

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 unless specified otherwise in writing by the Executive Officer.
3. All bioassays shall be performed according to the most up-to-date protocols in 40 CFR 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.
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 a violation of acute toxicity requirements occurs or if the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new batches of fish and shall continue back to back until compliance is demonstrated.

B. Whole Effluent Chronic Toxicity

1. Chronic Toxicity Monitoring Requirements

- a. *Sampling.* The Discharger shall collect 24-hour composite samples of the effluent at the compliance point station specified in a table 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 *Mysidopsis bahia* unless data suggest that another test species is more sensitive to the discharge.
- c. *Methodology.* Sample collection, handling and preservation shall be in accordance with USEPA protocols. In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, as shown in **Appendix E-1**. These are "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms," currently third edition (EPA-821-R-02-014), and "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," currently fourth Edition (EPA-821-R-02-013), with exceptions granted the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).
- d. *Dilution Series.* The Discharger shall conduct tests at 2%, 5%, 10%, 20%, and 40%. The "%" represents percent effluent as discharged. Samples may be

buffered using the biological buffer MOPS (3-(N-Morpholino)propanesulfonic Acid) to control pH drift and ammonia toxicity caused by increasing pH during the test.

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 (\pm 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. 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. Within 30 days of exceeding the trigger for accelerated monitoring, the Discharge shall submit to the Regional Water Board a TRE work plan, which should be the

- generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.
- c. Within 30 days of the date of completion of the accelerated monitoring tests observed to exceed the trigger, the Discharger shall initiate a TRE in accordance with a TRE work plan.
 - d. The TRE shall be specific to the discharge and be prepared in accordance with current technical guidance and reference materials, including USEPA guidance materials. The TRE shall be conducted as a tiered evaluation process, such as summarized below:
 - (1) Tier 1 consists of basic data collection (routine and accelerated monitoring).
 - (2) Tier 2 consists of evaluation of optimization of the treatment process, including operation practices and in-plant process chemicals.
 - (3) Tier 3 consists of a toxicity identification evaluation (TIE).
 - (4) Tier 4 consists of evaluation of options for additional effluent treatment processes.
 - (5) Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.
 - (6) Tier 6 consists of implementation of selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.
 - e. The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity (complying with requirements of Section IV.A.4 of this Order).
 - f. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies shall be employed.
 - g. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the source(s) and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.
 - h. Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention and storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements or recommended efforts of such programs may be acceptable to comply with TRE requirements.
 - i. The Regional Water Board recognizes that chronic toxicity may be episodic and identification of causes of and reduction of sources of chronic toxicity may not be

successful in all cases. Consideration of enforcement action by the Regional Water Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

Not applicable.

VII. RECLAMATION MONITORING REQUIREMENTS

Not Applicable.

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

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.

IX. LEGEND FOR MRP TABLES

Types of Samples

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

Frequency of Sampling

- Cont. = Continuous
- Cont/D = Continuous monitoring & daily reporting
- H = once each hour (at about hourly intervals)
- W = once each week
- 2/W = Twice each week
- 4/W = four times each week
- M = once each month
- Q = once each calendar quarter (at about three month intervals)
- 1/2h = once every 2 hours
- 1/Y = once each calendar year
- 2/Y = twice each calendar year (at about 6 months intervals, once during dry season, once during wet season)

Parameter and Unit Abbreviations

- CBOD = Carbonaceous Biochemical Oxygen Demand
- D.O. = Dissolved Oxygen
- Est V = Estimated Volume (gallons)

Metals	=	multiple metals; See SMP Section VI.G.
PAHs	=	Polycyclic Aromatic Hydrocarbons; See SMP Section VI.H.
TSS	=	Total Suspended Solids
MGD	=	Million gallons per day
mg/L	=	milligrams per liter
ml/L-hr	=	milliliters per liter, per hour
µg/L	=	Micrograms per liter
kg/d	=	kilograms per day
kg/month	=	kilograms per month
MPN/100 mL	=	Most Probable Number per 100 milliliters

X. MODIFICATIONS TO PART A OF SELF-MONITORING PROGRAM

Section C.2.h of Part A shall be amended as follows:

- h. When any type of bypass occurs, except for bypasses that are consistent with Prohibition III.D of this Order, composite samples shall be collected on a daily basis for constituents at all affected discharge points that have effluent limits for the duration of the bypass.

When bypassing occurs from any treatment process (primary, secondary, chlorination, dechlorination, etc.) in the facility that is consistent with Prohibition III.C of this Order during high wet weather inflow, the self-monitoring program shall include the following sampling and analyses in addition to the schedule given in this MRP:

When bypassing occurs from any primary or secondary treatment unit(s), samples of the discharge shall be collected for the duration of the bypass event for TSS analysis in 24-hour composite or less increments, and continuous monitoring of flow and pH, continuous or every two hours grab sampling for chlorine residual, and daily grabs for coliform. Samples in accordance with proper sampling techniques for all other limited pollutant parameters, except coliform, shall be collected and retained for analysis, if necessary. If a daily TSS value exceeds the weekly average effluent limit, analysis of the retained sample shall be conducted for all pollutant constituents that have limits, except toxicity and oil and grease, for the duration of the bypass event. Holding times for these retained samples must be complied with.

Section F.4 shall be modified as follows:

Self-Monitoring Reports

[Add the following to the beginning of the first paragraph]

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

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

g. If the Discharger wishes to invalidate any measurement, the letter of transmittal will include identification of the measurement suspected to be invalid and notification of intent to submit, within 60 days, a formal request to invalidate the measurement; 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 USEPA approves the electronic signature or other signature technologies, Dischargers that are using the ERS must submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, a violation report, and a receipt of the electronic transmittal.
- 3) Annual Reporting Requirements: Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting an annual report electronically, but a hard copy of the annual report shall be submitted according to Section F.5 below.

XI. OTHER MONITORING REQUIREMENTS

Sludge Monitoring

The Discharger shall continue to analyze sludge on a bi-annual basis prior to disposal for selected priority pollutant metals and organics. Specific requirements for monitoring shall be commensurate with the disposal location, expected to be a landfill during the permit term.

XII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

B. 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 submit digital versions of Self-Monitoring Reports (SMRs) electronically. This may be to the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>) and, or, another designated Web site. 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 report in the SMR the results for all monitoring specified in this MRP under sections III through XI. 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. 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-6. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period
Cont.	Day after permit effective date	All
Cont/D	Day after permit effective date	All
Cont/E	Day after permit effective date	All
2H	Day after permit effective date	All
W	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday
5/W	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday
1/Month	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1 st day of calendar month through last day of calendar month
Q	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
2/Y	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31
1/Y	January 1 following (or on) permit effective date	January 1 through December 31

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 (\pm 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 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 Wastewater Division

C. Discharge Monitoring Reports (DMRs)

1. As described in Section XII.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.

- DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger 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, 15 th Floor Sacramento, CA 95814

- All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

D. Other Reports

- In the first monthly SMR following the respective due dates, the Discharger shall report on the status of meeting the applicable deadline(s), and the results of any special studies, monitoring, and reporting required by section VI. C.2 (Special Studies, Technical Reports, and Additional Monitoring Requirements) of this Order. The Discharger shall include a report of progress towards meeting compliance schedules established by section VI.C.7 of this Order in the annual SMR.

**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-Kärber. 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. The discharger has the option of completing the screening phase monitoring on its own or in conjunction with other local dischargers.
- 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.
3. Appropriate controls.
 4. Concurrent reference toxicant tests.
 5. Dilution series of 2%, 5%, 10%, 20%, and 40%, where “%” is percent effluent as discharged.
- 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	<i>(Skeletonema costatum)</i> <i>(Thalassiosira pseudonana)</i>	Growth rate	4 days	1
Red alga	<i>(Champia parvula)</i>	Number of cystocarps	7-9 days	3
Giant kelp	<i>(Macrocystis pyrifera)</i>	Percent germination; germ tube length	48 hours	2
Abalone	<i>(Haliotis rufescens)</i>	Abnormal shell development	48 hours	2
Oyster Mussel	<i>(Crassostrea gigas)</i> <i>(Mytilus edulis)</i>	Abnormal shell development; percent survival	48 hours	2
Echinoderms - Urchins Sand dollar	<i>(Strongylocentrotus purpuratus, S. franciscanus)</i> <i>(Dendraster excentricus)</i>	Percent fertilization	1 hour	2
Shrimp	<i>(Mysidopsis bahia)</i>	Percent survival; growth	7 days	3
Shrimp	<i>(Holmesimysis costata)</i>	Percent survival; growth	7 days	2
Topsmelt	<i>(Atherinops affinis)</i>	Percent survival; growth	7 days	2
Silversides	<i>(Menidia beryllina)</i>	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	<i>(Pimephales promelas)</i>	Survival; growth rate	7 days	4
Water flea	<i>(Ceriodaphnia dubia)</i>	Survival; number of young	7 days	4
Alga	<i>(Selenastrum capricornutum)</i>	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]	0	1 or 2	3
Marine/Estuarine	4	3 or 4	0
Total number of tests	4	5	3

[1] The freshwater species may be substituted with marine species if:

- (a) The salinity of the effluent is above 1 part per thousand (ppt) greater than 95 percent of the time, or
- (b) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

[2] (a) Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95 percent of the time during a normal water year.

- (b) Fresh refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	2 215021001
Discharger	Sanitary District No. 5 of Marin County
Name of Facility	Sanitary District No. 5 Wastewater Treatment Plant
Facility Address	2001 Paradise Drive
	Tiburon, CA 94920
	Marin County
Facility Contact, Title, Phone	Robert Lynch, District Manager, (415)435-1501 Fax: 415-435-0221; Email: rlynch@sani5.org
CIWQS Place Number	239497
CIWQS Party ID	27783
Authorized Person to Sign and Submit Reports	Robert Lynch
Mailing Address	2001 Paradise Drive Tiburon, CA 94920
Billing Address	Same as Mailing Address
Type of Facility	POTW
Major or Minor Facility	Major
Threat to Water Quality	2
Complexity	A
Pretreatment Program	N.A.
Reclamation Requirements	N.A.
Facility Permitted Flow	0.98 million gallons per day (MGD) average dry weather flow
Facility Design Flow	0.98 MGD (dry weather design flow)
	2.3 MGD (peak wet weather treatment capacity)
Watershed	San Francisco Bay
Receiving Water	Raccoon Strait, Central San Francisco Bay
Receiving Water Type	Marine

- A. Sanitary District No. 5 of Marin County is the owner and operator of a Wastewater Treatment Plant (Treatment Plant), which discharges to Raccoon Strait in Central San Francisco Bay.

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

- B. The facility discharges treated wastewater into Raccoon Straits and is currently regulated by Order No. R2-2002-0097 (CIWQS Regulatory Measure Number 131222) and NPDES Permit No. CA0037753, that was adopted on December 1, 2002.

The terms and conditions of the current Order have been administratively extended past the Order's original expiration date of October 31, 2007 and remain in effect until new Waste Discharge 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 May 4, 2007.

II. FACILITY DESCRIPTION

A. Description of Wastewater Treatment or Controls

The Discharger owns and operates the Treatment Plant, which provides primary and secondary treatment of domestic and commercial wastewater collected from the surrounding towns of Tiburon and Belvedere, including unincorporated areas in the vicinity, serving a population of approximately 8,400. The Treatment Plant has an average daily dry weather design treatment capacity of 0.98 MGD and can treat up to 2.3 MGD during wet weather flow periods.

Wastewater treatment processes at the Treatment Plant include primary sedimentation, biological activated sludge treatment, secondary sedimentation, sodium hypochlorite disinfection, and sodium bisulfite dechlorination. A treatment process schematic diagram is included as Attachment C.

Treated, disinfected, and dechlorinated wastewater is combined with treated, disinfected, and dechlorinated effluent from the Sewerage Agency of Southern Marin, and the combined effluent is discharged through Discharge Point 001 into Raccoon Strait in Central San Francisco Bay, a water of the State and the United States. The effluent is discharged into the Central Bay through a submerged diffuser about 840 feet offshore at a depth of 84 feet below mean lower low water (37 deg, 52 min 12 sec North latitude and 122 deg 27 min 5 sec West longitude).

During peak wet weather flow events, when influent flow exceeds 2.3 MGD, the capacity of primary treatment is augmented with the use of a third primary sedimentation tank. This third sedimentation tank has a volume of 0.11 million gallons (capacity of 4.4 MGD for 3 hour peak periods), and therefore ensures primary treatment capacity of 6.7 MGD during wet weather periods. The third primary sedimentation tank is more often used simply as a short term holding tank to retain influent flows greater than 2.3 MGD until they can be routed back to the headworks for full treatment. After primary treatment, a maximum of 2.3 MGD of primary effluent can be directed to the secondary aeration basins and clarifiers. During significant rain events, when the third sedimentation tank must be used

for primary treatment (and not just for short term holding), primary treated effluent flows greater than 2.3 MGD must be routed around secondary treatment and blended with secondary effluent to protect the secondary treatment system. "Blended" wastewater is then chlorinated and dechlorinated prior to discharge. Seventeen incidents of "blending" occurred at the Treatment Plant from 2004 to 2006. These blending events resulted in discharges of 0.007 to 3.2 million gallons and an average discharge of 0.85 million gallons of blended primary and secondary treated effluent.

All storm water originating within the area of the wastewater treatment plant is directed to the headworks of the treatment plant and treated with the wastewater. Discharges of storm water are therefore regulated by this Order and coverage under the Statewide Industrial Storm Water Permit (NPDES General Permit No. CAS000001) is not required.

B. Discharge Points and Receiving Waters

The discharge point, where combined discharges from the Treatment Plant and the Sewerage Agency of Southern Marin Wastewater Treatment Plant are discharged to San Francisco Bay, and the receiving water for this discharge is shown in Table F-2 below.

Table F-2. Discharge Point Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	POTW Effluent	37 °, 52 ', 12 " N	122 °, 27 ', 5 " W	Raccoon Strait, Central San Francisco Bay

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

Effluent limitations contained in the previous Order (Order No. R2-2002-0097) for discharges to the Central San Francisco Bay and representative monitoring data from the term of the previous Order are as follows:

Table F-3. Historic Effluent Limitations and Monitoring Data (Order No. R2-2002-0097) for Conventional and Non-Conventional Pollutants

Parameter	(units)	Effluent Limitations			Monitoring Data (From 10/02 to 03/07)		
		Monthly Average	Weekly Average	Daily Maximum	Highest Monthly Average	Highest Weekly Average	Highest Daily Discharge
BOD ₅	mg/L	30	45	---	21	40	58
TSS	mg/L	30	45	---	19	27	78
Oil and Grease	mg/L	10	---	20	5	---	5
pH	standard units	6.0 – 9.0			---	---	6.3 (minimum) 7.5 (maximum)
Settleable Matter	ml/L-hr.	0.1	---	0.2	0.1	---	0.1
Chlorine, Total Residual	mg/L	---	---	0.0 ⁽¹⁾	---	---	0.0
Total Coliform	MPN/ 100 mL	⁽²⁾	⁽²⁾	⁽²⁾	---	---	1600

(<) = Non-Detect (ND)

⁽¹⁾ For Total Residual Chlorine, 0.0 mg/L was established as an instantaneous maximum effluent limitation.

- (2) The moving median for the Most Probable Number of total coliform bacteria in five consecutive samples shall not exceed 240 MPN/100 mL and any single sample shall not exceed 10,000 MPN/100 mL.

Table F-4. Historic Effluent Limitations and Monitoring Data (Order No. R2-2002-0097) for Toxic Pollutants

Parameter	Units	Final Limits		Interim Limits			Monitoring Data Maximum Detected 10/02 – 03/07
		Daily Maximum	Monthly Average	Daily Average	Monthly Average	Mass Emission Limit (kg/mo.)	
Copper	µg/L	-----	-----	37	-----	-----	6.6
Lead	µg/L	80	40	-----	-----	-----	0.32
Nickel	µg/L	65	32	-----	-----	-----	8.9
Selenium	µg/L	-----	-----	50	-----	-----	6
Silver	µg/L	22	11	-----	-----	-----	0.2
Zinc	µg/L	910	410	-----	-----	-----	70
Cyanide	µg/L	-----	-----	25	-----	-----	13
Acute Toxicity	% survival	(1)	(1)	NA	NA	NA	(2)

- (1) An 11-sample median value of not less than 90 percent survival and an 11-sample 90th percentile value of not less than 70 percent survival.
 (2) No exceedances of acute toxicity limits were reported during the previous Order term.

D. Compliance Summary

No exceedances of numeric limits were observed during the term of Order R2-2002-0097.

E. Planned Changes

Not Applicable.

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 implementing regulations adopted by the USEPA and Chapter 5.5, Division 7 of the California Water Code (CWC) (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to CWC article 4, chapter 4, division 7 (commencing with section 13260).

B. California Environmental Quality Act (CEQA)

Under CWC section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100 through 21177.

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 adopted by the Regional Water Board and approved by the State Water Resources Control Board, U.S. EPA, and the Office of Administrative Law, as required.

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. The Treatment Plant discharges to Central San Francisco Bay, which is defined as an enclosed bay by the Thermal Plan. Requirements of this Order implement the Thermal Plan, which states that for existing discharges to enclosed bays, elevated temperature waste discharges shall comply with limitations necessary to ensure protection of beneficial uses.
3. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and amended it on May 4, 1995, and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority toxic pollutants, which are applicable to the Central San Francisco Bay.
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. **Stringency of Requirements for Individual Pollutants.** This Order contains restrictions on individual pollutants that are no more stringent than required by the federal CWA. Individual pollutant restrictions consist of technology-based restrictions and water quality-based effluent limitations. The technology-based effluent limitations consist of restriction on BOD₅, TSS, oil and grease, pH and chlorine residual. Restrictions on these pollutants are specified in federal regulations, and in the Basin Plan. The permit's technology-based pollutant restrictions are no more stringent than required by the CWA. WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA on May 18, 2000. Most beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date are, nonetheless, "applicable water quality standards for purposes of the CWA" pursuant to 40 CFR 131.21(c)(1). The remaining water quality objectives and beneficial uses implemented by this Order [arsenic, cadmium, chromium (VI), copper (freshwater), lead, nickel, silver (1-hour), and zinc] were approved by USEPA on January 5, 2005, and are applicable water quality standards pursuant to 40 CFR 131.21(c)(2). Collectively, this order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and are the applicable water quality standards for purposes of the CWA.
7. **Antidegradation Policy.** NPDES regulations at 40 CFR 131.12 require that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Board Resolution No. 68-16, and requires:

Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with the maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies; and

Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) pollution or a nuisance will not occur and (b) the highest water quality consistent with the maximum benefit to the people of the State will be maintained.

With the limited exception presented by final effluent limitations for cyanide (discussed below), the Tentative Order does not authorize an increased rate of discharge or increased volumes or concentrations of waste for discharge from the Treatment Plant. The Regional Water Board, therefore, has determined that the Order is consistent with applicable State and federal antidegradation policies.

The final effluent limitations for cyanide are higher than the interim limitation contained in the previous Order. The final cyanide limitations in this Order are the same as the alternate effluent limitations established by the Order for cyanide, which will become effective if or when site-specific objectives (SSOs) are adopted, are consistent with the antidegradation analysis prepared for the SSOs, which concluded water quality would not be degraded. SSOs account for background conditions and the assimilative capacity of the Bay, and therefore, provide assurance that the receiving water's ability to support and maintain beneficial uses will not be compromised and existing water quality will be maintained. The conclusion that water quality will not be degraded is based, in part, upon implementation of a cyanide action plan, which is included in this Order as a provision in Section VI.C.8.

The final effluent limitations for copper are higher than the interim limitation contained in the previous Order (37 µg/L). The final copper limitations in this Order and the alternate effluent limitations established by the Order for copper, which will become effective if or when site-specific objectives (SSOs) are adopted, are consistent with the antidegradation analysis prepared for the SSOs, which concluded water quality would not be degraded. SSOs account for background conditions and the assimilative capacity of the Bay, and therefore, provide assurance that the receiving water's ability to support and maintain beneficial uses will not be compromised and existing water quality will be maintained. The conclusion that water quality will not be degraded is based, in part, upon implementation of a copper action plan, which is included in this Order as a provision in Section VI.C.8.

8. **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 be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

The previous Order R2-2002-0097 included final WQBELs for lead, nickel, silver, and zinc; however, because the RPA showed that discharges from the Treatment

Plant no longer demonstrate a reasonable potential to cause or contribute to exceedances of applicable water quality criteria for these pollutants, limitations from the previous permit are not retained. This is consistent with State Water Resources Control Board Order WQ 2001-16.

9. **Monitoring and Reporting Requirements.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC Sections 13267 and 13383 authorize the Regional Water Boards to require technical and monitoring reports. The MRP may be amended by the Executive Officer pursuant to USEPA regulations at 40 CFR 122.62, 122.63, and 124.5.

D. Impaired Water Bodies on CWA 303(d) List

In November 2006, the USEPA approved a revised list of impaired water bodies , prepared pursuant to provisions of CWA section 303(d), which requires identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. This list is hereinafter referred to as the 303(d) list. Central San Francisco Bay is listed as an impaired waterbody for chlordane, DDT, dieldrin, dioxin compounds, exotic species, furan compounds, 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 TMDLs for pollutants on the 303(d) list in Central San Francisco Bay within the next ten years. Future review of the 303(d)-list for Central San Francisco Bay 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 Central San Francisco Bay.

- 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, Policies and Regulations

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

1. The Federal *Water Pollution Control Act*, CWA Sections 301 through 305, and 307, and amendments thereto, as applicable;
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 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 retained from the previous permit and is based on California Water Code section 13260, which requires filing a Report of Waste Discharge before discharges can occur. Discharges not described in the Report of Waste Discharge, and subsequently in the 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 capacity of the Treatment Plant. Exceedance of the Plant's dry weather flow design capacity of 0.98 MGD may result in lowering the reliability of achieving compliance with water quality requirements. This prohibition is also retained from the previous Order.
3. **Discharge Prohibitions III.C (No discharge receiving less than 74:1 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 74:1 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)(B)-(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 2.3 MGD that are recombined with secondary treatment flows and discharged at the combined outfall E-001, which meet the conditions established at 40 CFR 122.41(m)(4)(i)(A - C).

Background

During 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 (blending)

at 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 draft 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)

USEPA's Peak Wet Weather policy states that "If the criteria of 40 CFR 122.41(m)(4)(i)(A)-(C) are met, the Regional Water Board can approve peak wet weather diversions that are recombined with flow from the secondary treatment. The criteria of 40 CFR 122.41(m)(4)(i) (Federal Standard Provisions, Attachment D) are (A) bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; (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; and (C) the Discharger submitted notice to the Regional Water Board as required under Federal Standard Provision – Permit Compliance I.G.5.

On August 15, 2007, the Discharger submitted a No Feasible Alternatives Analysis showing that at this time there are no feasible alternatives to blending under conditions of high wet weather flows. Blending diversions occurred 17 times between January 2004 and June 2007, approximately 5 times per year with an average of 0.85 million gallons being blended in each event. The largest diversion was in January 2006 with 3.2 million gallons diverted over 2 days. During that time period, 6.9 million gallons were treated, and all effluent met permit requirements prior to disposal.

Construction of additional wastewater storage capacity for secondary treatment cannot be considered because adjacent properties are fully developed. The plant is located adjacent to the coastline on the south, and flanked by very steep inclines to the north and east, and a condominium development to the west.

Observations of weather patterns and high inflows indicated that when the ground was saturated, i.e., after previous rain events, rainfall as little as 1 inch could result in excess flow and blending. This did not happen when the soil was dry indicating that high inflows to the treatment plant were caused by inflow and infiltration (I/I). To address the issue, the Discharger performed a two-year study to evaluate the condition of the Tiburon and Belvedere collection system. As a result of this study, which revealed deficiencies in the system the Discharger has embarked on a 10-year, \$3.5 million Sewer Rehabilitation Plan to upgrade the system to reduce I/I. The parts of the system deemed unsatisfactory are being addressed first and the whole program is planned to be fully implemented by 2015. Since the communities are

fully developed with no new development foreseen, the Rehabilitation Plan, when completed, is expected to significantly reduce, if not eliminate, the need for, and frequency of blending events.

The Discharger has satisfied the criteria of 40 CFR 122.41 (m)(4)(i)(A-C). Bypasses are necessary to prevent severe property damage when flows exceed the capacity of the secondary treatment. The Discharger has analyzed alternatives to bypassing and has determined that no feasible alternative exists at this time. The Discharger has submitted notice to the Regional Water Board as required under Federal Standard Provision – Permit Compliance I.G.5.

5. **Discharge Prohibition III. E (No sanitary sewer overflows to waters of the United States).** The Discharge Prohibition No. 5 from Table 4-1 of the Basin Plan and the Clean Water Act prohibit the discharge of wastewater to waters of the United States except as authorized under an NPDES permit. POTWs must achieve secondary treatment, at a minimum, and any more stringent limitations that are necessary to achieve 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

NPDES regulations at 40 CFR 122.44(a) require that permits include applicable technology-based requirements, at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR 133 and/or Best Professional Judgment (BPJ) in accordance with 40 CFR 125.3.

Secondary Treatment Regulations, which are specified in 40 CFR 133 apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of biochemical oxygen demand (BOD₅), total suspended solids (TSS), and pH. The guidelines, summarized in the following table, are applicable to discharges from the Treatment Plant.

Table F-5. Secondary Treatment Requirements

	30-Day Average	7-Day Average
BOD ₅ ⁽¹⁾	30 mg/L	45 mg/L
CBOD ₅ ⁽¹⁾⁽²⁾	25 mg/L	40 mg/L
TSS ⁽¹⁾	30 mg/L	45 mg/L
pH	6.0 – 9.0	

(1) The 30-day average percent removal shall not be less than 85 percent.

(2) At the option of the permitting authority, these effluent limitations for CBOD₅ may be substituted for limitations for BOD₅.

Further, Table 4-2 of the Basin Plan establishes effluent limitations applicable to municipal wastewater treatment plants for conventional pollutants – BOD₅, TSS, coliform bacteria, pH, chlorine, and oil and grease.

2. Applicable Technology-Based Effluent Limitations

The Order is retaining the following technology based effluent limitations, applicable to Discharge Point 001, from Order No. R2-2002-0097.

Table F-6. 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
Total Residual Chlorine	mg/L	---	---	---	---	0.0
Total Coliform	MPN/100 mL	240	---	10,000	---	---

The limitations established for oil and grease are levels attainable by secondary treatment and are required by the Basin Plan (Table 4-2) for 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.

The technology based effluent limitations for settleable matter are not retained from Order No. R2-2002-0097, 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) will ensure removal of settleable solids to acceptably low levels – below 0.1 ml/L/hr (30 day average) and 0.2 ml/L/hr (daily maximum).

Effluent limitations for BOD₅ and TSS, including the 85% removal requirement, are required by 40 CFR 133 and Table 4-2 of the Basin Plan and are retained from the previous Order. 40 CFR 122.45(d)(2) specifies that discharge limitations for Publicly Owned Treatment Works shall be stated as average weekly limitations and average monthly limitations, unless impracticable.

Effluent limitations for total coliform bacteria are retained from Order R2-2002-0097. These limitations reflect conventional pollutant limitations, established by Table 4-2 of the Basin Plan, and applicable water quality objectives for water contact recreation, established by Table 3-1 of the Basin Plan, applied as end-of-pipe effluent limitations.

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, when necessary, calculating WQBELs is intended to (1) protect the designated beneficial uses of the receiving water specified in the Basin Plan, and (2) achieve applicable WQOs and WQC that are contained in the California Toxics Rule (CTR), National Toxics Rule (NTR), Basin Plan, and 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 that 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 Objectives

The 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 WQOs established by more than one of these three sources.

- a. **Applicable Beneficial Uses.** Beneficial uses applicable to Central San Francisco Bay are as follows:

Table F-7. Basin Plan Beneficial Uses