols specified in Section V.B of the MRP (**Attachment E**). The Discharger shall also perform Chronic Toxicity Screening Phase monitoring as described in the Appendix E-1 of the MRP (**Attachment E**). Chronic Toxicity Monitoring Screening Phase Requirements, Critical Life Stage Toxicity Tests and definitions of terms used in the chronic toxicity monitoring are identified in **Appendices E-1 and E-2** of the MRP (**Attachment E**).

B. Land Discharge Specifications

Not Applicable

C. Reclamation Specifications

Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

1. Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in the Carquinez Strait:

   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 7.0 mg/L, minimum

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

b. Dissolved Sulfide — Not to exceed natural background levels

c. pH — Within 6.5 and 8.5

B. Groundwater Limitations

Not Applicable

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with Federal Standard Provisions included in **Attachment D** of this Order.

2. The Discharger shall comply with all applicable items of the *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993* **(Attachment G)**. Where provisions or reporting requirements specified in this Order and Attachment G are different from equivalent or related provisions or reporting requirements given in the federal Standard Provisions (**Attachment D**), the specifications of this Order and/or Attachment G shall apply in areas where those provisions are more stringent. Duplicative requirements in the federal Standard Provisions in VI.A.1.2, above (**Attachment D**) and the regional Standard Provisions (**Attachment G**) are not separate requirements. A violation of a duplicative requirement does not constitute two separate violations.

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in **Attachment E** of this Order. This Discharger shall also comply with the requirements contained in *Self Monitoring Programs, Part A*, August 1993 (**Attachment G**).

C. Special Provisions

1. Reopener Provisions

The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances as allowed by law:

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

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

c. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified.

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

e. Or as otherwise authorized by law.

The Dischargers may request permit modification based on the above. The Dischargers shall include in any such request an antidegradation and antibacksliding analysis.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Effluent Characterization for Selected Constituents

The Discharger shall continue to monitor and evaluate the discharge from Outfall 001 (measured at EFF-001) for the constituents listed in Enclosure A of the Regional Water Board's August 6, 2001 Letter according to the sampling frequency specified in the attached MRP (**Attachment E**). Compliance with this requirement shall be achieved in accordance with the specifications stated in the Regional Water Board's August 6, 2001 Letter under "Effluent Monitoring for Major Dischargers."

The Discharger shall evaluate on an annual basis if concentrations of any constituent 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 may be satisfied through identification of these constituents as "Pollutants of Concern" in the Discharger's Pollutant Minimization Program described in Provision C.3.b, below. A summary of the annual evaluation of data and source investigation activities shall also be reported 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 ambient receiving water monitoring for priority pollutants that is required to perform RPA and to calculate effluent limitations. The data on the conventional water quality parameters (pH, salinity, and hardness) shall also 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 monitoring through the Collaborative Bay Area Clean Water Agencies (BACWA) Study, or a similar ambient monitoring program for San Francisco Bay. This Order may be reopened, as appropriate, to incorporate effluent limits or other requirements based on Regional Water Board review of these data. The Discharger shall submit a final report that presents all the data to the Regional Water Board 180 days prior to Order expiration. This final report shall be submitted with the application for permit reissuance.

c. 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.

d Dilution Modeling Study

The Discharger shall perform a dilution modeling study and report the results to the Regional Water Board no later than 180 days prior to the expiration date of this Order. The study will use an EPA-approved modeling program such as Visual PLUMES or CORMIX and estimate the initial dilution at the City of Benicia WWTP outfall at slack tide for both the maximum wet-weather discharge and the average daily discharge rates.

3. Best Management Practices and Pollution Minimization Program

a. Pollution Minimization Program

The Discharger shall continue to improve, in a manner acceptable to the Executive Officer, its existing Pollutant Minimization Program to promote the minimization of pollutant loadings to the treatment plant and therefore to the receiving waters.

b. Annual Pollution Prevention 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 its treatment plant, treatment plant processes and service area.*

(2) *A discussion of the 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 include the reasons why the pollutants were chosen.

(3) *Identification of sources for the pollutants of concern.* This discussion shall include how the Discharger intends to estimate and identify pollutant sources. The Discharger should also identify sources or potential sources not directly within the ability or authority of the Discharger to control, such as pollutants in the potable water supply and air deposition.

(4) *Identification of tasks to reduce the sources of the pollutants of concern.* This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement the tasks themselves or participate in group, regional, or national tasks that will address its pollutants of concern whenever it is efficient and appropriate to do so. A time line shall be included for the implementation of each task.

(5) *Outreach to employees.* The Discharger shall inform its employees about the 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 Program's and tasks' effectiveness.* The Discharger shall establish criteria to evaluate the effectiveness of its Pollution Minimization Program. This discussion shall include of the specific criteria used to measure the effectiveness of each of the tasks in item b.3., b.4., b.5., and b.6.

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

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

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

c. Pollutant Minimization Program for Reportable Priority Pollutants

The Discharger shall develop and conduct a Pollutant Minimization Program (PMP) as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent

toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a priority pollutant is present in the effluent above an effluent limitation and either:

(1) A sample result is reported as DNQ and the effluent limitation is less than the RL; or

(2) A sample result is reported as ND and the effluent limitation is less than the MDL, using definitions described in the SIP.

d. If triggered by the reasons in c. above, the Discharger's PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

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

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

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

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

(5) The annual report required by 3.b. above, shall specifically address the following items:

(a) All PMP monitoring results for the previous year;

(b) A list of potential sources of the reportable priority pollutant(s);

(c) A summary of all actions undertaken pursuant to the control strategy; and

(d) 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. Contingency Plan, Review and Status Reports

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

(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) Pretreatment Program: The Discharger shall implement and enforce its approved pretreatment program in accordance with federal Pretreatment Regulations (40 CFR § 403), pretreatment standards promulgated under Sections 307(b), 307(c), and 307(d) of the Clean Water Act, 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:

(a) Enforcement of National Pretreatment Standards of 40 CFR §§ 403.5 and 403.6;

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

(c) Submission of reports to USEPA, the State Water Board, and the Regional Water Board, as described in **Attachment H** "Pretreatment Requirements".

(d) Evaluate the need to revise local limits under 40 CFR § 403.5(c)(1); and within 180 days after the effective date of this Order, submit a report acceptable to the Executive Officer describing the changes with a plan and schedule for implementation. To ensure no significant increase in the discharge of copper, and thus compliance with antidegradation requirements, the Discharger shall not consider eliminating or relaxing local limits for copper in this evaluation.

(2) The Discharger shall implement its approved pretreatment program and the program shall be an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Regional Water Board, the State Water Board, or the USEPA may take enforcement actions against the Discharger as authorized by the Clean Water Act.

b. Sludge Management Practices Requirements

(1) All sludge generated by the Discharger must be disposed of in a municipal solid waste landfill, reused by land application, or disposed of in a sludge-only landfill in accordance with 40 CFR §503. If the Discharger desires to dispose of sludge by a different method, a request for permit modification must be submitted to USEPA 180 days before start-up of the alternative disposal practice. All the requirements in 40 CFR §503 are enforceable by USEPA whether or not they are stated in an NPDES permit or other permit issued to the Discharger. The Regional Water Board should be copied on relevant correspondence and reports forwarded to USEPA regarding sludge management practices.

(2) Sludge treatment, storage and disposal or reuse shall not create a nuisance, such as objectionable odors or flies, or result in groundwater contamination.

(3) The Discharger shall take all reasonable steps to prevent or minimize any sludge use or disposal which has a likelihood of adversely affecting human health or the environment.

(4) The discharge of sludge shall not cause waste material to be in a position where it is or can be carried from the sludge treatment and storage site and deposited in waters of the State.

(5) The sludge treatment and storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect boundaries of the site from erosion, and to prevent any conditions that would cause drainage from the materials in the temporary storage site. Adequate protection is defined as protection from at least a 100-year storm and protection from the highest possible tidal stage that may occur.

(6) For sludge that is applied to the land, placed on a surface disposal site, or fired in a sludge incinerator as defined in 40 CFR §503, the Discharger shall submit an annual report to USEPA and the Regional Water Board containing monitoring results and pathogen and vector attraction reduction requirements as specified by 40 CFR §503, postmarked **February 15 of each year**, for the period covering the previous calendar year.

(7) Sludge that is disposed of in a municipal solid waste landfill must meet the requirements of 40 CFR §258. In the annual self-monitoring report, the Discharger shall include the amount of sludge disposed of and the landfill(s) to which it was sent.

(8) Permanent on-site sludge storage or disposal activities are not authorized by this Order. A report of Waste Discharge shall be filed and the site brought into compliance with all applicable regulations prior to commencement of any such activity by the Discharger.

(9) Sludge Monitoring and Reporting Provisions of this Regional Water Board's Standard Provisions (**Attachment D**), apply to sludge handling, disposal and reporting practices.

(10) The Regional Water Board may amend this Order prior to expiration if changes occur in applicable state and federal sludge regulations.

c. Sanitary Sewer Overflows and Sewer System Management Plan

The Discharger's collection system is part of the facility that is subject to this Order. As such, the Discharger must properly operate and maintain its collection system (Attachment D, Standard Provisions - Permit Compliance, subsection I.D). The Discharger must report any noncompliance (Attachment D, Standard Provision - Reporting, subsections V.E.1 and V.E.2), and mitigate any discharge from the Discharger's collection system in violation of this Order (Attachment D, Standard

Provisions - Permit Compliance, subsection I.C). The General Waste Discharge Requirements for Collection System Agencies (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 Waste Discharge Requirements for Collection System Agencies (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 Water Code Section 13267. The Discharger shall report sanitary sewer overflows electronically using the State Water Board's on-line reporting system.

6. Other Special Provisions

Not applicable

7. Compliance Schedules

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

Table 9. Dioxin-TEQ Compliance Schedule

Task	Deadline
1. The Discharger shall continue semi-annual monitoring for dioxin-TEQ at monitoring point E-001.	Upon the effective date of this Order.
2. Report on the status of dioxin-TEQ monitoring and analytical results semi-annually no later than April 15 and October 15 of each calendar year in the March and September self-monitoring reports.	Upon the effective date of this order.
3. If dioxin-TEQ monitoring data show that the Discharger is out of compliance (as described in Section 2.4.5, Compliance Determination, of the State Implementation Policy) with the final water quality based effluent limits specified in Effluent Limitations and Discharge Specifications A.2, the Discharger shall identify and implement source control measures to reduce concentrations of dioxin-TEQ to the treatment plant, and therefore to receiving waters.	No later than 12 months after a detection of dioxin-TEQ that is out of compliance with the final effluent limits.
4. The Discharger shall evaluate and report on the effectiveness of its source control measures in reducing concentrations of dioxin-TEQ. If, following previous source control measures, monitoring data show that the Discharger remains out of compliance with final limits for dioxin-TEQ,, the Discharger shall also identify and implement additional source control measures to further reduce concentrations of this pollutant.	Annually in the Annual Best Management Practices and Pollution Prevention Report required by VI.C.3.b, above.
5. In the event that, following previously implemented source control measures, monitoring data show that the Discharger is out of compliance with final water quality based effluent limits specified in Effluent Limitations and Discharge Specifications A.2 for dioxin-TEQ, the Discharger shall submit a schedule for	September 1, 2013

Task	Deadline
implementation of additional actions to reduce the concentrations of this pollutant.	
6. The Discharger shall commence implementation of the identified additional actions in accordance with the schedule submitted in task 5, above.	October 15, 2013
7. The Discharger shall fully comply with IV. Effluent Limitations and Discharger Specifications A.2 for dioxin-TEQ. Alternatively, the Discharger may comply with the limit in IV through implementation of a mass offset strategy for dioxin-TEQ in accordance with policies in effect at that time.	June 1, 2018.

8. Action Plan for Cyanide

The Discharger shall implement monitoring and surveillance, pretreatment, source control, and pollution prevention for cyanide in accordance with the following tasks and time schedule. Similar cyanide activities conducted by the Discharger pursuant to a CDO may substitute for and fulfill these Action Plan requirements.

Table 10. Cyanide Action Plan

Task	Compliance Date
1. Review Potential Cyanide Contributors The Discharger shall submit an inventory of potential contributors of cyanide to the treatment plant (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.	September 30, 2008, with August 2008 SMR.
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: a. Inspect each potential contributor to assess the need to include that contributing source in the control program. b. Inspect contributing sources included in the control program annually. Inspection elements may be based on U.S. EPA guidance, such as Industrial User Inspection and Sampling Manual for POTWs (EPA 831-B-94-01). c. Develop and distribute educational materials to contributing sources and potential contributing sources regarding the need to prevent cyanide discharges. d. Prepare an emergency monitoring and response plan to be implemented if a significant cyanide discharge occurs. e. 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, 2009, with 2008 annual pollution prevention 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 annual pollution prevention reports due February 28.

9. Action Plan for Copper

If and when the copper SSOs become effective, the Discharger shall implement pretreatment, source control, and pollution prevention for copper in accordance with the following tasks and time schedule.

Table 11. Copper Action Plan

Task	Compliance Date
1. Review Potential Copper Sources The Discharger shall submit an inventory of potential copper sources to the treatment plant.	Within 90 days of the date on which the copper SSOs become effective (Discharger may include with SMR due on or immediately after the end of the 90 day period)
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: a. Provide education and outreach to the public (e.g., focus on proper pool and spa maintenance and plumbers' roles in reducing corrosion). b. 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. c. Educate plumbers, designers, and maintenance contractors for pools and spas to encourage best management practices that minimize copper discharges.	With the annual pollution prevention report due on or immediately following the end of a 90 day period after completing Task 1
3. Implement Additional Measures If the three-year rolling mean copper concentration of the receiving water exceeds 3.0 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 annual pollution prevention reports due February 28.

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 and 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.

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 permit), 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, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters are all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation: the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL) means the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median is the middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, **Attachment B**, revised as of July 3, 1999.

Minimum Level (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND) are those sample results less than the laboratory's MDL.

Ocean Waters are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Satellite Collection System is the portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

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

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

where:

x is the observed value;

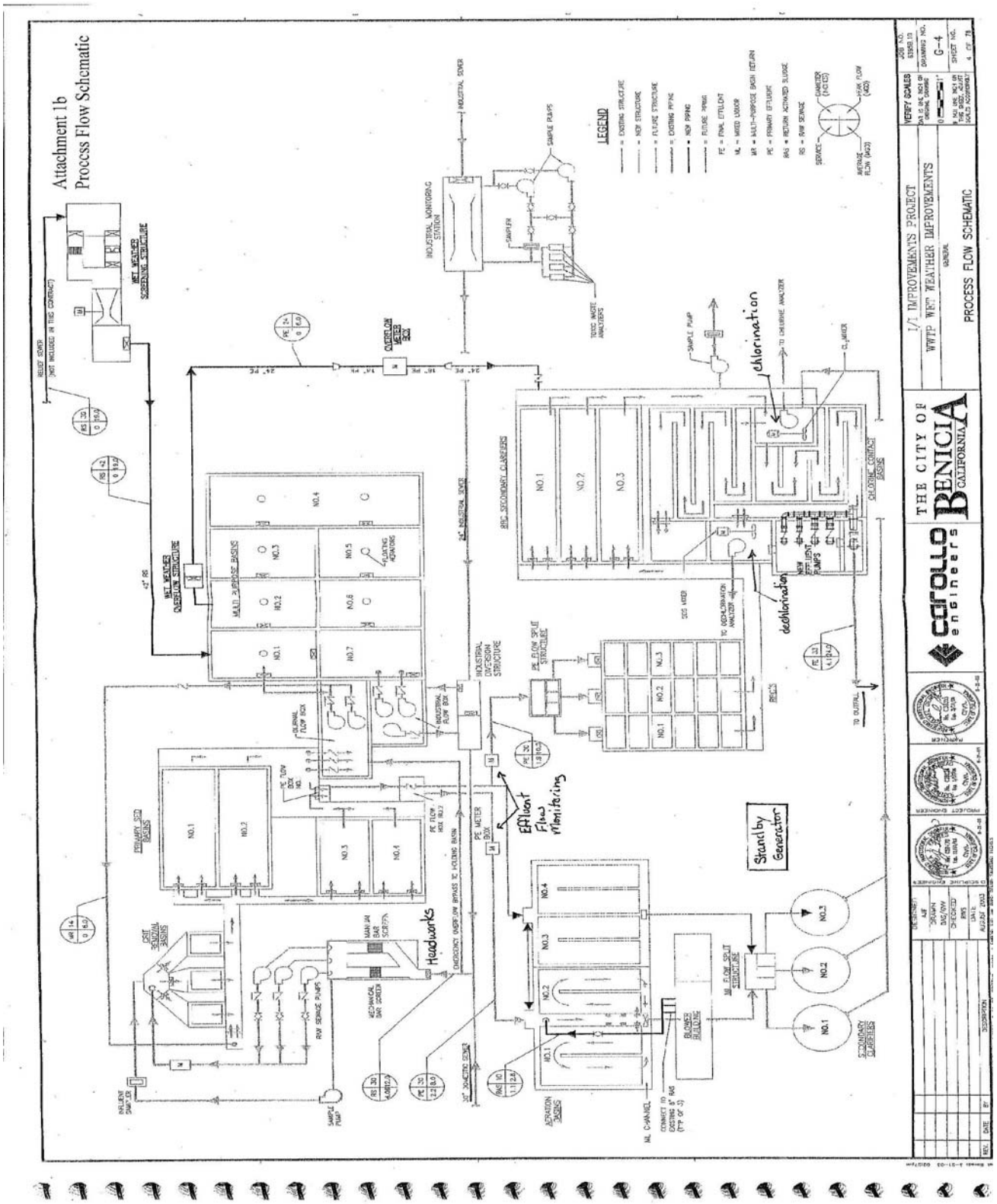
μ is the arithmetic mean of the observed values; and

n is the number of samples.

Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – MAP

ATTACHMENT C – FLOW SCHEMATIC



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 California Water Code 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 the 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

A. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

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 the 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

Table of Contents

I. General Monitoring Provisions E-2
II. Monitoring Locations E-3
III. Influent Monitoring Requirements E-3
IV. Effluent Monitoring Requirements E-4
  A. Monitoring Location EFF-001 ..... E-4
  B. Monitoring Location EFF-001-D E-5
V. Whole Effluent Toxicity Testing Requirements E-6
VI. Land Discharge Monitoring Requirements E-9
VII. Reclamation Monitoring Requirements E-9
VIII. Receiving Water Monitoring Requirements E-9
IX. Legend for MRP Tables E-9
X. Other Monitoring Requirements E-10
XI. Reporting Requirements E-10
  A. General Monitoring and Reporting Requirements E-10
  B. Modifications to Part A of Self-Monitoring Program (Attachment G) E-10
  C. Self Monitoring Reports (SMRs) E-14
  D. Discharge Monitoring Reports (DMRs) E-17
  E. Other Reports E-17

List of Tables

Table E-1. Test Methods and Minimum Levels for Pollutants with Reasonable Potential E-2
Table E-2. Monitoring Station Locations E-3
Table E-3. Influent Monitoring E-3
Table E-4. Effluent Monitoring E-4
Table E-5. Effluent Monitoring EFF-001-D E-5
Table E-6. Pretreatment Monitoring Requirements E-10
Table E-7. Monitoring Periods and Reporting Schedule E-15

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

NPDES regulations at 40 CFR 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. The Discharger shall comply with the MRP for this Order as adopted by the Regional Water Board and with all of the Self-Monitoring Program, Part A, adopted August 1993 (SMP). The MRP and SMP may be amended by the Executive Officer pursuant to USEPA regulations 40 CFR122.62, 122.63, and 124.5. If any discrepancies exist between the MRP and SMP, the MRP prevails.

B. Sampling is required during the entire year when discharging. 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 Quality Control Board's Quality Assurance Program.

C. Sampling and analysis of additional constituents is required pursuant to Table 1 of the Regional Water Board's August 6, 2001 Letter entitled, *Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (**Attachment G**).

D. *Minimum Levels.* For compliance and reasonable potential monitoring, analyses shall be conducted using the commercially available and reasonably achievable detection levels that are lower than applicable water quality objectives or criteria, or the effluent limitations, whichever is lower. The objective is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to the Minimum Levels (MLs) given below.

MLs are the concentrations 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. All MLs are expressed as µg/L.

Table E-1 lists the test methods the Discharger may use for compliance and reasonable potential monitoring for the pollutants with effluent limits.

Table E-1. Test Methods and Minimum Levels for Pollutants with Reasonable Potential

CTR #	Constituent	Types of Analytical Methods [a] Minimum Levels (µg/L)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICPMS	SPGFAA	HYDRIDE	CVAF	DCP
6	Copper					25	5	10	0.5	2			

CTR #	Constituent	Types of Analytical Methods [a] Minimum Levels (µg/L)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICPMS	SPGFAA	HYDRIDE	CVAF	DCP
10	Selenium						5	10	2	5	1		
14	Cyanide				5								
16-TEQ	Dioxin-TEQ [b]												

[a] 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
HYDRIDE = Hydride Generation 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)

[b] Use USEPA Method 1613. ML shall be that specified for each congener in Table 7 in the main body of this Order.

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

Wastestream	Monitoring Location Name	Monitoring Location Description
Influent	INF-001	At a point in the treatment facility's headworks preceding any phase of treatment and preceding introduction of recycle streams.
Effluent	EFF-001	At a point after full treatment and before contact with receiving water of the Carquinez Strait.
Effluent	EFF-001-D	At any point in the disinfection facilities where adequate contact with the disinfectant is assured.

III. INFLUENT MONITORING REQUIREMENTS

The Discharger shall monitor influent to the facility at monitoring station INF-001 as follows.

Table E-3. Influent Monitoring

Parameter	Units	Minimum Sampling Frequency	Required Analytical Test Method
		C-24[2]	
Flow rate [1]	MGD	Cont/D	Meter
BOD_5	mg/L	3/W	[3]
TSS	mg/L	3/W	[3]

[1] Flow Monitoring:

The reported "influent flow rate" shall represent the influent flow volume and shall not include waste streams returned to the head of treatment, such as, but not limited to, DAFT overflow, grit transport and wash water, screenings wash water, press wash water and filtrate, water from floor drains, and gravity thickener overflow or digester supernatant. The Discharger shall deduct, as necessary, such in-plant side stream flows so that true "influent flow rate" is reported.

For influent flows, the following information shall also be reported monthly:

Daily: Maximum daily inflow rate (MGD)
Minimum daily inflow rate (MGD)
Average daily inflow rate (MGD)

[2] 24-hour composite samples of influent shall be collected on varying days selected at random and shall not include any plant recirculation or other side stream waste. Deviation from this requirement must be approved by the Executive Officer.

[3] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor the treated effluent from the facility at monitoring station EFF-001. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level.

Table E-4. Effluent Monitoring

Parameter	Units	Minimum Sampling Frequency			Required Analytical Test Method
		Continuous	C-24	G	
Flow Rate [2]	MGD	Cont/D			[1]
Oil and Grease [3]	mg/L			2/M	[1]
pH [4]	s.u.			3/W	[1]
BOD_5 [5]	mg/L		3/W		[1]
TSS [5]	mg/L		5/W		[1]
Acute Toxicity [6]	% survival		M		[1]
Chlorine, Total Residual [7]	mg/L	Cont/2H			[1]
Chronic Toxicity [8]	TUc		Q		[1]
Dissolved Oxygen	mg/L			3/W	[1]
Temperature	^oC			3/W	[1]
Copper	µg/L		M		[1]
Selenium	µg/L		M		[1]
Dioxin-TEQ	µg/L			2/Y	[1]
Ammonia [9]	mg/L			M	[1]
Remaining Priority Pollutants	µg/L		Y [10][11]		[1] [12]

[1] Pollutants and pollutant parameters shall be analyzed using the analytical methods described in 40 CFR Part 136. For priority pollutants, the methods must meet the lowest minimum levels (MLs) specified in Attachment 4 of the SIP. Where no methods are specified for a given pollutant, the methods must be approved by this Regional Water Board or the State Board.

[2] Flow Monitoring:

Effluent flow shall be monitored at any location prior to the point of discharge that accounts for all effluent to be discharged and that accurately represents actual flow rates.

For effluent flows, the following information shall also be reported monthly:

Daily: Minimum flow (MGD)
Maximum flow (MGD)

Average flow (MGD)
Weekly: Total Flow Volume (MG)
Monthly: Monthly Average Flow (MGD)
Total Flow Volume (MG)

[3] 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. 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.

[4] If pH is monitored continuously, the minimum and maximum pH values for each day shall be reported in monthly self-monitoring reports.

[5] The percent removal for BOD_5 and TSS shall be reported for each calendar month. Samples for effluent BOD_5 and TSS shall be collected simultaneously with influent samples.

[6] Acute bioassay tests shall be performed in accordance with Section V.A of this MRP.

[7] Chlorine residual: During all times when chlorination is used for disinfection of the effluent, effluent chlorine residual concentrations shall be monitored continuously or by grab samples taken once every 2 hours. Chlorine residual concentrations shall be monitored and reported for sampling points both prior to and following dechlorination. Total chlorine dosage (kg/day) shall be recorded on a daily basis.

[8] Critical Life Stage Toxicity Test shall be performed and reported in accordance with the Chronic Toxicity Requirements specified in Sections V.B of the MRP.

[9] Ammonia and cyanide grab samples collected over a 24-hour period may be composited and analyzed to comply with this requirement if the appropriate sample collection and preservation practices called for in 40 CFR 136 are followed.

[10] Sampling for all priority pollutants in the SIP is addressed in a letter dated August 6, 2001, from the Regional Water Board Staff: *Requirements for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (not attached but available for review or download on the Regional Water Board's website at http://www.waterboards.ca.gov/sanfranciscobay/).

[11] For the same pollutants, the sampling frequencies shall be the greater ones under this table or under the pretreatment program sampling required in section X. A of the MRP (Table E-6). Pretreatment program monitoring can be used to satisfy part of these sampling requirements.

[12] Mercury: The Discharger may, at its option, sample effluent mercury either as grab or as 24-hour composite samples. Use ultra-clean sampling (USEPA 1669) to the maximum extent practicable and ultra-clean analytical methods (USEPA 1631) for mercury monitoring.

B. Monitoring Location EFF-001-D

1. The Discharger shall monitor effluent at monitoring station EFF-001-D as follows:

Table E-5. Effluent Monitoring EFF-001-D

Parameter	Units	Minimum Sampling Frequency			Required Analytical Test Method
		Continuous	C-24	G	
Cyanide [2]	µg/L	---	---	M	[1]
Fecal Coliform	MPN/100 ml	---	---	W	[1]
Enterococcus Bacteria [3]	MPN/100 mL	---	---	W	[1]
Chlorine, Total Residual [4]	mg/L	Cont/2H	---	---	[1]

[1] Pollutants and pollutant parameters shall be analyzed using the analytical methods described in 40 CFR Part 136.

[2] Cyanide grab samples collected over a 24-hour period may be composited and analyzed to comply with this requirement if the appropriate sample collection and preservation practices called for in 40 CFR 136 are followed.

[3] The Discharger shall monitor for Enterococci using EPA-approved methods, including, for example, the IDEXX Enterolert method.

[4] During all times when chlorination is used for disinfection of the effluent, effluent chlorine residual concentrations shall be monitored continuously or by grab samples taken once every 2 hours. Chlorine residual concentrations shall be monitored and reported for sampling points both prior to and following dechlorination. Total chlorine dosage (kg/day) shall be recorded on a daily basis.

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 fathead minnow. The Discharger has previously received approval from the Executive Officer to adjust effluent pH prior to toxicity testing, and may continue to do so.

3. All bioassays shall be performed according to the most up-to-date protocols in 40 CFR Part 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, ammonia (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be reported. If the fish survival rate in the effluent is less than 70% 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 the compliance point station specified in Table E-4 above, 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 *Mytilus edulis* (*Mussel)*.

   c. *Methodology*. Sample collection, handling and preservation shall be in accordance with USEPA protocols. In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, as shown in **Appendix E-1.** These are *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms,* currently third edition (EPA-821-R-02-014), and *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, currently fourth Edition (EPA-821-R-02-013), with exceptions

granted the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

d. *Dilution Series.* The Discharger shall conduct tests at 40%, 20%, 10%, 5%, 2.5%, and 0%. The "%" represents percent effluent as discharged.

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) IC15, IC25, IC40, and IC50 values (or EC15, EC25 ... etc.) as percent effluent

(7) TUc values (100/NOEC, 100/IC25, or 100/EC25)

(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) IC50 or EC50 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 (IC25 or EC25), 7, and 8.

3. Chronic Toxicity Reduction Evaluation (TRE)

a. Prepare Generic TRE Work Plan. To be ready to respond to toxicity events, the Discharger shall prepare a generic TRE work plan within 90 days of the effective date of this Order. The Discharger shall review and update the work plan as necessary to remain current and applicable to the discharge and discharge facilities.

b. Submit Specific TRE Work Plan. Within 30 days of exceeding either trigger for accelerated monitoring, the Discharge shall submit to the Regional Water Board a TRE

work plan, which should be the generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.

c. Initiate TRE. Within 30 days of the date of completion of the accelerated monitoring tests observed to exceed either trigger, the Discharger shall initiate a TRE in accordance with a TRE work plan that incorporates any and all comments from the Executive Officer.

d. The TRE shall be specific to the discharge and be prepared in accordance with current technical guidance and reference materials, including USEPA guidance materials. The TRE shall be conducted as a tiered evaluation process, such as summarized below:

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

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

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

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

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

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

e. The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity (complying with requirements of Section IV.A.4 of this Order).

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

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

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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS

Not Applicable

VII. RECLAMATION MONITORING REQUIREMENTS

Not Applicable

VIII. RECEIVING WATER MONITORING REQUIREMENTS

The Discharger shall continue to participate in the Regional Monitoring Program, which involves collection of data on pollutants and toxicity in water, sediment and biota of the San Francisco Bay 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.

With each annual self-monitoring report, the Discharger shall document how it complies with Receiving Water Limitations V.A. This may include using discharge characteristics (e.g., mass balance with effluent data and closest RMP station), receiving water data, or a combination of both.

IX. LEGEND FOR MRP TABLES

Types of Samples

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

Frequency of Sampling

Cont.	=	continuous
Cont/D	=	continuous monitoring & daily reporting
Cont/2H	=	once every two hours (at about two-hour intervals)
W	=	once each week
3/W	=	three times each week
5/W	=	five times each week
M	=	once each month
2/M	=	twice each month
2/Y	=	twice each calendar year (at about 6 months intervals, once during dry season, once during wet season)
Y	=	Once each calendar year

Parameter and Unit Abbreviations

BOD_5	=	Five-day Biochemical Oxygen Demand
°C	=	degrees Celsius
Dioxin-TEQ	=	dioxin toxic equivalents
TSS	=	Total Suspended Solids
MG	=	Million Gallons
MGD	=	Million Gallons per Day
mg/L	=	Milligrams per Liter
µg/L	=	Micrograms per Liter
ng/L	=	Nanograms per Liter
kg/day	=	Kilograms per Day

MPN/100 mL = Most Probable Number per 100 Milliliters
ML = Minimum Level
s.u. = standard units
TUc = Chronic Toxicity Units

X. OTHER MONITORING REQUIREMENTS

A. Pretreatment Requirements

The Discharger shall comply with the pretreatment requirements specified in Table E-6 for INF-001, EFF-001, and biosolids.

Table E-6. Pretreatment Monitoring Requirements

Constituents/EPA Method	Influent (INF-001) [1]	Effluent (EFF-001) [1]	Biosolids
VOCs / 624 [2]	2/Y	2/Y	2/Y
BNA / 625 [3]	2/Y	2/Y	2/Y
Metals [4]	M	M	2/Y
O-Pest / 614	2/Y	2/Y	---
C-Pest / 632	2/Y	2/Y	---

[1] Influent and effluent monitoring conducted in accordance with table E-4 can be used to satisfy these pretreatment monitoring requirements.

[2] Volatile organic compounds.

[3] Base neutral, acid extractable compounds.

[4] Analyses for metals shall include arsenic, cadmium, selenium, copper, lead, mercury, nickel, silver, zinc, and total chromium.

B. Sludge Monitoring

The Discharger shall adhere to sludge monitoring requirements required by 40 CFR Part 503.

XI. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

B. Modifications to Part A of Self-Monitoring Program (Attachment G)

1. If any discrepancies exist between SMP Part A, August 1993 (Attachment G) and this MRP, this MRP prevails.

2. Sections C.3 and C.5 are satisfied by participation in the Regional Monitoring Program.

3. Amend Section E as Follows:

Records to be Maintained
Written reports, electronic records, strip charts, equipment calibration and maintenance records, and other records pertinent to demonstrating compliance with waste discharge requirements, including monitoring and reporting requirements, shall be maintained by the Discharger in a manner and at a location (e.g., wastewater treatment plant or Discharger offices) such that the records are accessible to Regional Water Board staff. These records shall be retained by the Discharger for a minimum of 3 years. This minimum period of retention 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 the U.S. EPA, Region IX.

Records to be maintained shall include the following:

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

   a. Parameter.

   b. Identity of sampling and observation stations, consistent with the station descriptions given in the MPR (Attachment E).

   c. Date and time of sampling and/or observations.

   d. Method of sampling (e.g., grab, composite, or other method).

   e. Date and time analyses are started and completed, and name of personnel or contract laboratory performing the analyses.

   f. Reference or description of procedure(s) and analytical method(s) used.

   g. Analytical method detection limits and related quantification parameters.

   h. Results of the analyses and/or observations.

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

   a. Total flow or volume, for each day.

   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 and/or mass quantification of solids removed from each unit (e.g., grit, skimmings, undigested biosolids) for each calendar month.

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 and/or mass quantification of dewatered biosolids for each calendar month.

2) Solids content of the dewatered biosolids.

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

4. Disinfection Process

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

For bacteriological analyses:

1) Date and time of each sample collected.

2) Wastewater flow rate at the time of sample collection.

3) Results of sample analyses (e.g., bacterial count).

4) Required statistical parameters for cumulative bacterial values (e.g., moving median or geometric mean for the number of samples or sampling period identified in waste discharge requirements).

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. Date(s) and times of bypass beginning and end.

c. Total bypass duration.

d. Estimated total volume.

e. Description of, or reference to other report(s) describing, the bypass event, the cause, corrective actions taken, and any additional monitoring conducted.

4. Modify Section F.1 as follows:

1. Spill of Oil or Other Hazardous Material Reports

a. A report shall be made of any spill of oil or other hazardous material.

b. The spill shall be reported by telephone as soon as possible and no later than 24 hours following occurrence or Discharger's knowledge of occurrence. Spills shall be reported by telephone to the Regional Water Board: (510) 622-2369, (510) 622-2460 (FAX), and to the State Office of Emergency Services: (800) 852-7550.

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

[The rest of the section remains unchanged]

5. Modify Section F.2 (first paragraph) as follows:

2. Reports of Plant Bypass, Treatment Unit Bypass and Order Violation

The following requirements apply to all treatment plant bypasses and significant non-compliance occurrences, except for bypasses under the conditions contained in 40 CFR Part 122.41(m)(4) as stated in Standard Provision A.13. In the event the Discharger violates or threatens to violate the conditions of the waste discharge requirements and prohibitions or intends to experience a plant bypass or treatment unit bypass due to:

[And add at the end of Section F.2 the following:]

During the above described bypassing, composite samples of the discharge shall be collected for the day in which the bypass occurred and analyzed for Oil & Grease, pH, TSS, BOD_5, total chlorine residual (hourly), fecal coliform and enterococcus bacteria, copper, selenium, cyanide, and ammonia. Flow shall be monitored continuously.

The Discharger shall report in monthly and annual monitoring reports the occurrence and duration of blending events, and certify that the blending complied with effluent limits. <u>If the Discharger submits a study showing that monitoring of a surrogate parameter is sufficient to ensure that beneficial uses are protected, the Executive Officer will revise the Monitoring and Reporting Program accordingly.</u>

6. Modify Section F.4 as follows:

Self-Monitoring Reports

For each calendar month, a self-monitoring report (SMR) shall be submitted to the Regional Water Board in accordance with the requirements listed in Self-Monitoring Program, Part A. The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this

Order, as demonstrated by the monitoring program data and the Discharger's operation practices.

[And add at the end of Section F.4 the following:]

g. If the Discharger wishes to invalidate any measurement, the letter of transmittal will include identification of the measurement suspected to be invalid and notification of intent to submit, within 60 days, a formal request to invalidate the measurement, the original measurement in question, the reason for invalidating the measurement, all relevant documentation that supports the invalidation (e.g., laboratory sheet, log entry, test results, etc.), and discussion of the corrective actions taken or planned (with a time schedule for completion), to prevent recurrence of the sampling or measurement problem.

h. Reporting Data in Electronic Format
The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit SMRs electronically, the following shall apply:

1) Reporting Method: The Discharger shall submit SMRs electronically via the process approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS) and in the Progress Report letter dated December 17, 2000, or in a subsequently approved format that the Permit has been modified to include.

2) Monthly or Quarterly Reporting Requirements: For each reporting period (monthly or quarterly as specified in SMP Part B), an electronic SMR shall be submitted to the Regional Water Board in accordance with Section F.4.a-g. above. However, until U.S. EPA approves the electronic signature or other signature technologies, Dischargers that are using the ERS must submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, a violation report, and a receipt of the electronic transmittal.

3) Annual Reporting Requirements: Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting an annual report electronically, but a hard copy of the annual report per Sections F.5.b, F.5.c, and F.5.d below shall be submitted.

7. Add at the end of Section F.5, Annual Reporting, the following:

d. A plan view drawing or map showing the Discharger's facility, flow routing and sampling and observation station locations.

C. Self Monitoring Reports (SMRs)

1. At any time during the term of this Order, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site

(http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit paper copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall submit monthly and annual SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order for 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. Monthly SMRs shall be due on the 30th day following the end of each calendar month, covering samples collected during that calendar month; Annual Reports shall be due on February 1 following each calendar year.

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

Table E-7. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
Continuous	Day after permit effective date	All
Hourly	Day after permit effective date	Hourly
Daily	Day after permit effective date	Midnight through 11:59 PM or any 24-hour period that reasonably represents a calendar day for purposes of sampling.
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1st day of calendar month through last day of calendar month
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31
Semiannually	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31
Annually	January 1 following (or on) permit effective date	January 1 through December 31
Per Discharge Event	Anytime during the discharge event or as soon as possible after aware of the event	At a time when sampling can characterize the discharge event

4. Reporting Protocols. The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.

5. The Discharger shall submit SMRs in accordance with the following requirements:

   a. 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.

   b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs, discuss corrective actions taken or planned, and identify the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

   c. 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

D. Discharge Monitoring Reports (DMRs)

1. As described in Section X.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 Discharge Monitoring Reports (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.

E. Other Reports

By February 1st of each year, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the items described in Standard Provisions and Reporting Requirements, and SMP Part A, August 1993 (**Attachment G**).

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 100%, 50%, 25%, 10%, 5%, 0 %, where "%" is percent effluent as discharged, or as otherwise approved the Executive Officer.

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

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.

Critical Life Stage Toxicity Tests for Fresh Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Fathead minnow	*(Pimephales promelas)*	Survival; growth rate	7 days	4
Water flea	*(Ceriodaphnia dubia)*	Survival; number of young	7 days	4
Alga	*(Selenastrum capricornutum)*	Cell division rate	4 days	4

Toxicity Test Reference:

4. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, third edition. EPA/600/4-91/002. July 1994.

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

Table of Contents

I. Permit Information F-3
II. Facility Description F-4
A. Description of Wastewater and Biosolids Treatment or Controls F-4
B. Discharge Points and Receiving Waters F-5
C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data F-5
D. Compliance Summary F-7
E. Planned Changes F-8
III. Applicable Plans, Policies, and Regulations F-8
A. Legal Authorities F-8
B. California Environmental Quality Act (CEQA) F-8
C. State and Federal Regulations, Policies, and Plans F-8
D. Impaired Waterbodies on CWA 303(d) List F-11
E. Other Plans, Polices and Regulations F-12
IV. Rationale For Effluent Limitations and Discharge Specifications F-13
A. Discharge Prohibitions F-13
B. Technology-Based Effluent Limitations F-15
1. Scope and Authority F-15
2. Applicable Technology-Based Effluent Limitations F-15
3. Bacteria F-16
C. Water Quality-Based Effluent Limitations (WQBELs) F-18
D. Numeric Effluent Limitations F-38
E. Interim Effluent Limitations F-39
F. Land Discharge Specifications F-39
G. Reclamation Specifications F-39
V. Rationale for Receiving Water Limitations F-39
A. Surface Water F-39
B. Groundwater F-39
VI. Rationale for Monitoring and Reporting Requirements F-39
A. Influent Monitoring F-40
B. Effluent Monitoring F-40
C. Whole Effluent Toxicity Testing Requirements F-40
D. Receiving Water Monitoring F-40
E. Other Monitoring Requirements F-41
VII. Rationale for Provisions F-41
A. Standard Provisions (Provision VI.A) F-41
B. Monitoring and Reporting Requirements (Provision VI.B) F-41
C. Special Provisions F-41
1. Reopener Provisions F-41
2. Special Studies and Additional Monitoring Requirements F-41
3. Best Management Practices and Pollution Minimization Program F-42
4. Construction, Operation, and Maintenance Specifications F-42
5. Special Provisions for Municipal Facilities (POTWs Only) F-43
6. Other Special Provisions F-43

7. Compliance Schedules F-43
8. Action Plan for Cyanide F-43
9. Action Plan for Copper F-44
VIII. Public Participation F-44
A. Notification of Interested Parties F-44
B. Written Comments F-44
C. Public Hearing F-44
D. Waste Discharge Requirements Petitions F-45
E. Information and Copying F-45
F. Register of Interested Persons F-45
G. Additional Information F-45

List of Tables

Table F-1. Facility Information F-3
Table F-2. Outfall Location F-5
Table F-3. Effluent Limitations in Order No. 01-096 and Monitoring Data for Conventional and Non-Conventional Pollutants From September 2001 to December 2005 ..... F-6
Table F-4. Effluent Limitations in Order No. 01-096 and Monitoring Data for Toxic Pollutants from January 2003 to December 2006 ..... F-6
Table F-5. Exceedances of Numeric Effluent Limits F-7
Table F-6. Basin Plan Beneficial Uses F-9
Table F-7. Secondary Treatment Requirements F-15
Table F-8. Summary of Technology-Based Effluent Limitations F-15
Table F-9. RPA Results F-23
Table F-10. Final Effluent Limitations for Copper F-29
Table F-11. Effluent Limit Calculations F-36
Table F-12. Summary of Final Water Quality Based Effluent Limitations F-38

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_482001001
Discharger	City of Benicia
Name of Facility	City of Benicia Wastewater Treatment Plant (WWTP)
Facility Address	614 East 5th Street
	Benicia, CA 94510
	Solano County
Facility Contact, Title and Phone	Gerald Gall, Superintendent, (707) 746-4294
Authorized Person to Sign and Submit Reports	Gerald Gall, Superintendent, (707) 746-4294
Mailing Address	SAME
Billing Address	SAME
Type of Facility	Publicly Owned Treatment Works
Major or Minor Facility	Major
Threat to Water Quality	2
Complexity	A
Pretreatment Program	Yes
Reclamation Requirements	N
Facility Permitted Flow	4.5 million gallons per day (MGD) (average dry weather)
Facility Design Flow	4.5 MGD (average dry weather treatment capacity) 18 MGD (one hour peak wet weather capacity)
Watershed	Suisun Basin Watershed
Receiving Water	Carquinez Strait
Receiving Water Type	San Francisco Bay Estuary

A. The City of Benicia (hereinafter the Discharger) is the owner and operator of the City of Benicia Wastewater Treatment Plant, a Publicly Owned Treatment Works. The City of Benicia owns the property at 614 East 5th Street, Benicia, CA 94510 on which the facility is located.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policies are held to be equivalent to references to the Discharger herein.

B. The facility discharges wastewater to the Carquinez Strait, a water of the United States, and is currently regulated by Order No. 01-096, which was adopted on August 15, 2001 and expired on July 31, 2006. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements and NPDES permit requirements are adopted pursuant to this Order.

C. The Discharger filed a Report of Waste Discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and NPDES permit on January 30, 2006.

II. FACILITY DESCRIPTION

A. Description of Wastewater and Biosolids Treatment or Controls

The Discharger owns and operates the City of Benicia WWTP, a secondary wastewater treatment plant, and its collection system. The facility provides secondary treatment of wastewater from domestic, commercial and industrial sources within the City of Benicia. The collection system services approximately 28,000 individuals through 26 lift stations and 148 miles of pipelines.

Treated wastewater is discharged into the Carquinez Strait, through a submerged diffuser at Discharge Point 001, south of the facility and approximately 500 feet offshore at an approximate depth of 10 feet.

The Discharger presently discharges an average year-round flow of 2.96 million gallons per day (MGD). The facility has a dry weather design treatment capacity of 4.5 MGD, a peak hour wet weather secondary treatment capacity of 18 MGD, and a maximum short term hydraulic capacity of 24 MGD.

As part of the facility's wet weather operating strategy, the facility may blend up to 6.0 MGD of primary effluent (from holding basins) with secondary effluent prior to disinfection. During the previous permit term the facility reported one blending event lasting 4-6 hours in December 2005.

Wastewater treatment consists of influent screening and grinding, grit removal, primary clarification, biological secondary treatment via two parallel activated sludge basins or three parallel trains of rotating biological contactors (RBCs), followed by secondary clarification, chlorination and dechlorination. The RBCs are only used when influent flows exceed 10 MGD. The plant can store up to one million gallons in seven flow equalization and "industrial" waste holding basins where influent can be diverted and temporarily stored during peak flows or upsets and subsequently returned to the plant for full treatment.

Solids removed from the wastewater stream are thickened by a gravity thickener or primary sedimentation basins (for primary sludge) and dissolved air flotation (for waste activated sludge). The solids are then anaerobically digested and dewatered by a belt filter press. Stabilized, dewatered biosolids are hauled away for off-site disposal to the Potrero Hills Landfill.

In 2005 the Discharger completed a $15 million wet weather upgrade to the collection system and WWTP. The project included the following improvements:

- Three mile relief sewer line
- Six control stations

- Collection system monitoring station
- Wet weather screening structure
- Conversion of flow equalization basins to multipurpose basins for use as primary sedimentation/storage basins during wet weather events
- Blending pipeline
- Disinfection system improvements
- Mechanical bar screen and screenings washer/compactor at the existing headworks
- Effluent pump station capable of pumping up to 24 MGD
- Associated piping, electrical instrumentation, and flow monitoring

Efforts to reduce infiltration and inflow (I/I) are ongoing, with an approximately $400,000 sewer line replacement along West 2nd Street started in October 2007, and approximately $3.4 million budgeted in the City's Capital Improvement Plan for wastewater line projects and Master Plan updating over the next 20 years ($900,000 over the next five years). These efforts should further reduce the frequency of blending events.

All storm water captured within the wastewater treatment plant storm drain system is directed to the headworks of the treatment plant and treated to the standards contained in this Order. The facility is therefore exempt from coverage under the Statewide Industrial Storm Water Permit (NPDES General Permit No. CAS000001).

B. Discharge Points and Receiving Waters

The location of the City of Benecia WWTP outfall and its receiving water is shown in Table F-2 below.

Table F-2. Outfall Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	POTW Effluent	38º, 02', 30" N	122º, 09', 03" W	Carquinez Strait

The Carquinez Strait is located between San Pablo Bay and the Suisun Bay within the Suisun Basin watershed.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in the previous Order (Order No. 01-096) for discharges to the Carquinez Strait and representative monitoring data from the term of the previous Order are as follows:

Table F-3. Effluent Limitations in Order No. 01-096 and Monitoring Data for Conventional and Non-Conventional Pollutants From September 2001 to December 2005

Parameter	Units	Effluent Limitations			Monitoring Data[1]	
		Monthly Average	Weekly Average	Daily Maximum	Highest Monthly Average	Highest Daily Discharge
Oil and Grease	mg/L	10	---	20	10.4	14
pH	standard units	---	---	6.0 – 9.0	7.04	7.6
Total Suspended Solids (TSS)	mg/L	30	45	60	29	72
Acute Toxicity	% survival	[2]	[2]	[2]	[2]	[2]
Five-Day Biological Oxygen Demand (BOD_5)	mg/L	30	45	60	31	56
Fecal Coliform Bacteria	MPN/ 100 mL	[3]	[3]	[3]	174	1100
Chlorine, Total Residual	mg/L	---	---	0.0	N/A	3.0

[1] Data based on the Discharger's Report of Waste Discharge submitted January 30, 2006.

[2] Acute Toxicity Effluent Limitations: The survival of bioassay test organisms in 96-hour bioassays of undiluted effluent shall be:

a. an 11-sample median value of not less than 90 percent survival (b(1)) ; and
b. an 11-sample 90th percentile value of not less than 70 percent survival

Monitoring Data: Acute toxicity monitoring conducted during the term of the previous permit showed:

a. Fifty nine (59) acute toxicity tests were conducted from September 2001 to December 2005.
b. Forty five (45) tests resulted in survival rates greater than 90%.
c. Six (6) tests resulted in survival rates less than 90% and greater than 70%.
d. Eight (8) tests resulted in survival rates less than 70%.

[3] The geometric mean value for all samples analyzed for fecal coliform within each calendar month shall not exceed a Most Probable Number (MPN) of fecal coliform bacteria of 200 MPN/100 ml and no more than 10% of all samples collected within each calendar month shall exceed a fecal coliform bacteria level of 400 MPN/100 ml.

Table F-4. Effluent Limitations in Order No. 01-096 and Monitoring Data for Toxic Pollutants from January 2003 to December 2006

Parameter	Units	Effluent Limitations		Monitoring Data
		Monthly Average	Daily Maximum	Daily Maximum
Cadmium	µg/L	5.7	17.4	0.07[2]
Copper	µg/L	---	32[1]	9.9
Lead	µg/L	17.3	45.7	0.52
Mercury	µg/L	0.087[1]	1[1]	0.0095
Nickel	µg/L	30.2	70	11
Selenium	µg/L	---	31[1]	5
Cyanide	µg/L	25[3]	---	30
Dieldrin[3]	µg/L	0.00014	0.00028	ND (0.002)[4]
4,4-DDE[3]	µg/L	0.00059	0.00119	ND (0.002)[4]

[1] Interim limit

[2] J qualified data. This figure represents an estimated value greater than MDL but less than ML.

[3] Data collected from February 2003 to July 2006.

[4] Analyte not detected in effluent. Number in parenthesis is the MDL as reported by the analytical laboratory.

D. Compliance Summary

Exceedances of numeric effluent limits were observed during the permit term for total residual chlorine, total suspended solids (TSS), cyanide, biological oxygen demand (BOD) and acute toxicity. The exceedances are outlined below:

Table F-5. Exceedances of Numeric Effluent Limits

Date of Violation	Exceeded Parameter	Units	Effluent Limitation	Reported Concentration
October 21, 2001	TSS – Daily Maximum	mg/L	60	72
October 22, 2001	TSS – Daily Maximum	mg/L	60	62
January 31, 2002	BOD 5 Day - Monthly Average	mg/L	30	31
January 31, 2002	BOD 5 Day Monthly Removal %	Removal %	> 85%	84
January 31, 2002	TSS - Monthly Removal %	Removal %	> 85%	84
February 9, 2002	Chlorine Residual - Instantaneous Maximum	mg/L	0.0	2.0
December 22, 2002	Chlorine Residual- Instantaneous Maximum	mg/L	0.0	3.0
February 3, 2003	Acute Toxicity - 11 Sample Moving Medium	% Survival	> 90%	88
March 25, 2003	Acute Toxicity - 11 Sample Moving Medium	% Survival	> 90%	85
June 14, 2003	Cyanide - Monthly Maximum	ug/l	25	26
September 25, 2004	Cyanide - Monthly Maximum	ug/l	25	30
May 3, 2005	Chlorine Residual - Instantaneous Maximum	mg/L	0.0	1.6

Enforcement actions taken during the term of Order No. 01-096 include Order R2-2001-0017, consisting of Mandatory Minimum Penalties (MMPs) totaling $9,000; Order R2-2001-0122, consisting of MMPs totaling $18,000; Order R2-2003-0041, consisting of MMPs totaling $15,000; and Order R2-2006-0072, consisting of MMPs totaling $6,000.

The most recent enforcement action was Order R2-2007-0064, an MMP totaling $30,000. In January 2007, the City of Benicia WWTP discharged copper above the interim effluent limit. Eleven samples collected between January 3 and 25, 2007, contained copper at levels exceeding the interim daily maximum. These effluent violations were caused by a failure of the corrosion control system at the City's drinking water treatment plant, which caused the potable water delivered to the City's customers to be more corrosive than usual. As this more corrosive potable water worked through the drinking water system, it leached copper out of the pipes, resulting in higher copper concentrations being delivered to the WWTP. Although the City moved to correct the problem and optimized treatment as soon as it was discovered, the WWTP was unable to adequately treat the influent copper.

The City of Benicia WWTP discharged TSS in excess of the MDEL on November 7 and 8, 2007, and also violated the weekly effluent limit during the week of November 4, 2007. The Discharger has provided evidence that these effluent violations were the result of a plant upset caused by an unidentified suspected toxicant passing through the number 1 activated sludge basin and killing the microorganisms. Plant staff took immediate remedial actions, including purchasing and applying microbiological supplement to rebuild the microorganism population. The City of Benicia continues to investigate this event.

Several special studies and reports were required by the previous permit. These were a Receiving Water Bacteria Study Plan, submitted in June 2002; Receiving Water Bacteria Study Final Report, submitted on June 25, 2003; Final Effluent Characterization Report, submitted on January 30, 2006;

and Dioxin Study, submitted on February 3, 2005. A requirement for an Ambient Background Water Quality Characterization for Cyanide was met through BACWA; and a Report of Completion of Cyanide SSO Study was not performed because the Cyanide SSO has not yet become final.

E. Planned Changes

The City of Benicia WWTP is tentatively planning to install a 1 to 2 MGD reverse osmosis (RO) facility to provide reclaimed wastewater for cooling tower makeup water to the Valero Benicia Refinery. Additional wastewater treatment steps may include membrane filtration for pretreatment of the secondary effluent that will serve as the feedwater for the RO membrane unit(s), trickling filters, ultraviolet disinfection, and pump station and pipeline facilities to deliver the RO permeate to Valero. The reject stream generated by the RO system will be blended back with secondary effluent upstream of Monitoring Location EFF-001 and discharged through the existing deepwater outfall. Production and usage of the RO reclaimed water must be in full compliance with Title 22 requirements for reclaimed wastewater. Prior to start-up of recycled water production and delivery facilities, the City must apply for coverage under the Regional Water Board General Water Recycling Order No. 96-011. Design and construction of the RO plant depends on favorable results of an on-going feasibility study.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to CWA section 402 and NPDES implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California 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 the Water Code (commencing with section 13260).

B. California Environmental Quality Act (CEQA)

Under Water Code 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 for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Resources Control Board, USEPA, and the Office of Administrative Law, as required. The Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which establishes State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for

municipal or domestic supply (MUN). Because of the marine influence on receiving waters of the San Francisco Bay, total dissolved solids levels in the Bay commonly (and often significantly) exceed 3,000 mg/L and thereby meet an exception to State Water Board Resolution No. 88-63. Therefore, the MUN designation is not applicable to the Carquinez Strait. Beneficial uses applicable to Carquinez Strait are as follows.

Table F-6. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Carquinez Strait	Existing: • Industrial Service Supply (IND) • Ocean, Commercial, and Sport Fishing (COMM) • Estuarine Habitat (EST) • Fish Migration (MIGR) • Preservation of Rare and Endangered Species (RARE) • Fish Spawning (SPWN) • Wildlife Habitat (WILD) • Water Contact Recreation (REC1) • Non-Contact Water Recreation (REC2) • Navigation (NAV)

Requirements of this Order implement the Basin Plan.

2. **Thermal Plan.** The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains WQOs for coastal and interstate surface waters as well as enclosed bays and estuaries. Requirements of this Order implement the Thermal Plan.

3. **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 water quality criteria for priority pollutants.

4. **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.

5. **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 [40 C.F.R. § 131.21, 65 Fed. Reg. 24641 (April 27, 2000)]. 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.

6. **Antidegradation Policy.** 40 CFR 131.12 requires 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 68-16. Resolution 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution 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 is consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution 68-16. This Order continues the status quo with respect to the level of discharge authorized in the previous permit and thus there will be no change in water quality beyond the level that was authorized in the last permit. The final limitations in this Order comply with antidegradation requirements and meet the requirements of the SIP because these limits hold the Discharger to performance levels that will neither cause nor contribute to water quality impairment, nor further water quality degradation. This is because this Order does not provide for an increase in the permitted design flow, allow for a reduction in the level of treatment, or increase effluent limitations (with the exception of copper and cyanide).

   Although this Order establishes final WQBELs for copper and cyanide that are above the previous interim limitations, the concentration of copper and cyanide discharges is unlikely to change because the Discharger proposes no changes to its treatment process. The Discharger will maintain current treatment performance for copper because it cannot manipulate its process to adjust effluent copper levels independently of other treatment parameters. To maintain compliance with other effluent limits, the Discharger will maintain its current performance with respect to copper and cyanide. Moreover, pollution minimization requirements are designed to maintain current performance.

   In the cases of copper and cyanide:

   - Alternate effluent limits for copper based on site-specific objectives (SSOs) will be higher than the current interim limits if the SSOs for copper become effective during the permit term.

   - The final effluent limits for cyanide, though higher than the interim effluent limit in Order No. 01-096, are lower than those anticipated following approval of the cyanide SSO.

The standards-setting processes for the copper and cyanide SSOs addressed antidegradation. The copper and cyanide limits in this Order are consistent with the antidegradation analyses prepared for the SSOs, which concluded that water quality would not be degraded. These conclusions were based on assumed implementation of copper and cyanide action plans. Such plans are included in the provisions of this Order (Sections VI.C.8 and 9).

As antidegradation has been addressed, there will be no lowering of water quality beyond the current level authorized in the previous permit, which is the baseline by which to measure whether degradation will occur, and further analysis in this permit is unnecessary. Findings authorizing degradation are thus unnecessary.

7. **Anti-Backsliding Requirements.** CWA Sections 402(o)(2) and 303(d)(4) and NPDES 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. Except for limitations for dieldrin and 4,4-DDE, all limitations established by the Tentative Order are at least as stringent as limitations established by Order No. 01-096.

   Because the reasonable potential analysis showed that discharges from the City of Benicia WWTP no longer demonstrate Reasonable Potential for dieldrin or 4,4-DDE, effluent limitations for these pollutants are not retained by this Order. The State Water Board's Remand Order for Napa (State Board Order WQ 2001-16) found, "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." The logic of the Napa Remand Order also applies to situations where a pollutant is detected, but no longer triggers reasonable potential. The removal of limits for dieldrin and 4,4-DDE is therefore consistent with the State Water Resources Control Board's Order WQ 2001-16, and consistent with anti-backsliding requirements.

D. Impaired Waterbodies on CWA 303(d) List

In November 2006, the USEPA approved a revised list of impaired waterbodies prepared by the State (hereinafter referred to as the 303(d) list), pursuant to provisions of CWA section 303(d), which requires identification of specific waterbodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. The Carquinez Strait is listed as an impaired waterbody for chlordane, DDT, dieldrin, dioxin and furan compounds, exotic species, mercury, PCBs, 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 and associated waste load allocations.

1. Total Maximum Daily Loads

The Regional Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for pollutants on the 303(d) list in the Carquinez Strait within the next twelve years. Future review of the 303(d) list for the Carquinez Strait may provide schedules or result in revision of the schedules for adoption of TMDLs.

2. Waste Load Allocations

The TMDLs will establish waste load allocations (WLAs) for point sources and load allocations (LAs) for non-point sources, and will result in achieving the water quality standards for the waterbodies. Final WQBELs for 303(d)-listed pollutants in this discharge will be based on WLAs contained in the respective TMDLs.

3. Implementation Strategy

The Regional Water Board's strategy to collect water quality data and to develop TMDLs is summarized below:

a. Data Collection. The Regional Water Board has given dischargers to the Bay the option to collectively assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or WQOs/WQC. This collective effort may include development of sample concentration techniques for approval by the USEPA. The Regional Water Board will require dischargers to characterize the pollutant loads from their facilities into the water-quality limited waterbodies. The results will be used in the development of TMDLs, and may be used to update or revise the 303(d) list or change the WQOs/WQC for the impaired waterbodies including Carquinez Strait.

b. Funding Mechanism. The Regional Water Board has received, and anticipates continuing to receive, resources from Federal and State agencies for TMDL development. To ensure timely development of TMDLs, the Regional Water Board intends to supplement these resources by allocating development costs among dischargers through the RMP or other appropriate funding mechanisms.

E. Other Plans, Polices and Regulations

This Order is also based on the following plans, polices, and regulations:

1. The Federal *Water Pollution Control Act*, Sections 301 through 305, and 307, and amendments thereto, as applicable (CWA);

2. The State Water Board's March 2, 2000 *Policy for Implementation of Toxics Standards for Inland Surface Water Enclosed Bays, and Estuaries of California*; the USEPA's May 18, 2000 *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* or CTR, 40 C.F.R. §131.38(b) and amendments;

3. The USEPA's *Quality Criteria for Water* [EPA 440/5-86-001, 1986] and subsequent amendments (the USEPA Gold Book);

4. Applicable federal regulations [40 CFR §§ 122 and 131];

5. 40 CFR §131.36(b) and amendments [Federal Register Volume 60, Number 86, 4 May 1995, pages 22229-22237];

6. USEPA's December 10, 1998 National Recommended Water Quality Criteria compilation [Federal Register Vol. 63, No. 237, pp. 68354-68364];

7. USEPA's December 27, 2002 Revision of National Recommended Water Quality Criteria compilation [Federal Register Vol. 67, No. 249, pp. 79091-79095]; and

8. Guidance provided with State Water Board Orders remanding permits to the Regional Water Board for further consideration.

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 the NPDES regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 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. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs may be established: (1) using USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) on an indicator parameter for the pollutant of concern; or (3) using a calculated numeric water quality criterion, 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).

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

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 California Water Code 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. (average dry weather flow not to exceed dry weather design capacity):** This prohibition is based on the design treatment capacity of the wastewater treatment facility. Exceedance of the treatment plant's average dry weather flow design capacity of 4.5 MGD may lower the plant's ability to reliably comply with water quality requirements.

3. **Discharge Prohibitions III.C (No discharge receiving less than 10:1 dilution):** This prohibition is the same as in the previous permit and is based on Discharge Prohibition No. 1 from Table 4-1 of the Basin Plan, which prohibits discharges that do not receive a minimum 10:1 initial dilution. Further, this Order allows a 10:1 dilution credit in the calculation of some water quality based effluent limitations, and these limits would not be protective of water quality, if the discharge did not actually achieve a 10:1 minimum initial dilution.

4. **Discharge Prohibition III.D. (No bypass except under the conditions at 40 CFR 122.41(m)(4)(i)(A-C):** This prohibition is based on the NPDES regulations expressed at 40 CFR 122.41(m)(4). This prohibition grants bypass of peak wet weather flows above 18 MGD that are recombined with secondary treatment flows and discharged at the combined outfall 001, which meet the conditions established at 40 CFR 122.41(m)(4)(i)(A-C).

Background

During significant storm events, high volume flows can overwhelm certain parts of the wastewater treatment process and may cause damage or failure of the system. Operators of wastewater treatment plants must manage these high flows to both ensure the continued operation of the treatment process and to prevent backups and overflows of raw wastewater in basements or on city streets. USEPA recognizes that peak wet weather flow diversions around secondary treatment units at publicly owned treatment works (POTWs) serving separate sanitary sewer conveyance systems may be necessary in such circumstances.

In December 2005, USEPA invited public comment on its proposed Peak Wet Weather Policy that interprets 40 CFR 122.41(m) to apply to wet weather diversions that are recombined with flow from the secondary treatment, and provides guidance for NPDES approval by the Regional Water Board. The proposed policy requires that blended discharges meet all the requirements of NPDES permits, and it encourages municipalities to invest in maintenance and capital improvements to improve long-term performance of wastewater handling and treatment systems.

Criteria of 40 CFR 122.41(m)(4)(i)(A – C)

40 CFR 122.41(m)(4)(i) prohibits incidents of bypass, unless:

(A) Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;

(B) There is no feasible alternative to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment of equipment downtime; and

(C) The Discharger submits notice of the bypass in accordance with 40 CFR 122.41(m)(3).

On October 24, 2007, the Discharger submitted a No Feasible Alternative Analysis satisfying the criteria of 40 CFR 122.41(m)(4)(i) and showing that, at this time, there are no feasible alternatives to blending under certain high flow conditions. The City of Benicia adopted a master plan in 2000 that included both sewerage and treatment plant improvements intended to provide full secondary treatment during any storm event not exceeding a 20-year return period event. The primary components of this plan, described in Fact Sheet section II.A, were completed in 2005, increasing the wet weather capacity of the WWTP to a maximum of 18 MGD secondary treatment, and a peak blended disinfection and discharge rate of 24 MGD. The plant upgrades also provided 1 MG of flow equalization storage.

The Discharger reported one blending event lasting 4-6 hours in December 2005, resulting from an event that exceeded a 20-year storm. No blending events have occurred since.

5. **Discharge Prohibition III.E (No sanitary sewer overflows to waters of the United States):** Discharge Prohibition No. 15 from Table 4-1 of the Basin Plan and the Clean Water Act 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 necessary to achieve water quality standards. [33 U.S.C. § 1311 (b)(1)(B and C)]. Therefore, a sanitary sewer overflow that results in the discharge of raw sewage, or sewage not meeting secondary treatment requirements is prohibited under the Clean Water Act and the Basin Plan.

B. Technology-Based Effluent Limitations

1. Scope and Authority

CWA section 301(b)(1)(B) requires USEPA to develop secondary treatment standards for publicly owned wastewater treatment facilities – the level of effluent quality attainable through application of secondary or equivalent treatment. USEPA promulgated such technology-based effluent guidelines for POTWs at 40 CFR 133. These Secondary Treatment Regulations include the following minimum requirements for POTWs, which are applicable to discharges from the City of Benicia WWTP.

Table F-7. Secondary Treatment Requirements

	30-Day Average	7-Day Average
BOD_5 [1]	30 mg/L	45 mg/L
Five-day Carbonaceous BOD ($CBOD_5$) [1][2]	25 mg/L	40 mg/L
TSS [1]	30 mg/L	45 mg/L
pH	6.0 – 9.0	

[1] The 30-day average percent removal shall not be less than 85 percent.

[2] At the option of the permitting authority, effluent limitations for $CBOD_5$ may be substituted for limitations for BOD_5.

2. Applicable Technology-Based Effluent Limitations

This Order retains the following technology based effluent limitations, applicable to Discharge Point 001, from Order No. 01-096.

Table F-8. Summary of Technology-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD_5	mg/L	30	45		---	---
TSS	mg/L	30	45		---	---
Oil and Grease	mg/L	10	---	20	---	---
pH	s.u.	---	---	---	6.0	9.0

The limitations established for oil and grease are levels attainable by secondary treatment and are required by the Basin Plan (Table 4-2) for all discharges to inland surface waters and enclosed bays and estuaries of the Region.

The pH limitation is retained from the previous Order and is required by USEPA's Secondary Treatment Regulation at 40 CFR 133 and by the Basin Plan (Table 4-2) for deep water discharges.

Except as explained below, the technology-based limits on BOD and TSS are retained from Order No. 01-096. Anti-backsliding provisions of the CWA do not allow these limits to be less stringent than those in the previous Order. However, the maximum daily limitations (MDELs) for BOD and TSS are not retained from Order No. 01-096. 40 CFR 122.45(d)(2) specifies that discharge limitations for POTWs shall be stated as average weekly limitations and average monthly limitations, unless impracticable, and this Order has been drafted accordingly.

Settleable solids limits from the previous permit are no longer required. This is because this facility provides secondary treatment, and settleable solids limitations are technology-based effluent limitations for primary treatment. The Basin Plan was amended on January 21, 2004, in part, because it mistakenly applied these limits to secondary and advanced treatment plants.

The technology-based effluent limitations for settleable matter are not retained from Order No. 01-096, as the Regional Water Board has determined that compliance with the Secondary Treatment Regulation at 40 CFR 133 and with the Basin Plan(Table 4-2) requirements for all discharges to inland surface waters and enclosed bays and estuaries of the Region will assure 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).

Secondary Treatment Regulations at 40 CFR 133 require effluent limitations for BOD for all POTWs and allows the substitution of CBOD limitations for BOD limitations "at the option of the NPDES permitting authority." The previous permit included limits for both BOD and CBOD and allowed the Discharger to determine compliance by monitoring for either BOD or CBOD. Because the Discharger monitored only BOD during the term of the previous permit, CBOD limitations are not retained by this Order.

3. Bacteria

a. Fecal Coliform. Table 4-2 of the Basin Plan establishes effluent limitations for total coliform bacteria for all discharges from sewage treatment facilities to inland surface waters and enclosed bays and estuaries of the Region. Fecal coliform limitations may be substituted for the limitations of the Basin Plan "provided it can be conclusively demonstrated through a program approved by the Regional Water Board that such substitution will not result in unacceptable adverse impacts on the beneficial uses of the receiving water." The previous Order allowed the substitution of fecal coliform for total coliform effluent limits with the stipulation that the Discharger complete a receiving water study showing that the substitution would not result in unacceptable adverse impacts on the beneficial uses of the receiving water.

The Discharger submitted study results to the Regional Water Board justifying the substitution of fecal coliform limitations for total coliform limitations. Between July 3 and December 24, 2002, the Discharger collected weekly effluent and receiving water samples and performed analyses for total and fecal coliform and enterococci bacteria. Receiving water samples were collected at an "upstream" (a deep water dock-B.I. Dock) and a "downstream" (First Street Dock) location in the Carquinez Strait. Bacterial analyses conducted during the study period showed the following results.

Effluent

- Fecal coliform bacteria were consistently below the effluent limitations of 200 organisms/100 mL (geometric mean) and 400 organisms/100 mL (90th percentile).
- Enterococci bacteria were consistently very low (at or below 20 organisms/100 mL).
- Total coliform bacteria concentrations were slightly elevated, at times exceeding a five sample median of 240 organisms/100 mL, but never exceeding a sample maximum of 1,600 organisms/100 mL.

Receiving Water

- In general, all samples met applicable water quality objectives for total and fecal coliform and enterococci bacteria established by Tables 3-1 and 3-2 of the Basin Plan.
- **"**Downstream" samples appear to have slightly higher concentrations of bacteria relative to "upstream" samples; however, in all receiving water samples, bacteria concentrations were low.
- Bacteria concentrations in receiving water do not appear to correspond to concentrations in effluent.

Based on these study results submitted by the Discharger, the Regional Water Board has determined that the alternative effluent limitations for fecal coliform bacteria provide satisfactory protection of the beneficial uses of the receiving water. This Order retains fecal coliform limitations established by the previous permit.

b. Enterococci: This Order establishes a technology-based effluent limitation for enterococci bacteria. This limitation is based on the enterococci concentration currently economically and technologically achievable by six other POTWs in the San Francisco Bay Region. This limitation is also consistent with the requirements of the Basin Plan at Table 4-2, footnote d, and with the BEACH Act of 2004 [40CFR 133.41(e)(1)]. This effluent limitation will ensure that there are no "unacceptable adverse impacts on the beneficial uses" of lower San Francisco Bay.

Enterococci are more closely associated with gastrointestinal disease contracted by water contact than are fecal coliform bacteria. USEPA established bacteriological criteria for water contact recreation in coastal waters, including coastal estuaries such as San

Francisco Bay, pursuant to the BEACH Act on November 16, 2004 (Federal Register, Volume 69, No. 220). This Order's effluent limitation on enterococci, a geometric mean of 35 MPN/100 mL, is equivalent to the BEACH Act's saltwater bacteriological criterion for water contact recreation.

Bacteria concentrations in sewage treatment plant effluent are primarily a function of disinfectant application, so the Discharger can meet this limitation with its existing technology. Because this technology-based limitation does not account for dilution in the receiving waters, it is likely to be conservative in terms of protecting beneficial uses, and therefore consistent with Basin Plan Table 4-2, footnote d.

Although USEPA also established single sample maximum criteria for enterococci bacteria, this Order implements only the geometric mean criterion of 35 MPN/100 mL. When these 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…" [Federal Register, Volume 69, No 220].

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

a. NPDES regulations at 40 CFR 122.44(d)(1)(i) require permits to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard (Reasonable Potential). 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 and WQC that are contained in the CTR, NTR, Basin Plan, other State plans and policies.

b. NPDES regulations and the SIP provide the basis to establish Maximum Daily Effluent Limitations (MDELs).

(1) NPDES Regulations. NPDES regulations at 40 CFR Part 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 (page 8, Section 1.4) requires WQBELs 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 Water Quality Criteria and Objectives

The WQC and WQOs applicable to the receiving waters for this discharge are from the Basin Plan; the California Toxics Rule (CTR), established by USEPA at 40 CFR 131.38; and the National Toxics Rule (NTR), established by USEPA at 40 CFR 131.36. Some pollutants have WQC/WQOs established by more than one of these three sources.

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

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, although Tables 3-3 and 3-4 of the Basin Plan include numeric objectives for certain of these priority toxic pollutants, which supersede criteria of the CTR (except in the South Bay south of the Dumbarton Bridge).

c. NTR. The NTR establishes numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to, and including Suisun Bay and the Delta. These criteria of the NTR are applicable to the Carquinez Strait, the receiving water for this Discharger.

d. Technical Support Document for Water Quality-Based Toxics Controls. Where numeric objectives have not been established or updated in the Basin Plan, NPDES regulations at 40 CFR Part 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 Parts 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 State Water Resources Control Board's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (the SIP, 2005).

e. **Basin Plan Receiving Water Salinity Policy.** The Basin Plan (like the CTR and the NTR) states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than one part per thousand (ppt) at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to water with salinities in between these two categories, or tidally influenced freshwaters that support estuarine beneficial uses, the criteria shall be the lower of the salt or freshwater criteria (the latter calculated based on ambient hardness) for each substance.

   The receiving water for this discharger, the Carquinez Strait, is an estuarine environment based on salinity data generated through the San Francisco Estuary Institute's Regional Monitoring Program (RMP) at the Pacheco Creek (BF10) and the Davis Point (BD40) sampling stations between 1993 and 2001. In that period, the minimum salinity was 0.0 ppt, the maximum salinity was 25 ppt, and the average salinity was 9.4 ppt. As the salinity was between 1 and 10 ppt in 44 percent of receiving water samples, both the freshwater and saltwater criteria from the Basin Plan, NTR, and CTR are applicable to this discharge.

f. **Shallow/Deep Water Discharge.** The discharge from the City of Benicia WWTP to the Carquinez Strait is viewed as a deep water discharge, which is defined by the Basin Plan as a discharge that receives a minimum initial dilution of 10 to 1. Pursuant to the Basin Plan, WQBELs established by this Order for non-bioaccumulative pollutants are based on a minimum initial dilution of 10 to 1.

g. **Site-Specific Metals Translators.** Because NPDES regulations at 40 CFR 122.45(c) require effluent limitations for metals to be expressed as total recoverable metal, and applicable WQC for the 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. In the CTR, USEPA establishes default translators 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 and therefore available in the water to cause toxicity. In general, the dissolved form of the metals is more available and more toxic to aquatic life than filterable forms. Site-specific translators can be developed to account for site-specific conditions, thereby preventing exceedingly stringent or under protective WQOs.

   For this deep water discharge to the Carquinez Strait, this Order uses the following translators for copper and nickel, based on the recommendations of the Clean Estuary Partnership's (CEP's) *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (2005). Default translators established by the USEPA in the CTR at 40 CFR 131.38(b)(2), Table 2, are used to determine the need for and to calculate WQBELs for all other metals.

Cu and Ni Translators for Deepwater Discharges to North San Francisco Bay	Copper		Nickel	
	AMEL Translator	**MDEL Translator**	**AMEL Translator**	**MDEL Translator**
	0.38	0.67	0.27	0.57

3. Determining the Need for WQBELs

NPDES regulations at 40 CFR 122.44(d)(1)(i) require permits to include WQBELs for all pollutants (non-priority or priority) "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 narrative or numeric criteria within a State water quality standard." Thus, assessing whether a pollutant has "Reasonable Potential" is the fundamental step in determining whether or not a WQBEL is required. For non-priority pollutants, Regional Water Board staff used available monitoring data, the receiving water's designated uses, and/or previous permit pollutant limitations to determine Reasonable Potential. For priority pollutants, Regional Water Board staff used the methods prescribed in Section 1.3 of the SIP to determine if the discharge from the City of Benicia WWTP demonstrates Reasonable Potential as described below in sections 3.a – 3.e.

a. Reasonable Potential Analysis

Using the methods prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent data to determine if the discharge from the City of Benicia WWTP demonstrates Reasonable Potential. The Reasonable Potential Analysis (RPA) compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQC established by the USEPA in the NTR and CTR. The Basin Plan objectives and CTR criteria are shown in Appendix A of this Fact Sheet.

b. Reasonable Potential Methodology

Using the methods and procedures prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent and background data and the nature of facility operations to determine if the discharge has Reasonable Potential to cause or contribute to exceedances of applicable WQOs or WQC. Appendix A of this Fact Sheet shows the stepwise process described in Section 1.3 of the SIP.

The RPA is based on existing data, while accounting for a limited data set and effluent variability. There are three triggers in determining Reasonable Potential.

(1) The first trigger is activated if the maximum effluent concentration (MEC) is greater than or equal to the lowest applicable WQO (MEC $\geq$ WQO), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than or equal to the adjusted WQO, then that pollutant has Reasonable Potential, and a WQBEL is required.

(2) The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO (B > WQO), and the pollutant is detected in any of the effluent samples (MEC > ND).

(3) The third trigger 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 WQO/WQC. A limitation may be required under certain circumstances to protect beneficial uses.

c. Effluent Data

The Regional Water Board's August 6, 2001 letter titled *Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (hereinafter referred to as the August 6, 2001 Letter—available online; see Standard Language and Other References Available Online, below) to all permittees formally required the Discharger (pursuant to Water Code Section 13267) 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 this effluent data and the nature of the City of Benicia WWTP to determine if the discharge has Reasonable Potential. The RPA was based on the effluent monitoring data collected by the Discharger from January 2004 through December 2006 for most inorganic pollutants, and from February 2003 through October 2006 for most organic pollutants.

d. Ambient Background Data

Ambient background values are used in the RPA and in the calculation of effluent limitations. 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/objectives intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations. The RMP station at Yerba Buena Island, located in the Central Bay, has been monitored for most of the inorganic (CTR constituent numbers 1–15) and some of the organic (CTR constituent numbers 16–126) toxic pollutants, and these data from the RMP were used as background data in performing the RPA for this Discharger.

Not all the constituents listed in the CTR have been analyzed by the RMP. These data gaps are addressed by the August 6, 2001 Letter. The August 6, 2001 Letter formally required Dischargers (pursuant to Section 13267 of the California Water Code) 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*. This study includes monitoring results from sampling events in 2002 and 2003 for the remaining priority pollutants not monitored by the RMP. The RPA was conducted and the WQBELs were calculated using RMP data from 1993 through 2003 for inorganics and organics at the Yerba Buena Island RMP station, and additional data from the BACWA *Ambient Water Monitoring: Final CTR Sampling Update Report* for the Yerba Buena Island RMP station. The Dischargers may utilize the receiving water study

provided by BACWA to fulfill all requirements based on the August 6, 2001 Letter for receiving water monitoring in this Order.

e. RPA Determination

The MECs, most stringent applicable WQOs/WQC, and background concentrations used in the RPA are presented in the following table, along with the RPA results (yes or no) for each pollutant analyzed. Reasonable Potential was not determined for all pollutants, as there are not applicable WQOs/ WQC for all pollutants, and monitoring data was not available for others. RPA results are shown below and in Appendix A of this Fact Sheet. Based on a review of the effluent data collected during the previous permit term, the pollutants that exhibit Reasonable Potential are copper, selenium, cyanide, dioxin-TEQ, and ammonia.

Table F-9. RPA Results

CTR #	Priority Pollutants	MEC or Minimum DL [a][b] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [a][b] (µg/L)	RPA Results[c]
1	Antimony	0.4 J	4300	1.8	No
2	Arsenic	2.0	36	2.46	No
3	Beryllium	< 0.06	No Criteria	0.215	Ud
4	Cadmium	0.06 J	3.4	0.13	No
5a	Chromium (III)	1.3	644	Not Available	No
5b	Chromium (VI)	Not Available	11	4.4	Ud
6	Copper	8.6	7.2	2.55	Yes
7	Lead	0.52	8.5	0.80	No
8	Mercury (303d listed)	0.02	0.025	0.0086	No
9	Nickel	8.5	30	3.7	No
10	Selenium (303d listed)	5.0	5.0	0.39	Yes
11	Silver	0.6	2.2	0.052	No
12	Thallium	0.08 J	6.3	0.21	No
13	Zinc	63	86	5.1	No
14	Cyanide	30	1.0	< 0.4	Yes
15	Asbestos	Not Available	No Criteria	Not Available	Ud
16	2,3,7,8-TCDD (303d listed)	< 6.37E-07	1.4E-08	Not Available	No
16-TEQ	Dioxin TEQ (303d listed)	5.69E-07	1.4E-08 [d]	7.10E-08	Yes
17	Acrolein	< 0.5	780	< 0.5	No
18	Acrylonitrile	< 0.33	0.66	0.03	No
19	Benzene	0.09 J	71	< 0.05	No
20	Bromoform	0.1 J	360	< 0.5	No
21	Carbon Tetrachloride	< 0.04	4.4	0.06	No
22	Chlorobenzene	< 0.03	21000	< 0.5	No
23	Chlorodibromomethane	0.8	34	< 0.05	No
24	Chloroethane	< 0.03	No Criteria	< 0.5	Ud
25	2-Chloroethylvinyl ether	< 0.1	No Criteria	< 0.5	Ud
26	Chloroform	6.8	No Criteria	< 0.5	Ud
27	Dichlorobromomethane	1.5	46	< 0.05	No

CTR #	Priority Pollutants	MEC or Minimum DL [a][b] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [a][b] (µg/L)	RPA Results[c]
28	1,1-Dichloroethane	< 0.04	No Criteria	< 0.05	Ud
29	1,2-Dichloroethane	0.2 J	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	0.07 J	29000	< 0.5	No
34	Methyl Bromide	2.4	4000	< 0.5	No
35	Methyl Chloride	0.4 J	No Criteria	< 0.5	Ud
36	Methylene Chloride	190	1600	0.5	No
37	1,1,2,2-Tetrachloroethane	< 0.04	11	< 0.05	No
38	Tetrachloroethylene	< 0.04	8.85	< 0.05	No
39	Toluene	0.9	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	0.2 J	81	< 0.5	No
44	Vinyl Chloride	< 0.05	525	< 0.5	No
45	2-Chlorophenol	< 0.6	400	< 1.2	No
46	2,4-Dichlorophenol	< 0.7	790	< 1.3	No
47	2,4-Dimethylphenol	1.2 J	2300	< 1.3	No
48	2-Methyl- 4,6-Dinitrophenol	< 0.9	765	< 1.2	No
49	2,4-Dinitrophenol	< 0.6	14000	< 0.7	No
50	2-Nitrophenol	< 0.7	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	< 0.9	7.9	< 1.0	No
54	Phenol	5	4600000	< 1.3	No
55	2,4,6-Trichlorophenol	< 0.6	6.5	< 1.3	No
56	Acenaphthene	< 0.03	2700	0.0015	No
57	Acenaphthylene	< 0.02	No Criteria	0.00053	Ud
58	Anthracene	< 0.03	110000	0.0005	No
59	Benzidine	< 0.93	0.00054	< 0.0015	No
60	Benzo(a)Anthracene	< 0.02	0.049	0.0053	No
61	Benzo(a)Pyrene	< 0.02	0.049	0.00029	No
62	Benzo(b)Fluoranthene	< 0.02	0.049	0.0046	No
63	Benzo(ghi)Perylene	< 0.02	No Criteria	0.0027	Ud
64	Benzo(k)Fluoranthene	< 0.02	0.049	0.0015	No
65	Bis(2-Chloroethoxy)Methane	< 0.7	No Criteria	< 0.3	Ud
66	Bis(2-Chloroethyl)Ether	< 0.65	1.4	< 0.3	No
67	Bis(2-Chloroisopropyl)Ether	< 0.6	170000	Not Available	No
68	Bis(2-Ethylhexyl)Phthalate	2.9 J	5.9	< 0.5	No
69	4-Bromophenyl Phenyl Ether	< 0.4	No Criteria	< 0.23	Ud
70	Butylbenzyl Phthalate	< 0.8	5200	< 0.52	No

CTR #	Priority Pollutants	MEC or Minimum DL [a][b] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [a][b] (µg/L)	RPA Results[c]
71	2-Chloronaphthalene	< 0.5	4300	< 0.3	No
72	4-Chlorophenyl Phenyl Ether	< 0.5	No Criteria	< 0.3	Ud
73	Chrysene	< 0.02	0.049	0.0024	No
74	Dibenzo(a,h)Anthracene	< 0.03	0.049	0.00064	No
75	1,2-Dichlorobenzene	< 0.03	17000	< 0.8	No
76	1,3-Dichlorobenzene	< 0.03	2600	< 0.8	No
77	1,4-Dichlorobenzene	0.6	2600	< 0.8	No
78	3,3 Dichlorobenzidine	< 0.3	0.077	< 0.001	No
79	Diethyl Phthalate	< 0.7	120000	< 0.24	No
80	Dimethyl Phthalate	< 0.56	2900000	< 0.24	No
81	Di-n-Butyl Phthalate	< 0.56	12000	< 0.5	No
82	2,4-Dinitrotoluene	< 0.6	9.1	< 0.27	No
83	2,6-Dinitrotoluene	< 0.47	No Criteria	< 0.29	No
84	Di-n-Octyl Phthalate	< 0.65	No Criteria	< 0.38	No
85	1,2-Diphenylhydrazine	< 0.6	0.54	0.0037	No
86	Fluoranthene	< 0.03	370	0.011	No
87	Fluorene	< 0.02	14000	0.00208	No
88	Hexachlorobenzene	< 0.4	0.00077	0.0000202	No
89	Hexachlorobutadiene	< 0.7	50	< 0.3	No
90	Hexachlorocyclopentadiene	< 0.4	17000	< 0.31	No
91	Hexachloroethane	< 0.6	8.9	< 0.2	No
92	Indeno(1,2,3-cd)Pyrene	< 0.02	0.049	0.004	No
93	Isophorone	< 0.47	600	< 0.3	No
94	Naphthalene	< 0.02	No Criteria	0.0023	Ud
95	Nitrobenzene	< 0.65	1900	< 0.25	No
96	N-Nitrosodimethylamine	< 0.56	8.1	< 0.3	No
97	N-Nitrosodi-n-Propylamine	< 0.75	1.4	< 0.001	No
98	N-Nitrosodiphenylamine	< 0.56	16	< 0.001	No
99	Phenanthrene	< 0.02	No Criteria	0.0061	Ud
100	Pyrene	< 0.02	11000	0.0051	No
101	1,2,4-Trichlorobenzene	< 0.05	No Criteria	< 0.3	Ud
102	Aldrin	< 0.002	0.00014	Not Available	No
103	Alpha-BHC	< 0.003	0.013	0.000496	No
104	beta-BHC	< 0.003	0.046	0.000413	No
105	gamma-BHC	< 0.002	0.063	0.0007034	No
106	delta-BHC	< 0.002	No Criteria	0.000042	Ud
107	Chlordane (303d listed)	< 0.005	0.00059	0.00018	No
108	4,4'-DDT (303d listed)	< 0.002	0.00059	0.000066	No
109	4,4'-DDE (linked to DDT)	< 0.002	0.00059	0.000693	No
110	4,4'-DDD	< 0.002	0.00084	0.000313	No
111	Dieldrin (303d listed)	< 0.002	0.00014	0.000264	No
112	Alpha-Endosulfan	< 0.002	0.0087	0.000031	No
113	beta-Endolsulfan	< 0.002	0.0087	0.000069	No

CTR #	Priority Pollutants	MEC or Minimum DL [a][b] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [a][b] (µg/L)	RPA Results[c]
114	Endosulfan Sulfate	< 0.002	240	0.0000819	No
115	Endrin	< 0.002	0.0023	0.000036	No
116	Endrin Aldehyde	< 0.002	0.81	Not Available	No
117	Heptachlor	< 0.003	0.00021	0.000019	No
118	Heptachlor Epoxide	< 0.002	0.00011	0.00002458	No
119-125	PCBs sum (303d listed)	< 0.03	0.00017	Not Available	No
126	Toxaphene	< 0.15	0.0002	Not Available	No
	Tributyl Tin	< 0.00015	0.001 [e]	< 0.001	No
	Total PAHs	Not Available	15	0.26	Ud
	Total Ammonia [f]	**43,000**	**1,240**	**70**	**Yes**

[a] The Maximum Effluent Concentration (MEC) or maximum background concentration is the actual detected concentration unless there is a "<" sign before it, in which case the value shown is the minimum detection level. Values shown with a "J" indicate an estimated, not quantified value

[b] The MEC or maximum background concentration is "Not Available" when there are no monitoring data for the constituent.

[c] RPA Results = Yes, if MEC > WQO/WQC, B > WQO/WQC and MEC is detected;
= 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.

[d] The governing WQO for dioxin-TEQ is translated from the Basin Plan's narrative bioaccumulation objective as described in Fact Sheet section IV.C.4.d(1).

[e] The governing WQO for tributyl tin is translated from the Basin Plans narrative toxicity objective.

[f] The Total Ammonia WQO is the most stringent of the acute or chronic un-ionized ammonia water quality objectives from the Basin Plan converted into total ammonia concentrations based on ambient receiving water conditions as described in Fact Sheet section IV.C.4.c.(6).

1. **Constituents with limited data.** The Discharger has performed sampling and analysis for the constituents listed in the CTR. This data set was used to perform the RPA. 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.

2. **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 will be required to investigate the source(s) of the increase(s). Remedial measures are required if the increases pose a threat to water quality in the receiving water.

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 applicable WQOs or WQC.

The WQBELs were calculated based on appropriate WQOs/WQC and the procedures specified in Section 1.4 of the SIP. The WQOs or WQC used for each pollutant with Reasonable Potential are discussed below.

b. Dilution Credit

The SIP provides the basis for any dilution credit. The Benicia outfall is designed to achieve a minimum initial dilution of 10:1. Based on review of RMP monitoring data for San Francisco Bay, there is variability in the receiving water, and the hydrology of the receiving water is, itself, very complex. Therefore, there is uncertainty regarding the representative nature of ambient background data used for determination of effluent limitations. Pursuant to section 1.4.2.1 of the SIP, "dilution credit may be limited or denied on a pollutant-by-pollutant basis…." The detailed basis for each credit is explained below.

(1) For certain bioaccumulative pollutants, dilution credit is not included in calculating the final WQBELs. This determination is based on available data on concentrations of these pollutants in aquatic organisms, sediment, and the water column. The CWA 303(d) list was updated and approved by the Regional Water Board on October 25, 2006. For Carquinez Strait, the Regional Water Board placed DDT, exotic species, mercury polychlorinated biphenyls (PCBs), and selenium on the 303(d) list. USEPA added dioxin and furan compounds, chlordane, dieldrin, and dioxin-like PCBs to the CWA Section 303(d) list. The reasoning for these decisions is based on the following factors that suggest there is no more assimilative capacity in San Francisco Bay for these pollutants.

Tissue samples taken from fish in San Francisco Bay show the presence of these pollutants at concentrations greater than screening levels (*Contaminant Concentrations in Fish from San Francisco Bay*, *1997,* May 1999, San Francisco Estuary Institute). The results of the 1994 San Francisco Bay pilot study, presented in *Contaminant Levels in Fish Tissue from San Francisco Bay* (Regional Water Board, 1994), also showed elevated levels of chemical contaminants in fish tissues. The Office of Environmental Health and Hazard Assessment (OEHHA) completed a preliminary review of data in the 1994 report, and subsequently issued an interim consumption advisory covering certain fish species in San Francisco Bay in December 1994. This advisory is still in effect for exposure to sport fish contaminated with mercury, dioxins, and pesticides (e.g., DDT).

For selenium, dilution credit is denied based on Bay waterfowl tissue data presented in the California Department of Fish and Game's Selenium Verification Study (1986-1990). The data show elevated selenium levels in the livers of waterfowl that feed on bottom-dwelling organisms such as clams. In addition, OEHHA issued an advisory in 1987 for consumption of two species of diving ducks in the north bay found to have high tissue levels of selenium. This advisory is still in effect.

(2) For non-bioaccumulative constituents (except ammonia and cyanide), a conservative allowance of 10:1 dilution for discharges to Carquinez Strait has been assigned for protection of beneficial uses. The 10:1 dilution allowance was granted in Order No. 01-096. It is based on the Basin Plan's Prohibition 1, which prohibits discharges

with less than 10:1 dilution. Limiting the dilution credit is based on SIP provisions in Section 1.4.2. The dilution credit is also based on SIP section 1.4.2, which considers the following:

(a) A far-field background station is appropriate because the receiving water body (Carquinez Strait) is a very complex estuarine system with highly variable and seasonal upstream freshwater inflows and diurnal tidal saltwater inputs. The SIP allows background conditions to be determined on a discharge-by-discharge or waterbody-by-waterbody basis (SIP section 1.4.3). Consistent with the SIP, Regional Water Board staff has chosen to use a waterbody-by-waterbody basis due to inherent uncertainties in characterizing ambient background conditions in a complex estuarine system on a discharge-by-discharge basis.

The Yerba Buena Island RMP monitoring station, relative to other RMP stations, fits the guidance criteria of the SIP for establishing background conditions. The SIP requires that background water-quality data be representative of the ambient receiving water that will mix with the discharge. Regional Water Board staff believes that water quality data from the Yerba Buena Island monitoring station is representative of the water that will mix with discharges from the City of Benicia WWTP.

(b) Because of the complex hydrology of Carquinez Strait, a mixing zone has not been established. There are uncertainties in accurately determining the mixing zones for each discharge. The models that have been used to predict dilution have not considered the three dimensional nature of San Francisco Bay estuary currents resulting from the interaction of tidal flushes and seasonal fresh water outflows. Being heavier and colder than fresh water, ocean water enters San Francisco Bay on twice day tidal cycles, generally beneath the warmer fresh water, which flows seaward during wet seasons. When these waters mix and interact, complex circulation patterns occur due to varying densities of the fresh and ocean waters. The complex patterns occur throughout the San Francisco Bay estuary but are most prevalent in the San Pablo Bay, Carquinez Strait, and Suisun Bay areas. The locations of this mixing and interaction change depending on the strength of each tide and rate of delta outflow. Additionally, sediment loads to San Francisco Bay from the Central Valley change on a longer-term basis, affecting the depth of different parts of the San Francisco Bay estuary and resulting in alteration of flow patterns and mixing and dilution that is achieved at an outfall.

(3) For ammonia, a conservative estimated actual initial dilution was used to calculate the effluent limitations. This is justified because ammonia, a non-persistent pollutant, is quickly dispersed and degraded to a non-toxic state, and cumulative toxicity effects are unlikely. The estimated initial dilution is based on design calculations for the current outfall. The results were estimated actual initial dilution ratios of 28:1 (D=27) at the annual average flow rate of 4.5 MGD and average tidal conditions; and 37:1 (D=36) at 12 MGD, the highest flow for which an initial dilution was calculated, and mean low tide conditions. Initial dilution depends mainly on the velocity and buoyancy of the effluent jet; effluent jet velocity would increase with higher flow rates (since the cross-sectional area of discharge is constant), so this dilution ratio is

likely conservative with respect to the higher maximum flow rate at the outfall. The 28:1 dilution ratio is appropriate for calculating limits based on the chronic criterion because that criterion is an annual mean; the dilution ratio at the annual average flow rate is thus the most representative of actual conditions. The 37:1 dilution ratio is appropriate to use for calculating limits based on the acute criterion because that criterion has no averaging period; the dilution at the worst-case maximum flow rate is thus the most representative of actual conditions. Both dilution ratios were calculated assuming a stagnant uniform environment.

(4) For cyanide, a non-persistent pollutant that quickly disperses and degrades like ammonia, a dilution ratio of 28:1 (or D=27) was used to calculate the water quality based effluent limits.

c. Calculation of Pollutant Specific WQBELs

The calculation of pollutant specific WQBELs is detailed below.

(1) Copper

(a) *Copper WQC.* The chronic and acute marine WQC for copper from the Basin Plan and the CTR are 3.1 and 4.8 micrograms per liter (µg/L), respectively, as dissolved metal. The Regional Water Board converted these WQC to total recoverable metal using the site-specific translators given in Table F-9 for copper. The resulting chronic water quality criterion of 8.2 µg/L and acute water quality criterion of 7.2 ug/L were used to perform the RPA.

(b) *RPA Results*. This Order establishes effluent limitations for copper because the MEC of 8.6 µg/L exceeds the WQC indicated above for this pollutant, demonstrating Reasonable Potential by Trigger 1.

(c) *Copper WQBELs*. WQBELs are calculated based on these WQC and a water effects ratio (WER) of 2.4 (Clean Estuary Partnership's *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators,* 2005). The following table compares the effluent limitations for copper calculated according to SIP procedures (and a coefficient of variation of 0.28). The newly calculated limitations take into account the deep water nature of the discharge, and therefore are based on a minimum initial dilution of 10 to 1.

Table F-10. Final Effluent Limitations for Copper

Effluent Limitations for Copper		
	AMEL	**MDEL**
Based on CTR Criteria	100 µg/L	150 µg/L

(d) *Immediate Compliance Feasible*. Statistical analysis of effluent data for copper, collected over the period of January 2004 through December 2006, shows that the 95th percentile (7.9 µg/L) is less than the AMEL (100 µg/L); the 99th percentile (9.0 µg/L) is less than the MDEL (150 µg/L); and the mean (5.4 µg/L) is less than the long term average of the projected normal distribution of the effluent data set after

accounting for effluent variability (82 µg/L). The Regional Water Board concludes, therefore, that immediate compliance with final effluent limitations for copper is feasible, and final effluent limitations will become effective upon adoption of this Order.

(e) *Alternate Limits for Copper*. The Regional Water Board has adopted site-specific objectives for copper in non-ocean, marine waters of the Region. These objectives are subject to additional, pending approvals. The proposed SSOs for copper are 2.5 and 3.9 µg/L as four-day and one-hour average (i.e., chronic and acute) criteria, respectively. If these SSOs for copper are adopted, final effluent limitations, calculated according to Section 1.4 of the SIP using a WER of 2.4, a coefficient of variation (CV) of 0.28, and a dilution ratio of 10:1 would be 80 µg/L (AMEL) and 120 µg/L (MDEL). If these SSOs for copper are adopted, the alternate effluent limits will become effective upon the adoption date, so long as the SSOs and their current justification remain unchanged. Compliance with the alternate limits would be feasible because they are higher than the effluent limits established by this Order.

(f) *Antibacksliding*. Antibacksliding requirements are satisfied as Order 01-096 did not include final effluent limitations for copper. The alternate limits comply with anti-backsliding requirements because Carquinez Strait is not impaired by copper and water quality would not be degraded (see Fact Sheet sections III.C.6 [Antidegradation Policy] and III.C.7 [Anti-Backsliding Requirements]).

(2) Selenium

(a) *Selenium WQC*. The most stringent applicable WQC for selenium are established by the NTR for the San Francisco Bay - 20 and 5.0 µg/L, acute and chronic criteria, respectively.

(b) *RPA Results*. This Order establishes effluent limitations for selenium, as the maximum observed effluent concentration of 5.0 µg/L is equal to the applicable chronic criterion for this pollutant, demonstrating Reasonable Potential by Trigger 1.

(c) *Selenium WQBELs*. Final WQBELs for selenium, calculated according to SIP procedures and a CV of 0.77, are an AMEL of 3.9 µg/L and an MDEL of 8.7 µg/L. These limitations are calculated without dilution for the reasons previously discussed in Fact Sheet section IV.C.4.a(2).

(d) *Immediate Compliance Feasible*. Statistical analysis of effluent data for selenium, collected over the period of January 2004 through December 2006, shows that the 95th percentile (2.1 µg/L) is less than the AMEL (3.9 µg/L); the 99th percentile (3.1 µg/L) is less than the MDEL (8.7 µg/L); and the mean (1.1 µg/L) is less than the long term average of the projected lognormal distribution of the effluent data set after accounting for effluent variability (2.3 µg/L). The Regional Water Board concludes, therefore, that immediate compliance with final effluent limitations for selenium is feasible, and final effluent limitations will become effective upon adoption of this Order.

(e) *Antibacksliding.* Antibacksliding requirements are satisfied as the previous order did not include final effluent limitations for selenium.

(3) Cyanide

(a) *Cyanide WQC*. The most stringent applicable WQC for cyanide are established by the NTR for protection of aquatic life in San Francisco Bay. The NTR establishes both the saltwater acute criterion and chronic criterion at 1.0 µg/L.

(b) *RPA Results*. This Order establishes effluent limitations for cyanide because the MEC of 30 µg/L exceeds the governing WQC of 1 µg/L, demonstrating Reasonable Potential by Trigger 1.

(c) *Cyanide WQBELs*. For cyanide, a non-persistent pollutant that quickly disperses and degrades, a dilution ratio of 28:1 (or D=27) was used to calculate the WQBELs. This is the worst-case initial dilution calculated for the Discharger's outfall. Final WQBELs for cyanide, calculated according to SIP procedures using a CV of 1.20 based on the mean and standard deviation of the effluent data set, are an MDEL of 17 µg/L and an AMEL of 6.4 µg/L.

(d) *Immediate Compliance Infeasible*. The Discharger's Feasibility Study asserts that the facility cannot immediately comply with final WQBELs for cyanide. Statistical analysis of effluent data for cyanide, collected over the period of January 2004 through December 2006, shows that the 95th percentile (18 µg/L) is greater than the AMEL (6.4 µg/L); the 99th percentile (36 µg/L) is greater than the MDEL (17 µg/L); and the mean (1.2 µg/L) is less than the long term average of the projected lognormal distribution of the effluent data set after accounting for effluent variability (3.0 µg/L). Based on this analysis, the Regional Water Board concurs with the Discharger's assertion of infeasibility to comply with final WQBELs for cyanide.

(e) *Need for Cease and Desist Order*. Pursuant to State Water Board Order WQ-2007-0004, compliance schedules are not authorized for numeric objectives or criteria that were in effect prior to the SIP. This includes the Basin Plan objectives for cyanide. Because it is infeasible for the Discharger to immediately comply with these final WQBELs, the Discharger will likely discharge waste in violation of this Order. Therefore, a Cease and Desist Order accompanies this Order. The Cease and Desist Order is necessary to ensure that the Discharger achieves compliance; it establishes a time schedule for the Discharger to complete necessary investigative, preventive, and remedial actions to address its imminent and threatened violations.

(f) *Alternate Limit for Cyanide.* The State and Regional Water Boards have adopted site-specific objectives for cyanide. These objectives are subject to additional, pending approvals. The proposed site-specific objectives for marine waters are 2.9 µg/L as a four-day average, and 9.4 µg/L as a one-hour average. Based on these objectives a dilution ration of 10:1, and the Discharger's current cyanide data (coefficient of variation = 1.2), final WQBELs for cyanide will be an AMEL of 17 µg/L and an MDEL of 47 µg/L. These alternate limits will become effective only if the SSOs are adopted for cyanide. Compliance with the alternate limits would be feasible for the

Discharger because the alternate AMEL and MDEL are higher than the 95th percentile and 99th percentile of the Dischargers cyanide effluent data set, respectively.

(g) *Antibacksliding*. Antibacksliding requirements are satisfied, as Order 01-096 did not include final effluent limitations for cyanide. The alternate limits comply with anti-backsliding requirements because Carquinez Strait is not impaired by copper and water quality would not be degraded (see Fact Sheet sections III.C.6 [Antidegradation Policy] and III.C.7 [Anti-Backsliding Requirements]).

(4) Dioxin-TEQ

(a) *WQC*. The Basin Plan narrative WQO for bioaccumulative substances states:

> *Many 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 Carquinez Strait as impaired by dioxin and furan compounds in the current 303(d) listing of receiving waters where water quality objectives are not being met after imposition of applicable technology-based requirements.

The CTR establishes a numeric WQO for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) of 1.4×10^{-8} µg/L for the protection of human health when aquatic organisms are consumed. When the CTR was promulgated, USEPA stated its support for 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)] The TEQ scheme, developed by the World Health Organization (WHO) in 1998, uses toxicity equivalency factors (TEFs) to convert the concentrations of dioxin or furan congeners into an equivalent concentration of 2,3,7,8-TCDD. Because dioxin-TEQ represents a toxicity-weighted concentration equivalent to 2,3,7,8-TCDD, the CTR criterion for 2,3,7,8-TCDD is used as a crtrion for dioxin-TEQ, thus translating the narrative bioaccumulation objective into a numeric criterion appropriate for the RPA.

(b) *RPA Results*. To determine if the discharge of dioxin or dioxin-like compounds from the City of Benicia WWTP 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 and furan congeners in effluent and background samples as equivalent concentrations of 2,3,7,8-TCDD. These equivalent concentrations are then compared to the numeric criterion, established by the CTR, for 2,3,7,8-TCDD of 1.4×10^{-8} µg/L. Although the 1998 WHO scheme includes TEFs for dioxin-like PCBs, dioxin-like PCBs are not included in this Order's version of the TEF procedure, as these pollutants are included in the analysis of total PCBs, for which the CTR has established a specific water quality criterion.

This Order establishes effluent limitations for dioxin-TEQ because the MEC of 5.7×10^{-7} µg/L exceeds the numeric criterion established by the CTR for 2,3,7,8-TCDD, of 1.4×10^{-8} µg/L, demonstrating Reasonable Potential by Trigger 1. The maximum observed ambient background concentration of dioxin-TEQ in the Bay (7.1×10^{-8} µg/L) also exceeds the numeric water quality criterion established by the CTR for 2,3,7,8-TCDD. Reasonable Potential is also demonstrated by Trigger 2, because the receiving water is 303(d)-listed as impaired by dioxin-TEQ, and dioxin-TEQ has been detected in the Discharger's effluent.

(c) *WQBELs*. WQBELs for dioxin-TEQ, calculated using SIP procedures as guidance, are an AMEL of 1.4×10^{-8} µg/L and an MDEL of 2.8×10^{-8} µg/L. Because dioxin-TEQ is a bioaccumulative pollutant that impairs the receiving water, and no assimilative capacity is available, these limitations are calculated without credit for dilution.

(d) *Immediate Compliance Infeasible*. The Discharger's Feasibility Study asserts that the facility cannot immediately comply with the WQBELs for dioxin-TEQ. With insufficient effluent data to determine the distribution of the effluent data set or to calculate a mean and standard deviation, feasibility to comply with final effluent limitations is determined by comparing the MEC (5.7×10^{-7} µg/L) to the AMEL (1.4×10^{-8} µg/L) and the MDEL (2.8×10^{-8} µg/L). Based on this comparison, the Regional Water Board concurs with the Discharger's assertion of infeasibility to comply with final WQBELs for dioxin-TEQ. This Order includes a compliance schedule intended to bring the discharge into compliance with these limits.

(e) *Interim Effluent Limitation*. Because Order 01-096 did not include a final effluent limitation for dioxin-TEQ and there is insufficient data to statistically determine a performance based interim limitation, no interim limit is proposed. Further, because the dioxin-TEQ limit implements the Basin Plan's narrative bioaccumulation WQO, it is not subject to the SIP's requirement for an interim limit. Instead, this Order requires further monitoring for dioxin-TEQ in effluent to support the development of a meaningful interim limitation. This monitoring requirement will remain in effect for ten years following the effective date of this Order or until the Regional Water Board adopts a limitation based on additional data.

(f) *Antibacksliding*. Antibacksliding requirements are satisfied, as Order 01-096 did not include an effluent limitation for dioxin-TEQ.

(6) Ammonia

(a) *Ammonia WQO.* The Basin Plan contains WQOs for un-ionized ammonia of 0.025 milligrams per liter (mg/L) as an annual median and 0.16 mg/L as a maximum upstream of the San Francisco Bay Bridge. Regional Water Board staff translated these WQOs from un-ionized ammonia concentrations to equivalent total ammonia concentrations (as nitrogen) since (1) sampling and laboratory methods are not available to analyze for un-ionized ammonia; and (2) the fraction of total ammonia that exists in the toxic un-ionized form depends on the pH, salinity and temperature of the receiving water. To translate the Basin Plan un-ionized ammonia objective, Regional Water Board staff used pH, salinity, and temperature data from March 1993 to August 2003 from the nearest RMP station to the outfall (in this case, the Pacheco Creek RMP station). Regional Water Board staff used the following equations to determine the fraction of total ammonia that would exist in the toxic un-ionized form in the estuarine receiving water where the various measurements were taken from 1993-2003 (U.S. EPA, 1989, *Ambient Water Quality Criteria for Ammonia (Saltwater)–1989,* EPA Publication 440/5-88-004):

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

Where:

$$pK = 9.245 + 0.116(I) + 0.0324(298 - T) + \frac{0.0415(P)}{(T + 273)}$$

I = the molal ionic strength of saltwater = $\frac{19.9273(S)}{(1{,}000 - 1.005109[S])}$

S = Salinity (parts per thousand)

T = temperature in degrees Celsius

P = Pressure (one atmosphere)

Regional Water Board staff then used the 90th percentile and median un-ionized ammonia fractions from 1993 to 2003 to express the acute and chronic un-ionized ammonia WQOs as total ammonia concentrations. This approach is consistent with U.S. EPA guidance on translating dissolved metal WQOs to total recoverable metal WQOs (U.S. EPA, 1996, *The Metals Translator: Guidance for Calculating a Total Recoverable Limit from a Dissolved Criterion,* EPA Publication Number 823-B-96-007). The equivalent total ammonia acute and chronic WQC calculated for this discharge are 4.66 mg/L and 1.24 mg/L, respectively.

(b) *RPA Results.* The SIP methodology was used to perform the RPA and to calculate effluent limitations. To set limitations for toxic pollutants (section 4.5.5.2), the Basin Plan indicates that WQBELs shall be calculated according to the SIP. Section 3.3.20

of the Basin Plan refers to ammonia as a toxic pollutant; therefore, it is consistent with the Basin Plan to use SIP methodology to determine and establish effluent limitations for ammonia. This Order establishes effluent limitations for total ammonia because the MEC of ~~364~~3 mg/L exceeds the applicable WQC for this pollutant, demonstrating Reasonable Potential by Trigger 1.

(c) *WQBELs*. The total ammonia WQBELs calculated according to SIP procedures using a CV of 0.37 based on the mean and standard deviation of the effluent data set are an MDEL of 67 mg/L and an AMEL of 35 mg/L. Regional Water Board staff made statistical adjustments to the WQBEL calculations because:

- the Basin Plan's chronic WQO for un-ionized ammonia is based on an annual median instead of they typical 4-day average;
- the SIP assumes a 4-day average concentration and monthly sampling frequency of 4 days per month to calculate effluent limitations based on chronic criteria, whereas a 365-day average and a monitoring frequency of 30 days per month, reflecting the actual basis of the WQO and actual sampling frequency, were used here.

These statistical adjustments are supported by U.S. EPA's *Water Quality Criteria; Notice of Availability; 1999 Update of Ambient Water Quality Criteria for Ammonia,* published on December 22, 1999, in the Federal Register.

Following SIP methodology as guidance, Regional Water Board staff used the maximum ambient background total ammonia concentration to calculate effluent limitations based on the acute criterion; and the median background total ammonia concentration to calculate effluent limitations based on the chronic criterion. Because the Basin Plan's chronic un-ionized ammonia objective is an annual median, the median background concentration is more representative of ambient conditions than a daily maximum.

The WQBELs were calculated assuming a dilution ratio of 28:1 for the chronic criteria and 37:1 for the acute criteria. The most stringent, and therefore governing, calculated WQBELs are based on the chronic criteria. The determination of the dilution ratios is described and explained in Section IV.C.4.b.

(d) *Immediate Compliance Feasible*. Statistical analysis of effluent data for total ammonia collected over the period of January 2002 through November 2007 shows that the 95th percentile (35 mg/L) is equal to the AMEL (35 mg/L); the 99th percentile (39 mg/L) is less than the MDEL (67 mg/L); and the mean (21 mg/L) is less than the long-term average of the projected normal distribution of the effluent data set after accounting for effluent variability (31 mg/L). The Regional Water Board concludes, therefore, that immediate compliance with final effluent limitations for ammonia is feasible, and final effluent limitations will become effective upon adoption of this Order.

(e) *Antibacksliding.* Antibacksliding requirements are satisfied as the previous order did not include final effluent limitations for ammonia.

5. Effluent Limit Calculations for Constituents with Reasonable Potential

Table F-11. Effluent Limit Calculations

PRIORITY POLLUTANTS	**Copper**		**Selenium**	**Cyanide**		**Dioxin TEQ**	**Total Ammonia (Chronic)**	**Total Ammonia (Acute)**
Units	**ug/L**		**ug/L**	**ug/L**		**ug/L**	**mg/L**	**mg/L**
Basis and Criteria type	BP & CTR SW Aq Life	Alternate limits using SSOs	CTR FW & SW Aq Life	NTR Criterion for the Bay	Alternate Limits Using Proposed SSOs	Basin Plan HH	Basin Plan Aq. Life	Basin Plan Aq. Life
CTR Criteria - Acute	7.2	-----	20	1.0	9.4	-----	--	--
CTR Criteria - Chronic	8.2	-----	5	1.0	2.9	-----	--	--
SSO Criteria - Acute (December 2004) (Diss.)		3.9						
SSO Criteria - Chronic (December 2004) (Diss.)		2.5						
Water Effects ratio (WER)	2.4	2.4	1	1	1	1	1	1
Lowest WQO	7.2	7.2	5.0	1.0	1.0	1.4E-08	1.24	4.66
Site Specific Translator - MDEL	0.67	0.67						
Site Specific Translator - AMEL	0.38	0.38						
Dilution Factor (D) (if applicable)	9	9	9	27	9	0	27	36
No. of samples per month	4	4	4	4	4	4	30	30
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	Y	Y	N	Y	Y
HH criteria analysis required? (Y/N)	N	N	N	Y	Y	Y	N	N
Applicable Acute WQO	17.2	14.0	20	1	9.4			4.66
Applicable Chronic WQO	19.6	15.8	5.0	1	2.9		1.24	0
HH criteria	-----	-----	-----	2.E+05	2.E+05	1.4E-08	0	0

PRIORITY POLLUTANTS	Copper		Selenium	Cyanide		Dioxin TEQ	Total Ammonia (Chronic)	Total Ammonia (Acute)
Background (Maximum Conc for Aquatic Life calc)	2.6	2.6	0.39	0.4	0.4	7.1E-08	0.07	0.20
Background (Average Conc for Human Health calc)	-----	-----	-----	0.4	0.4	5.0E-08	0.07	0.20
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg)	N	N	N	N	N	Y	N	N
ECA acute	149	1.2E+02	20	17.2	90.4			165.22
ECA chronic	173	1.3E+02	5.0	17.2	25.4		32.83	0.00
ECA HH				6.2E+06	2.2E+06	1.4E-08		
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	N	N	Y	N	N
Avg of effluent data points	5.4	5.4	1.1	5.4	5.4	1.2E-07	20.9648	20.9648
Std Dev of effluent data points	1.5	1.5	0.82	6.5	6.5	2.0E-07	7.6893	7.6893
CV calculated	0.28	0.28	0.77	1.2	1.2	N/A	0.37	0.37
CV (Selected) – Final	0.28	0.28	0.77	1.2	1.2	0.60	0.37	0.37
ECA acute mult99	0.55	0.55	0.258	0.17	0.17			0.47
ECA chronic mult99	0.73	0.73	0.451	0.32	0.32		0.96	0.96
LTA acute	81.7	64.0	5.2	3.0	15.6			77.02
LTA chronic	126	98.6	2.3	5.5	8.1		31.40	
minimum of LTAs	81.7	64.0	2.3	3.0	8.1		31.40	77.02
AMEL mult95	1.2	1.2	1.7	2.1	2.1	1.6	1.11	1.11
MDEL mult99	1.8	1.8	3.9	5.8	5.8	3.1	2.15	2.15
AMEL (aq life)	102	79.7	3.9	6.4	17.4		34.98	85.78
MDEL(aq life)	149	1.2E+02	8.7	17.2	47.0		67.3639	165.22
MDEL/AMEL Multiplier	1.46	1.46	2.25	2.70	2.70	2.01	1.93	1.93
AMEL (human hlth)				6159989	2199996	1.4E-08		
MDEL (human hlth)				16639065	5942524	2.8E-08		

PRIORITY POLLUTANTS	Copper		Selenium	Cyanide		Dioxin TEQ	Total Ammonia (Chronic)	Total Ammonia (Acute)
minimum of AMEL for Aq. life vs HH	102	80	3.9	6.4	17	1.4E-08	35	8.6E+01
minimum of MDEL for Aq. Life vs HH	149	117	8.7	17.2	47	2.8E-08	67	1.7E+02
Current limit in permit (30-day average)	-----	-----	-----	25 (interim)	25 (interim)	-----	-------	-------
Current limit in permit (daily)	32 (interim)	32 (interim)	31 (interim)	-----	-----	-----	-------	-------
Final limit - AMEL	100	80	3.9	6.4	17	1.4E-08	35	86
Final limit - MDEL	150	120	8.7	17	47	2.8E-08	67	165
Max Effl Conc (MEC)	8.6	8.6	5.0	30	30	5.7E-07	43	36

6. Whole Effluent Toxicity (WET)

The Basin Plan requires dischargers to either conduct flow-through effluent toxicity tests or perform static renewal bioassays (Section 4.5.5.3.1, Acute Toxicity) to measure the toxicity of wastewaters and to assess negative impacts upon water quality and beneficial uses caused by the aggregate toxic effect of the discharge of pollutants. This Order includes effluent limitations for whole effluent acute toxicity. Compliance evaluation is based on 96-hour static-renewal bioassays. All bioassays shall be performed according to the USEPA-approved method in 40 CFR Part 136, currently *"Methods for Measuring the Acute Toxicity of Effluents and Receiving Water, 5th Edition."* If the discharger can demonstrate that acute toxicity exceeding the permit limit is caused by ammonia, and that the ammonia in the discharge is in compliance with effluent limits, then, consistent with Basin Plan Section 3.3.20, such toxicity does not constitute a violation of the acute toxicity effluent limit.

D. Numeric Effluent Limitations

Table F-12. Summary of Final Water Quality Based Effluent Limitations

Parameter	Units	Final Effluent Limits	
		AMEL	MDEL
Copper [1]	µg/L	100	150
Selenium	µg/L	3.9	8.7
Cyanide[2]	µg/L	6.7	17
Dioxin- TEQ[3]	µg/L	1.4×10^{-8}	2.8×10^{-8}

[1] As described in this Fact Sheet, the Regional Water Board has adopted SSOs for copper in non-ocean, marine waters of the Region. These objectives are subject to additional, pending approvals. Based on proposed SSOs of 2.5 and 3.9 µg/L as four-day and one-hour average criteria, final effluent limitations would be 80 µg/L (AMEL) and 117 µg/L (MDEL). If these SSOs for copper are adopted, the alternate effluent limits

will become effective upon the adoption date, so long as the SSOs and their current justification remain unchanged.

[2] As described in this Fact Sheet, the State and Regional Water Boards have adopted SSOs for cyanide. These objectives are subject to additional, pending approvals. Based on proposed SSOs of 2.9 µg/L as a four-day average, and 9.4 µg/L as a one-hour average, final effluent limitations for cyanide would be 17 µg/L (AMEL) and 47 µg/L (MDEL). If these SSOs are adopted the alternate effluent limits will become effective upon the adoption date, so long as the SSOs and their current justification remains unchanged.

[3] Final limitations for dioxin-TEQ shall become effective 10 years following the effective date of this Order.

E. Interim Effluent Limitations

Not Applicable.

F. Land Discharge Specifications

Not Applicable

G. Reclamation Specifications

Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

In general, receiving water limitations are retained from the previous Order and reflect applicable water quality standards from the Basin Plan.

The previous permit included a receiving water limitation of 5.0 mg/L for dissolved oxygen. Based on requirements of Section 3.3.5 of the Basin Plan, however, this Order establishes a water quality objective of 7.0 mg/L for dissolved oxygen reflecting requirements of the Basin Plan for the Carquinez Strait upstream of the Carquinez Bridge.

The previous permit also included a receiving water limit for un-ionized ammonia. The ammonia receiving water has been replaced by an effluent limit in this Order.

B. Groundwater

Not Applicable

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

The principal purposes of a monitoring program by a discharger 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 California Water Code, and Regional Water Board's policies. The MRP also defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide further characterization of discharges from the permitted facility.

A. Influent Monitoring

Influent monitoring requirements are unchanged from Order No. 01-096.

B. Effluent Monitoring

The MRP retains most effluent monitoring requirements from the previous permit. Changes in effluent monitoring requirements are summarized as follows.

- Monitoring for settleable solids is no longer required, as the effluent limitation for this parameter has not been retained by this Order.

- Routine monitoring in effluent is required for copper, cyanide, selenium, ammonia, and dioxin-TEQ – those priority toxic pollutants with effluent limitations established by this Order. Monitoring for all other priority toxic pollutants must be conducted in accordance with frequency and methods described in the Regional Water Board's letter of August 6, 2001 – Requirements for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Monthly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Chronic whole effluent toxicity testing is required twice a year to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

On April 15, 1992, the Regional Water Board adopted Resolution No. 92-043 directing the Executive Officer to implement the Regional Monitoring Program (RMP) for the San Francisco Bay. Subsequent to a public hearing and various meetings, Regional Water Board staff requested major permit holders in this region, under authority of section 13267 of California Water Code, to report on the water quality of the estuary. These permit holders responded to this request by

participating in a collaborative effort, through the San Francisco Estuary Institute. This effort has come to be known as the San Francisco Bay Regional Monitoring Program for Trace Substances. This Order specifies that the Discharger shall continue to participate in the RMP, which involves collection of data on pollutants and toxicity in water, sediment and biota of the estuary.

E. Other Monitoring Requirements

Not applicable

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions (Provision VI.A)

Standard Provisions, which in accordance with 40 CFR §§122.41and 122.42 apply to all NPDES discharges and must be included in every NPDES permit, are provided in **Attachments D and H** of this Order.

B. Monitoring and Reporting Requirements (Provision VI.B)

The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are contained in the MRP (**Attachment E**), Standard Provisions and SMP, Part A (**Attachment D)** of the Permit. This provision requires compliance with these documents and is based on 40 CFR 122.63. The Standard Provisions and SMP, Part A are standard requirements in almost all NPDES permits issued by the Regional Water Board, including this Order. They contain definitions of terms, specify general sampling and analytical protocols, and set out requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Regional Water Board's policies. The MRP contains a sampling program specific for the facility. It defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs for them.

C. Special Provisions

1. Reopener Provisions

These provisions are based on 40 CFR 123 and allow future modification of this Order and its effluent limitations as necessary in response to updated WQOs that may be established in the future.

2. Special Studies and Additional Monitoring Requirements

a. Effluent Characterization Study. This Order does not include effluent limitations for the selected constituents addressed in the August 6, 2001 Letter that do not demonstrate Reasonable Potential, but this provision requires the Discharger to continue monitoring for these pollutants as described in the August 6, 2001 Letter and as specified in the MRP of this Order. If concentrations of these constituents increase significantly, the

Discharger will be required to investigate the source of the increases. This provision is based on the Basin Plan and the SIP.

b. Ambient Background Receiving Water Study. This provision is based on the Basin Plan, the SIP, and the August 6, 2001 Letter for priority pollutant monitoring. As indicated in this Order, this requirement may be met by participating in the collaborative BACWA study.

c. Optional Mass Offset Plan: This option is provided to encourage the Discharger to further implement aggressive reduction of mass loads to the Carquinez Strait. If the Discharger wishes to pursue a mass offset program, a mass offset plan for reducing 303(d) listed pollutants to the same receiving water body needs to be submitted for Board approval. The Board will consider any proposed mass offset plan and amend this Order accordingly.

d. Dilution Modeling Study: This requirement is included in order to provide the Regional Water Board with up-to-date information on the actual initial dilution achieved at the Discharger's outfall. This information will be used to calculate effluent limits for certain toxic pollutants and to confirm that the discharge meets the Basin Plan's requirement of a minimum dilution ration of 10:1. If the dilution study indicates a different initial dilution than that estimated in this Order, this Order may be amended as allowed by law to reflect the more accurate initial dilution for certain toxic pollutants, including ammonia.

In accordance with CWA Section 303(d)(4), higher effluent limits calculated based on the estimated initial dilution would not violate anti-backsliding requirements as long as receiving water quality would not be degraded and Carquinez Strait is not impaired by the pollutant in question. If the Discharger were unable to comply with the limits prior to accounting for the new dilution study, water quality would not be degraded by increasing the limits. Moreover, if dilution information that is not currently available were to become available and were to justify a higher limit, CWA Section 402(o)(2) provides an exception to antibacksliding requirements.

3. Best Management Practices and Pollution Minimization Program

This provision 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, Status Reports: This provision is based on the previous Order and the Basin Plan. See Section VI.C.10 of this Order for specific requirements.

b. Operations and Maintenance Manual, Review and Status Reports: This provision is based on the Basin Plan, the requirements of 40 CFR §122, and the previous Order. See Section VI.C.10 of this Order for specific requirements.

c. Contingency Plan, Review and Status Reports: This provision is based on the Basin Plan, the requirements of 40 CFR §122, and the previous Order. See Section VI.C.10 of this Order for specific requirements.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Pretreatment Program. This provision is based on 40 CFR, Part 403 (General Pretreatment Regulations for Existing and New Sources of Pollution).

b. Sludge Management Practices Requirements. This provision is based on the Basin Plan (Chapter 4, Section 4.17) and 40 CFR Parts 257 and 503.

c. Sanitary Sewer Overflows and Sewer System Management Plan: This provision is to explain this Order's requirements as they relate to the Discharger's conveyance system, and to promote consistency with the State Water Resources Control Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Overflow (SSO WDRs) and a related Monitoring and Reporting Program (Order No. 2006-0003-DWQ). The bases for these requirements are described elsewhere in this Fact Sheet. See Section VI.C.11 of this Order for specific requirements.

6. Other Special Provisions

Not applicable.

7. Compliance Schedules

Dioxin-TEQ Compliance Schedule: This provision is based on the Basin Plan section 4.7.6 (Compliance Schedules) and 40 CFR 122.47(a)(3). Maximum compliance schedules are allowed for dioxin-TEQ because of the considerable uncertainty in determining an effective measure (e.g., pollution prevention, treatment upgrades) that should be implemented to ensure compliance with final limits. In our view, 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 (Pretreatment and Pollution Prevention), which states, "In general, it is often more economical to reduce overall pollutant loading into treatment systems than to install complex and expensive technology plant." Finally, because of the ubiquitous nature of the sources of dioxin-TEQ, this provision also allows the Discharger to address compliance with calculated WQBELs through other strategies, such as mass offsets. As previously described, the Discharger submitted an Infeasibility Report, and the Regional Water Board staff confirmed its assertions. Based on this, a compliance schedule is appropriate for dioxin-TEQ because the Discharger has made good faith and reasonable efforts towards characterizing the sources, and time to allow additional efforts is necessary to achieve compliance.

8. Action Plan for Cyanide

The increased cyanide effluent limits in this Order require action plans for source control the same as the proposed cyanide site-specific objectives would if approved. Implementation of a similar action plan for cyanide at this time would ensures that the increased cyanide limits

are consistent with the site-specific objectives. Therefore, the antidegradation analysis prepared for the site-specific objectives also applies to these limits, which therefore comply with antidegradation policies (i.e., the increased limits do not degrade the quality of the receiving water).

9. Action Plan for Copper

The copper SSO Basin Plan Amendment, if approved, will require action plans for source control. Implementation of an action plan for copper is necessary to ensure that any increase in copper limits would be consistent with antidegradation policies (i.e., increasing the limits would not degrade the quality of the receiving water).

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, San Francisco Bay Region (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 City of Benicia WWTP. As a step in the WDR adoption process, the 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 waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the following: **Benicia Herald,** on **January 17, 2008.**

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments must be received at the Regional Water Board offices by 5:00 p.m. on **February 11, 2008.**

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date:	March 12, 2008
Time:	9:00 am
Location:	Elihu Harris State Office Building 1515 Clay Street, 1st Floor Auditorium Oakland, CA 94612

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 (RWD), 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., 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 John Madigan at (510) 622-2405 or JMadigan@waterboards.ca.gov.

ATTACHMENT H - PRETREATMENT REQUIREMENTS

Pretreatment Program Provisions

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

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

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

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

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

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

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

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

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

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

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

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

APPENDIX A

REQUIREMENTS FOR PRETREATMENT ANNUAL REPORTS

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

1) **Cover Sheet**

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

2) **Introduction**

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

3) **Definitions**

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

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

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

a) a description of what occurred;
b) a description of what was done to identify the source;
c) the name and address of the IU responsible
d) the reason(s) why the incident occurred;
e) a description of the corrective actions taken; and
f) an examination of the local and federal discharge limits and requirements for the purposes of determining whether any additional limits or changes to existing requirements may be necessary to prevent other Upset, Interference or Pass Through incidents.

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

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

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

6) **Inspection and Sampling Program**

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

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

7) **Enforcement Procedures**

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

8) **Federal Categories**

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

9) **Local Standards**

This section shall include a table presenting the local limits.

10) **Updated List of Regulated SIUs**

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

11) **Compliance Activities**

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

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

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

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

(a) in consistent compliance;

(b) in inconsistent compliance;

(c) in significant noncompliance;

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

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

(f) compliance status unknown, and why not.

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

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

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

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

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

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

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

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

12) **Baseline Monitoring Report Update**

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

13) **Pretreatment Program Changes**

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

14) **Pretreatment Program Budget**

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

15) **Public Participation Summary**

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

16) **Sludge Storage and Disposal Practice**

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

17) **PCS Data Entry Form**

The annual report shall include the PCS Data Entry Form. This form shall summarize the enforcement actions taken against SIUs in the past year. This form shall include the following information: the POTW name, NPDES Permit number, period covered by the report, the number of SIUs in significant noncompliance (SNC) that are on a pretreatment compliance schedule, the number of notices of violation and administrative orders issued against SIUs, the number of civil and criminal judicial actions against SIUs, the number of SIUs that have been published as a result of being in SNC, and the number of SIUs from which penalties have been collected.

18) **Other Subjects**

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

Signed copies of the reports shall be submitted to the Regional Administrator at 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 B:

REQUIREMENTS FOR SEMIANNUAL PRETREATMENT REPORTS

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

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

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

The Discharger has the option to submit all monitoring results via an electronic reporting format approved by the Executive Officer. The procedures for submitting the data will be similar to the electronic submittal of the NPDES self-monitoring reports as outlined in the December 17, 1999 Regional 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 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-6 of the Self-Monitoring Program (SMP).

The monitoring and reporting requirements of the POTW's Pretreatment Program are in addition to those specified in Tables E-3, E-4, and E-5 of the SMP. Any subsequent modifications of the requirements specified in Tables E-3, E-4, and E-5 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 Table E-6 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 Tables E-3, E-4, and E-5 of the SMP. 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 Self-Monitoring Program.

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

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

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

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

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

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

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

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

2. **Sludge Monitoring**

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

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

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

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

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

In determining if the sludge is a hazardous waste, the Dischargers shall adhere to Article 2, "Criteria for Identifying the Characteristics of Hazardous Waste," and Article 3, "Characteristics of Hazardous Waste," of Title 22, California Code of Regulations, Sections 66261.10 to 66261.24 and all amendments thereto.

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

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

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

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

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

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