

November 14, 1996

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN DIEGO REGION**

**MONITORING AND REPORTING PROGRAM NO. 96-50  
NPDES NO. CA0108928**

**FOR THE  
INTERNATIONAL BOUNDARY AND WATER COMMISSION  
U.S. SECTION**

**INTERNATIONAL WASTEWATER TREATMENT PLANT  
DISCHARGE TO THE PACIFIC OCEAN  
THROUGH THE SOUTH BAY OCEAN OUTFALL  
SAN DIEGO COUNTY**

MRP No. 96-50 shall take effect upon the date of adoption by the California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board).

**A. GENERAL MONITORING AND REPORTING PROVISIONS**

1. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored waste stream. All samples shall be taken at the monitoring points specified in Order No. 96-50 or this MRP and, unless otherwise specified, before the waste stream joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall be subject to the approval of the Regional Board Executive Officer (hereinafter Executive Officer) and shall not be changed without notification to and the approval of the Executive Officer. Samples shall be collected at times representative of "worst case" conditions with respect to compliance with the requirements of Order No. 96-50.
2. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements are consistent with the accepted capability of that type of device.

Devices selected shall be capable of measuring flows with a maximum deviation of less than  $\pm 5$  percent from true discharge rates throughout the range of expected discharge volumes. Guidance in selection, installation, calibration and operation of acceptable flow measurement devices can be obtained from the following references:

- a. "Guide to Methods and Standards for the Measurement of Water Flow," U. S. Department of Commerce, National Bureau of Standards, NBS Special Publication 421, May 1975, 97 pp. (Available from the U. S. Government Printing Office, Washington, D. C. 20402. Order by SD Catalog No. C13.10:421.)
  - b. "Water Measurement Manual," U. S. Department of Interior, Bureau of Reclamation, Second Edition, Revised Reprint, 1974, 327 pp. (Available from the U. S. Government Printing Office, Washington, D. C. 20402. Order by Catalog No. 127, 19/2:W29/2, Stock No. S/N 24003-0027.)
  - c. "Flow Measurement in Open Channels and Closed Conduits," U. S. Department of Commerce, National Bureau of Standards, NBS Special Publication 484, October 1977, 982 pp. (Available in paper copy of microfiche from National Technical Information Service (NTIS) Springfield, VA 22151. Order by NTIS No. PB-273-535/5ST.)
  - d. "NPDES Compliance Sampling Manual," U. S. Environmental Protection Agency, Office of Water Enforcement. Publication MCD-51, 1977, 140 pp. (Available from the General Services Administration (8FFS), Centralized Mailing Lists Services, Building 41, Denver Federal Center, Denver, CO 80225).
3. Monitoring must be conducted according to United States Environmental Protection Agency (USEPA) test procedures approved under Title 40 of the Code of Federal Regulations Part 136 (40 CFR 136), "Guidelines Establishing Test Procedures for the Analysis of Pollutants" as amended, unless otherwise specified for sludge in 40 CFR 503, and unless other test procedures have been specified in Order No. 96-50 and/or in this monitoring and reporting program.
  4. Monitoring results must be reported on discharge monitoring report (DMR) forms approved by the Executive Officer.
  5. If the discharger monitors any pollutant more frequently than required by Order No. 96-50 or this MRP, using test procedures approved under 40 CFR 136, or as specified in Order No. 96-50 or this MRP, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR. The

increased frequency of monitoring shall also be reported.

6. 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 MRP, Order No. 96-50, any enforcement order issued by the Regional Board, and records of all data used to complete the application for Order No. 96-50. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Executive Officer. It is recommended that the discharger maintain the results of all analyses indefinitely.
7. Records of monitoring information shall include:
  - a. The date, exact location, and time of sampling or measurements;
  - b. The individual(s) who performed the sampling or measurements;
  - c. The date(s) analyses were performed;
  - d. The laboratory and individual(s) who performed the analyses;
  - e. The analytical techniques or methods used; and
  - f. The results of all such analyses.
8. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in Order No. 96-50 or in this MRP. The discharger shall report the analysis results, calculation results, data, and equations used in calculations.
9. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year, or more frequently, to ensure continued accuracy of the devices. Annually, the discharger shall submit to the Executive Officer a written statement signed by a registered professional engineer certifying that all flow measurement devices have been calibrated and will reliably achieve the accuracy required by General Monitoring and Reporting Provision A.2 of this MRP.

10. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services environmental laboratory accreditation program (ELAP), or a laboratory approved by the Executive Officer.
11. If only one measurement is made during the time period associated with a discharge specification, effluent limitation, or receiving water limit (e.g., 30-day average or 6-month median), that single measurement shall be used to determine compliance with the discharge specification, effluent limitation, or receiving water limitation for the entire time period.
12. The discharger shall have, and implement, an acceptable written quality assurance (QA) plan for laboratory analyses. An annual report shall be submitted by March 30 of each year which summarizes the QA activities for the previous year. Duplicate chemical analyses must be conducted on a minimum of ten percent of the samples or at least one sample per month, whichever is greater. The discharger must have a success rate equal to or greater than 80 percent. A similar frequency shall be maintained for analyzing spiked samples. When requested by USEPA or the Regional Board, the discharger will participate in the National Pollutant Discharge Elimination System (NPDES) discharger monitoring report quality assurance (QA) performance study.
13. The discharger shall report all instances of noncompliance not reported under Standard Provision D.12 of Order No. 96-50 at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision D.12 of Order No. 96-50.
14. The monitoring reports shall be signed by an authorized person as required by 40 CFR 122.44.
15. Laboratory method detection limits (MDLs) and practical quantitation levels (PQLs) shall be identified for each constituent in the matrix being analyzed with all reported analytical data. Acceptance of data shall be based on demonstrated laboratory performance.
16. A composite sample is defined as a combination of at least 8 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24-hour period. For volatile pollutants, aliquots must be combined in the laboratory immediately before analysis. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.

17. A grab sample is an individual sample of at least 100 milliliters collected at a randomly selected time over a period not exceeding 15 minutes.
18. For all bacterial analyses, sample dilutions shall be performed so the range of values extends from 2 to 16,000. The detection method used for each analysis shall be reported with the results of the analysis.
19. Detection methods used for coliforms (total and fecal) shall be those presented in the most recent edition of Standard Methods for the Examination of Water and Wastewater or any improved method determined by the Regional Board (and approved by EPA) to be appropriate. Detection methods used for enterococcus shall be those presented in Test Methods for Escherichia coli and Enterococci in Water by Membrane Filter Procedure (EPA 600/4-85/076) or any improved method determined by the Executive Officer to be appropriate.
20. Revisions to this MRP may be made by the Executive Officer at any time, and may include a change in the location of sampling stations and/or a reduction or increase in the number of parameters to be monitored, the frequency of monitoring, the number of sampling stations and/or the number and/or size of samples collected.
21. By June 30 of each year, the discharger shall submit an annual report to the Regional Board which contains tabular and graphical summaries of the monitoring data obtained during the previous year. The discharger shall discuss the compliance record and corrective actions taken, or which may be needed, to bring the discharge into full compliance with the requirements of Order No. 96-50 and this MRP. The report shall address operator certification and provide a list of current operating personnel and their grade of certification. The report shall include the date of the facilities' Operations and Maintenance Manual, the date the manual was last reviewed, and a statement as to whether the manual is complete and valid for the current facilities. The report shall restate, for the record, the laboratories used by the discharger to monitor compliance with Order No. 96-50 and this MRP, and provide a summary of performance relative to the requirements in this MRP.
22. The sampling frequency of "daily" means that samples shall be collected seven days per week. "Weekly" samples shall be collected such that each day of the week is represented during a seven week period.
23. Monitoring results shall be reported at intervals and in a manner specified in this MRP and Order No. 96-50. Monitoring reports shall be submitted to the Regional Board according to the following schedule:

<u>Report</u>	<u>Report Period</u>	<u>Report Due</u>
MONTHLY Influent, Effluent, Sludge Analysis, and Receiving Water, including all continuous, daily, weekly, and monthly monitoring results	January, February, March, April, May, June, July, August, September, October, November, December	By the 30th day of the following month (February 28 for January)
QUARTERLY Fish trawl reports.	January-March April-June July-September October-December	May 30 August 30 November 30 February 28
SEMIANNUAL Sediment and infauna reports, trawl fish bioaccumulation reports, rig fishing reports.	January-June July-December	August 30 March 1
ANNUAL Pretreatment Report (Pretreatment Requirement G.3 of Order No. 96-50), and sludge analysis (Sludge Requirement H.4 of Order No. 96-50)	January-December	March 30
ANNUAL Report described in General Monitoring and Reporting Provision No. A.21 of this MRP, QA, flow measurement report, and receiving water reports.	January-December	June 30

**B. INFLUENT MONITORING**

Influent monitoring is required to determine compliance with NPDES permit conditions and water quality standards, to determine the effectiveness of pretreatment and nonindustrial source control programs, to assess the performance of the treatment plant, and to evaluate compliance with effluent limitations (eg., percent removal). The influent sampling station shall be located where representative samples of the influent can be obtained. The sampling station shall be located upstream of any in-plant return flows, recycle flows, or the addition of treatment chemicals. Influent samples shall be collected on the same day as, and shortly before the collection of effluent samples.

During periods when no effluent is discharged from the IWTP, no influent monitoring, except for flowrate monitoring, is required.

Influent monitoring shall be conducted as shown in the following table:

**INFLUENT SAMPLING AND ANALYSIS REQUIREMENTS**

Parameter	Units	Sample Type	Sample/ Analyses Frequency	Report Frequency
flowrate	MGD	record/totalizer	continuous	monthly
CBOD <sub>5</sub> @20°C	mg/l	24 hr. composite	weekly	monthly
volatile suspended solids	mg/l	24 hr. composite	weekly	monthly
total dissolved solids	mg/l	24 hr. composite	weekly	monthly
temperature	°C	grab	weekly	monthly
floating particulates	mg/l	24 hr. composite	weekly	monthly
grease & oil	mg/l	grab	weekly	monthly
total suspended solids	mg/l	24 hr. composite	weekly	monthly
settleable solids	ml/l	grab	weekly	monthly
turbidity	NTU	24 hr. composite	weekly	monthly
pH	units	grab	weekly	monthly
arsenic	ug/l	24 hr. composite	weekly	monthly
cadmium	ug/l	24 hr. composite	weekly	monthly
chromium (VI)	ug/l	24 hr. composite	weekly	monthly
copper	ug/l	24 hr. composite	weekly	monthly
lead	ug/l	24 hr. composite	weekly	monthly

mercury	ug/l	24 hr. composite	weekly	monthly
nickel	ug/l	24 hr. composite	weekly	monthly
selenium	ug/l	24 hr. composite	weekly	monthly
silver	ug/l	24 hr. composite	weekly	monthly
zinc	ug/l	24 hr. composite	weekly	monthly
cyanide	ug/l	24 hr. composite	weekly	monthly
ammonia (as N)	mg/l	24 hr. composite	weekly	monthly
phenolic compounds (nonchlorinated)	ug/l	24 hr. composite	weekly	monthly
phenolic compounds (chlorinated)	ug/l	24 hr. composite	weekly	monthly
endosulfan	ug/l	24 hr. composite	weekly	monthly
endrin	ug/l	24 hr. composite	weekly	monthly
HCH	ug/l	24 hr. composite	weekly	monthly
radioactivity	pCi/l	24 hr. composite	monthly	monthly
acrolein	ug/l	24 hr. composite	monthly	monthly
antimony	ug/l	24 hr. composite	monthly	monthly
bis(2-chloroethoxy) methane	ug/l	grab	monthly	monthly
bis(2-chloroisopropyl) ether	ug/l	grab	monthly	monthly
chlorobenzene	ug/l	grab	monthly	monthly
chromium (III)	ug/l	24 hr. composite	monthly	monthly
di-n-butyl phthalate	ug/l	24 hr. composite	monthly	monthly
dichlorobenzenes	ug/l	24 hr. composite	monthly	monthly
1,1-dichloroethylene	ug/l	grab	monthly	monthly
diethyl phthalate	ug/l	24 hr. composite	monthly	monthly
dimethyl phthalate	ug/l	24 hr. composite	monthly	monthly
4,6-dinitro-2- methylphenol	ug/l	24 hr. composite	monthly	monthly
2,4-dinitrophenol	ug/l	24 hr. composite	monthly	monthly
ethylbenzene	ug/l	grab	monthly	monthly
fluoranthene	ug/l	24 hr. composite	monthly	monthly
hexachlorocyclo- pentadiene	ug/l	24 hr. composite	monthly	monthly
isophorone	ug/l	24 hr. composite	monthly	monthly
nitrobenzene	ug/l	24 hr. composite	monthly	monthly
thallium	ug/l	24 hr. composite	monthly	monthly
toluene	ug/l	grab	monthly	monthly
1,1,2,2-	ug/l	grab	monthly	monthly



tetrachloroethane				
tributyltin	ug/l	24 hr. composite	monthly	monthly
1,1,1-trichloroethane	ug/l	grab	monthly	monthly
1,1,2-trichloroethane	ug/l	grab	monthly	monthly
acrylonitrile	ug/l	24 hr. composite	monthly	monthly
aldrin	ug/l	24 hr. composite	weekly	monthly
benzene	ug/l	grab	monthly	monthly
benzidine	ug/l	24 hr composite	monthly	monthly
beryllium	ug/l	24 hr. composite	monthly	monthly
bis(2-chloroethyl) ether	ug/l	24 hr. composite	monthly	monthly
bis(2-ethylhexyl) phthalate	ug/l	24 hr. composite	monthly	monthly
carbon tetrachloride	ug/l	grab	monthly	monthly
chlordane	ug/l	24 hr. composite	weekly	monthly
chloroform	ug/l	grab	monthly	monthly
DDT	ug/l	24 hr. composite	weekly	monthly
1,4-dichlorobenzene	ug/l	24 hr. composite	monthly	monthly
3,3-dichlorobenzidine	ug/l	24 hr. composite	monthly	monthly
1,2-dichloroethane	ug/l	grab	monthly	monthly
dichloromethane	ug/l	grab	monthly	monthly
1,3-dichloropropene	ug/l	24 hr. composite	monthly	monthly
dieldrin	ug/l	24 hr. composite	weekly	monthly
2,4-dinitrotoluene	ug/l	24 hr. composite	monthly	monthly
1,2-diphenylhydrazine	ug/l	24 hr. composite	monthly	monthly
halomethanes	ug/l	24 hr. composite	monthly	monthly
heptachlor	ug/l	24 hr. composite	monthly	monthly
hexachlorobenzene	ug/l	24 hr. composite	monthly	monthly
hexachlorobutadiene	ug/l	24 hr. composite	monthly	monthly
hexachloroethane	ug/l	24 hr. composite	monthly	monthly
N-nitrosodimethylamine	ug/l	24 hr. composite	monthly	monthly
N-nitrosdiphenylamine	ug/l	24 hr. composite	monthly	monthly
PAHs	ug/l	24 hr. composite	monthly	monthly
PCBs	ug/l	24 hr. composite	weekly	monthly
TCDD equivalents	ug/l	24 hr. composite	monthly	monthly
tetrachloroethylene	ug/l	grab	monthly	monthly
toxaphene	ug/l	24 hr. composite	weekly	monthly
trichloroethylene	ug/l	grab	monthly	monthly
2,4,6-trichlorophenol	ug/l	24 hr. composite	monthly	monthly
vinyl chloride	ug/l	grab	monthly	monthly

remaining "priority pollutants"      ug/l      24 hr. composite      monthly      monthly

**C. SLUDGE MONITORING REQUIREMENTS**

1. General sludge monitoring and reporting requirements are contained in Sludge Requirements Section H of Order No. 96-50.

**D. EFFLUENT MONITORING**

Effluent monitoring is required to determine compliance with NPDES permit conditions and water quality standards, to identify operational problems in order to improve plant performance, and to provide information on waste characteristics and flows for use in interpreting water quality and biological data.

The effluent sampling station shall be located where representative samples of the effluent discharged through the ocean outfall can be obtained. The sampling station shall be located downstream from any in-plant return flows, disinfection units, and from the last connection through which wastes can be admitted to the outfall.

During periods when no effluent is discharged from the IWTP, no effluent monitoring, except for flowrate monitoring, is required .

Effluent monitoring shall be conducted as shown in the following table:

**EFFLUENT SAMPLING AND ANALYSIS REQUIREMENTS**

Parameter	Units <sup>a</sup>	Sample Type	Sample/ Analyses Frequency	Report Frequency
flowrate	MGD	record/totalizer	continuous	monthly
CBOD <sub>5</sub> @20 <sup>0</sup> C <sup>b</sup>	mg/l	24 hr. composite	daily	monthly
total BOD <sub>5</sub> @20 <sup>0</sup> C	mg/l	24 hr. composite	daily	monthly
total soluble BOD <sub>5</sub> @20 <sup>0</sup> C	mg/l	24 hr. composite	daily	monthly
volatile suspended solids	mg/l	24 hr. composite	daily	monthly
total dissolved solids	mg/l	24 hr. composite	daily	monthly
temperature	<sup>0</sup> C	grab	daily	monthly
floating particulates	mg/l	24 hr. composite	daily	monthly

grease & oil	mg/l	grab	daily	monthly
total suspended solids <sup>b</sup>	mg/l	24 hr. composite	daily	monthly
settleable solids	ml/l	grab	daily	monthly
turbidity	NTU	24 hr. composite	daily	monthly
pH	units	grab	daily	monthly
acute toxicity <sup>c</sup>	TUa	24 hr. composite	weekly	monthly
arsenic	ug/l	24 hr. composite	weekly	monthly
cadmium	ug/l	24 hr. composite	weekly	monthly
chromium (VI) <sup>d</sup>	ug/l	24 hr. composite	weekly	monthly
copper	ug/l	24 hr. composite	weekly	monthly
lead	ug/l	24 hr. composite	weekly	monthly
mercury	ug/l	24 hr. composite	weekly	monthly
nickel	ug/l	24 hr. composite	weekly	monthly
selenium	ug/l	24 hr. composite	weekly	monthly
silver	ug/l	24 hr. composite	weekly	monthly
zinc	ug/l	24 hr. composite	weekly	monthly
cyanide	ug/l	24 hr. composite	weekly	monthly
ammonia (as N)	mg/l	24 hr. composite	weekly	monthly
chronic toxicity <sup>e</sup>	TUc	24 hr. composite	weekly	monthly
phenolic compounds (nonchlorinated)	ug/l	24 hr. composite	weekly	monthly
phenolic compounds (chlorinated)	ug/l	24 hr. composite	weekly	monthly
endosulfan	ug/l	24 hr. composite	weekly	monthly
endrin	ug/l	24 hr. composite	weekly	monthly
HCH	ug/l	24 hr. composite	weekly	monthly
radioactivity	pci/l	24 hr. composite	monthly	monthly
acrolein	ug/l	24 hr. composite	monthly	monthly
antimony	ug/l	24 hr. composite	monthly	monthly
bis(2-chloroethoxy) methane	ug/l	grab	monthly	monthly
bis(2-chloroisopropyl) ether	ug/l	grab	monthly	monthly
chlorobenzene	ug/l	grab	monthly	monthly
chromium (III)	ug/l	24 hr. composite	monthly	monthly
di-n-butyl phthalate	ug/l	24 hr. composite	monthly	monthly
dichlorobenzenes	ug/l	24 hr. composite	monthly	monthly
1,1-dichloroethylene	ug/l	grab	monthly	monthly

diethyl phthalate	ug/l	24 hr. composite	monthly	monthly
dimethyl phthalate	ug/l	24 hr. composite	monthly	monthly
4,6-dinitro-2-methylphenol	ug/l	24 hr. composite	monthly	monthly
2,4-dinitrophenol	ug/l	24 hr. composite	monthly	monthly
ethylbenzene	ug/l	grab	monthly	monthly
fluoranthene	ug/l	24 hr. composite	monthly	monthly
hexachlorocyclopentadiene	ug/l	24 hr. composite	monthly	monthly
isophorone	ug/l	24 hr. composite	monthly	monthly
nitrobenzene	ug/l	24 hr. composite	monthly	monthly
thallium	ug/l	24 hr. composite	monthly	monthly
toluene	ug/l	grab	monthly	monthly
1,1,2,2-tetrachloroethane	ug/l	grab	monthly	monthly
tributyltin	ug/l	24 hr. composite	monthly	monthly
1,1,1-trichloroethane	ug/l	grab	monthly	monthly
1,1,2-trichloroethane	ug/l	grab	monthly	monthly
acrylonitrile	ug/l	24 hr. composite	monthly	monthly
aldrin	ug/l	24 hr. composite	weekly	monthly
benzene	ug/l	grab	monthly	monthly
benzidine	ug/l	24 hr. composite	monthly	monthly
beryllium	ug/l	24 hr. composite	monthly	monthly
bis(2-chloroethyl) ether	ug/l	24 hr. composite	monthly	monthly
bis(2-ethylhexyl) phthalate	ug/l	24 hr. composite	monthly	monthly
carbon tetrachloride	ug/l	grab	monthly	monthly
chlordane	ug/l	24 hr. composite	weekly	monthly
chloroform	ug/l	grab	monthly	monthly
DDT	ug/l	24 hr. composite	weekly	monthly
1,4-dichlorobenzene	ug/l	24 hr. composite	monthly	monthly
3,3-dichlorobenzidine	ug/l	24 hr. composite	monthly	monthly
1,2-dichloroethane	ug/l	grab	monthly	monthly
dichloromethane	ug/l	grab	monthly	monthly
1,3-dichloropropene	ug/l	24 hr. composite	monthly	monthly
dieldrin	ug/l	24 hr. composite	weekly	monthly
2,4-dinitrotoluene	ug/l	24 hr. composite	monthly	monthly
1,2-diphenylhydrazine	ug/l	24 hr. composite	monthly	monthly
halomethanes	ug/l	24 hr. composite	monthly	monthly
heptachlor	ug/l	24 hr. composite	monthly	monthly
hexachlorobenzene	ug/l	24 hr. composite	monthly	monthly

hexachlorobutadiene	ug/l	24 hr. composite	monthly	monthly
hexachloroethane	ug/l	24 hr. composite	monthly	monthly
N-nitrosodimethylamine	ug/l	24 hr. composite	monthly	monthly
N-nitrosodiphenylamine	ug/l	24 hr. composite	monthly	monthly
PAHs	ug/l	24 hr. composite	monthly	monthly
PCBs	ug/l	24 hr. composite	weekly	monthly
TCDD equivalents	ug/l	24 hr. composite	monthly	monthly
tetrachloroethylene	ug/l	grab	monthly	monthly
toxaphene	ug/l	24 hr. composite	weekly	monthly
trichloroethylene	ug/l	grab	monthly	monthly
2,4,6-trichlorophenol	ug/l	24 hr. composite	monthly	monthly
vinyl chloride	ug/l	grab	monthly	monthly
remaining "priority pollutants"	ug/l	24 hr. composite	monthly	monthly

- a. The discharger shall report the Mass Emission Rate (MER) in lb/day for all constituents that have MER effluent limitations established by Discharge Specification B.1 of Order No. 96-50. The discharger shall also report the concentration and flowrate used to calculate the MER for each constituent.
- b. For determining compliance with Ocean Plan requirements, percent carbonaceous biochemical oxygen demand (5-day) (CBOD<sub>5</sub>) and percent total suspended solids (TSS) removal (i.e., CBOD<sub>5</sub> and TSS removal efficiency) shall be calculated as follows:

$$\text{Percent Removal CBOD}_5 = 100\% \times [(\text{CBOD}_{5\text{inf}} - \text{CBOD}_{5\text{eff}}) / \text{CBOD}_{5\text{inf}}]$$

Where: CBOD<sub>5inf</sub> = carbonaceous biochemical oxygen demand (5-day) in raw wastewater unaffected by in-plant or return or recycle flows or the addition of treatment chemicals. CBOD<sub>5 inf</sub> shall be determined in accordance with the requirements of Section B, Influent Monitoring.

CBOD<sub>5eff</sub> = carbonaceous biochemical oxygen demand (5-day) in the effluent

CBOD<sub>5inf</sub> and CBOD<sub>5eff</sub> shall be determined on the basis of both concentration (mg/l) and mass (lb/day). The 30-day average percent total suspended solids removal shall be calculated daily, on both a concentration and a mass basis, using the 30-day average values of CBOD<sub>5inf</sub> and CBOD<sub>5eff</sub>. The results shall be reported monthly.

$$\text{Percent Removal TSS} = 100\% \times [(\text{TSS}_{\text{inf}} - \text{TSS}_{\text{eff}}) / \text{TSS}_{\text{inf}}]$$

Where: TSS<sub>inf</sub> = total suspended solids in raw wastewater unaffected by in-plant or return or recycle flows or the addition of treatment chemicals. TSS<sub>inf</sub> shall be determined in accordance with the requirements of Section B, Influent Monitoring.

$TSS_{eff} =$  total suspended solids in the effluent

$TSS_{inf}$  and  $TSS_{eff}$  shall be determined on the basis of both concentration (mg/l) and mass (lb/day).

The 30-day average percent total suspended solids removal shall be calculated daily, on both a concentration and a mass basis, using the 30-day average values of  $TSS_{inf}$  and  $TSS_{eff}$ . The results shall be reported monthly.

c. Acute Toxicity Monitoring

Compliance with the acute toxicity effluent limitation in Discharge Specification B.1.a(2) shall be determined according to Compliance Determination F.12 of Order No. 96-50.

d. The discharger may, at its option, meet the effluent limitation and effluent mass emission rate for chromium (VI) as a total chromium limitation.

e. Chronic Toxicity Monitoring

Compliance with the chronic toxicity effluent limitation in Discharge Specification B.1.b shall be determined according to Compliance Determination F.13 of Order No. 96-50.

**E.**

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## RECEIVING ENVIRONMENT MONITORING

To determine compliance with water quality standards, the receiving water quality monitoring program must document conditions in the vicinity of the "Zone of Initial Dilution" (ZID) boundary, at reference stations, and at areas beyond the ZID where discharge impacts might be reasonably expected. Monitoring must reflect conditions during all critical environmental periods. Receiving environment monitoring shall be conducted as specified below.

Reports of marine monitoring surveys conducted to meet receiving water monitoring requirements of this MRP shall include, as a minimum, the following information:

- A description of climatic and receiving water characteristics at the time of sampling (weather observations, floating debris, discoloration, wind speed and direction, swell or wave action, time of sampling, tide height, etc.).
- A description of sampling stations, including differences unique to each station (e.g., station location, sediment grain size, distribution of bottom sediments, rocks, shell litter, calcareous worm tubes, etc.).
- A description of the sample collection and preservation procedures used in the survey.
- A description of the specific method used for laboratory analysis.
- An in-depth discussion of the results of the survey. All tabulations and computations

shall be explained.

**1. Sampling Stations**

- a. Offshore Water Quality Stations. Offshore stations shall be located and numbered as follows:

IWTP WATER QUALITY & BENTHIC STATIONS

STATIONS	LATITUDE	LONGITUDE	DEPTH (ft)
I1	32 28.400	117 16.600	197
I2	32 28.400	117 11.930	107
I3	32 28.020	117 10.050	88
I4	32 28.300	117 08.410	60
I5	32 28.300	117 07.780	45
I6	32 29.610	117 09.800	87
I7	32 31.000	117 15.200	170
I8	32 31.000	117 12.120	118
I9	32 30.700	117 10.720	95
I10	32 31.000	117 09.330	63
I11	32 30.800	117 08.200	44
I12	32 31.970	117 11.000	93
I13	32 32.250	117 12.720	124
I14	32 32.580	117 11.020	91
I15	32 32.270	117 11.350	102
I16	32 32.270	117 11.000	92
I17	32 32.270	117 10.680	84
I18	32 32.170	117 09.670	63
I19	32 32.180	117 07.730	33
I20	32 33.420	117 15.420	183
I21	32 33.640	117 13.610	135
I22	32 33.200	117 11.080	93
I23	32 33.050	117 09.900	68
I24	32 33.400	117 08.730	35
I25	32 33.670	117 08.870	31
I26	32 34.470	117 08.800	31
I27	32 34.450	117 11.450	92
I28	32 35.630	117 15.870	183
I29	32 35.670	117 13.380	124
I30	32 35.720	117 11.830	92
I31	32 35.730	117 10.330	63
I32	32 35.680	117 08.270	33

I33	32 37.440	117 14.230	98
I34	32 37.800	117 12.930	62
I35	32 38.200	117 10.920	63
I36	32 38.350	117 09.220	37
I37	32 38.880	117 12.980	41
I38	32 40.130	117 11.200	37
I39	32 34.340	117 10.050	60
I40	32 33.230	117 08.170	32

IWTP TRAWL STATIONS

STATIONS	LATITUDE	LONGITUDE	DEPTH (ft)
SD-15	32 28.350	117 10.500	90
SD-16	32 31.000	117 10.720	90
SD-17	32 32.200	117 11.430	100
SD-18	32 32.580	117 11.350	100
SD-19	32 33.500	117 11.080	94
SD-20	32 34.680	117 11.450	96
SD-21	32 36.990	117 12.690	95

IWTP RIG FISHING STATIONS

STATIONS	LATITUDE	LONGITUDE	DEPTH (ft)
RF-1	32 28.350	117 10.100	90
RF-2	32 32.270	117 11.000	90

IWTP SHORE STATION LOCATIONS

STATIONS	LOCATION	DESCRIPTION
S-1	Mexico (Punta Bandera Area)	Beach at Punta Bandera, near the middle of the Point
S-2	Mexico (El Vigia Area)	Beach south of El Vigia Restaurant.
S-3	Mexico (Fraccionamiento Playes de Tijuana Area)	Beach at end of existing road of Playes de Tijuana.
S-4	United States (Border Area)	Beach just north and nearly adjacent to the Boarder Fence.



S-5	United States (Tijuana Estuary)	Beach at north point of estuary mouth.
S-6	United States (Imperial Beach)	Beach at end of Seacoast Drive.
S-8	United States (Silver Strand)	Silver Strand State Beach, Area 4, just west of the Coronado Cays.
S-9	United States (Coronado)	Beach at the end of Avenida Del Sol seaward of Hotel Del Coronado.
S-10	United States (Monument Road)	Beach at the terminus of Monument Road.
S-11	United States (North of Tijuana River)	Beach approximately 3/4 mile north of the Tijuana River Mouth
S-12	United States (Imperial Beach)	Beach at the end of Carnation Street.

**2. Receiving Water Sampling and Analyses Requirements**

Receiving water monitoring shall be conducted as shown in the following table:

<u>Parameter</u>	<u>Units</u>	<u>Stations</u>	<u>Sample Type</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
visual observation	--	all stations	visual	monthly	monthly
total coliforms, fecal coliforms, enterococcus	CFU/100ml	S-1 - S-9/ I3, I5, I7-I14, I16, I18 - I24, I30, I32, I33, I36- I38, I40	grab	weekly/ monthly	monthly
total coliforms, fecal coliforms, enterococcus	CFU/100ml	I25, I26, I39	grab	five times per month (rotating the day of the week sampled each week so that each day of the week is represented in a two month period)	monthly
temperature	°C	I1 - I40	profile	monthly	monthly
pH	units	I1 - I40	profile	monthly	monthly
salinity	ppt	I1 - I40	profile	monthly	monthly
dissolved oxygen	mg/l	I1 - I40	profile	monthly	monthly
transmissivity		I1 - I40	profile	monthly	monthly
oil and grease	mg/l	I3, I5, I7-I14, I16, I18-I26, I30, I32, I33, I36- I40	grab	monthly	monthly
total suspended solids	mg/l	I3, I5, I7-I14, I16, I18-I26, I30, I32, I33, I36- I40	grab	monthly	monthly
kelp	--	--	aerial photos	annually	annually

- a. Visual observations of the surface water conditions at the designated receiving water

stations shall be conducted in such a manner to enable the observer to describe and to report the presence, if any, of floatables of sewage origin. Observations of wind (direction and speed), weather (e.g., cloudy, sunny, or rainy), current (e.g., direction), and tidal conditions (e.g., high or low tide) shall be recorded. Observations of water color, discoloration, oil and grease, turbidity, odor, materials of sewage origin in the water or on the beach shall be recorded. These observations shall be taken whenever a sample is collected (generally monthly). Observations at shoreline stations (S-1 - S-9), will occur on a more frequent basis (weekly or every two weeks) corresponding with the increased frequency of shoreline bacterial monitoring during certain times of the year (see c. below).

- b. Total suspended solids shall be measured monthly at three depths (sub-surface, mid-depth and bottom). Oil and grease shall be measured monthly in surface waters (top five feet). Temperature, salinity, dissolved oxygen, light transmittance and pH shall be measured monthly throughout the entire water column using probes (e.g., XBTs, CTDs) or meters (e.g., DO, pH). Suspended solids, and light transmittance measurements shall be taken on the same day and as close together in time as possible.
- c. Total coliforms, fecal coliforms and enterococcus shall be sampled at nine shore stations (S-1 - S-9) according to the following schedule: weekly from May 1 through October 31, and every two weeks from November 1 through April 30.

Total coliforms, fecal coliforms and enterococcus shall be sampled at three kelp bed stations (I25, I26, and I39) and shall be monitored at least five times per month, such that each day of the week is represented over a two month period. Samples shall be collected from three depths (sub-surface, mid-depth and bottom).

Total coliforms, fecal coliforms and enterococcus shall be measured at least monthly at 25 offshore stations from three depths (sub-surface, mid-depth and bottom).

- d. The areal extent of the Point Loma and Imperial Beach kelp beds shall be determined by aerial photography. The discharger shall participate with other ocean dischargers in the San Diego Region in an annual regional kelp bed photographic survey. Kelp beds shall be monitored annually by means of vertical aerial infrared photography to determine the maximum areal extent of the Region's coastal kelp beds within the calendar year. Surveys shall be conducted as close as possible to the time when kelp bed canopies cover the greatest area. The entire San Diego coastline, from the International Boundary to the San Diego Region/Santa Ana Region boundary. The images produced by the surveys shall be presented in the form of a 1:24,000 scale photo-mosaic of the entire San Diego Region coastline. Onshore reference points, locations of all ocean outfalls and diffusers, and the 30-foot (MLLW) and the 60-foot (MLLW) depth contours shall be shown. The areal extent of the Imperial Beach kelp beds photographed in each survey shall be

compared to that noted in surveys of previous years. Any significant losses which persist for more than one year shall be investigated by divers to determine the probable reason for the loss.

### 3. Benthic Monitoring Requirements

- a. Sediment Sampling and Analyses Requirements. Sediment samples shall be collected semiannually from 27 stations (I1-I4, I6-I10, I12-I16, I18, I20-I23, I27-I31, I33-I35) using a 0.1-m<sup>2</sup> modified Van Veen grab sampler. Sediment samples for chemical analyses shall be taken from the top 2 cm of the grab. These samples shall be analyzed for the set of constituents as listed below. For sediment chemistry ambient monitoring may be conducted using USEPA approved or methods developed by NOAA's National Status and Trends Program for Marine Environmental Quality. For chemical analysis of sediment, samples shall be reported on a dry weight basis.

<u>Parameter</u>	<u>Units</u>	<u>Sample type</u>	<u>Frequency</u>
Sediment grain size	phi	grab	quarterly
Total Organic Carbon	%	grab	quarterly
Total Nitrogen	%	grab	quarterly
Acid volatile sulfides	mg/kg	grab	quarterly
<i>Metals</i>			
Aluminum	mg/kg	grab	quarterly
Antimony	mg/kg	grab	quarterly
Arsenic	mg/kg	grab	quarterly
Cadmium	mg/kg	grab	quarterly
Chromium	mg/kg	grab	quarterly
Copper	mg/kg	grab	quarterly
Iron	mg/kg	grab	quarterly
Lead	mg/kg	grab	quarterly
Manganese	mg/kg	grab	quarterly
Mercury	mg/kg	grab	quarterly
Nickel	mg/kg	grab	quarterly
Selenium	mg/kg	grab	quarterly
Silver	mg/kg	grab	quarterly
Tin	mg/kg	grab	quarterly
Zinc	mg/kg	grab	quarterly

*PCBs and Chlorinated Pesticides*

PCBs <sup>1</sup>	ng/kg	grab		quarterly
2,4'-DDD	ng/kg		grab	quarterly
4,4'-DDD	ng/kg		grab	quarterly
2,4'-DDE	ng/kg		grab	quarterly
4,4'-DDE	ng/kg		grab	quarterly
2,4'-DDT	ng/kg		grab	quarterly
4,4'-DDT	ng/kg		grab	quarterly
Aldrin	ng/kg		grab	quarterly
alpha-Chlordane	ng/kg		grab	quarterly
Dieldrin	ng/kg		grab	quarterly
Endosulfan	ng/kg		grab	quarterly
Endrin	ng/kg	grab		quarterly
gamma-BHC	ng/kg		grab	quarterly
Heptachlor	ng/kg		grab	quarterly
Heptachlor epoxide	ng/kg		grab	quarterly
Hexachlorobenzene	ng/kg		grab	quarterly
Mirex	ng/kg		grab	quarterly
Trans-nonachlor	ng/kg		grab	quarterly

*Polycyclic Aromatic Hydrocarbons*

Acenaphthene	ug/kg		grab	quarterly
Acenaphthylene	ug/kg		grab	quarterly
Anthracene	ug/kg		grab	quarterly
Benz(a)anthracene	ug/kg		grab	quarterly
Benzo(o)fluoranthene	ug/kg		grab	quarterly
Benzo(k)fluoranthene	ug/kg		grab	quarterly
Benzo(ghi)pyrene	ug/kg		grab	quarterly
Benzo(a)pyrene	ug/kg		grab	quarterly
Benzo(e)pyrene	ug/kg		grab	quarterly
Biphenyl	ug/kg		grab	quarterly
Chrysene	ug/kg		grab	quarterly
Dibenz(ah)anthracene	ug/kg		grab	quarterly
Fluoranthene	ug/kg		grab	quarterly
Fluorene	ug/kg		grab	quarterly
Indeno(123cd)pyrene	ug/kg		grab	quarterly
Naphthalene	ug/kg		grab	quarterly
1-Methylnaphthalene	ug/kg	grab		quarterly
2-Methylnaphthalene	ug/kg	grab		quarterly
2,6-Dimethylnaphthalene	ug/kg		grab	quarterly
2,3,5-Trimethylnaphthalene	ug/kg		grab	quarterly

<sup>1</sup> PCBs shall be reported as congeners.

Perylene	ug/kg	grab	quarterly
Phenanthrene	ug/kg	grab	quarterly
1-Methylphenanthrene	ug/kg	grab	quarterly
Pyrene	ug/kg	grab	quarterly

- b. Infauna Monitoring. For analyses of benthic infauna, two replicate samples of bottom sediments shall be collected and analyzed semiannually from the following 27 stations: (I1-I4, I6-I10, I12-I16, I18, I20-I23, I27-I31, I33-I35).

The benthic infaunal samples shall be collected using a 0.1-m<sup>2</sup> modified Van Veen grab. These sample grabs shall be separate from those collected for sediment analyses. The samples shall be sieved using a 1.0-mm mesh screen. The benthic organisms retained on the sieve shall be fixed in fifteen percent buffered formalin, and transferred to 70 percent ethanol within two to seven days for storage. These organisms may be stained using Rose Bengal to facilitate sorting. All organisms, including infauna organisms, obtained during benthic monitoring shall be counted and identified to as low a taxon as possible. Biomass shall be estimated from wet weight measurements for each of the following taxa: molluscs, echinoderms, polychaetes, crustaceans and other taxa.

Community analyses shall consist of number of species, number of individuals per species and total numerical abundance, and biomass. Semiannual reports shall consist of the raw data (number of individuals per species) along with analysis of community parameters. Community parameters shall be summarized per station as:

- Number of species per 0.1 m<sup>2</sup>
- Total number of species per station
- Total numerical abundance
- Biomass
- Infaunal trophic index
- Swartz' 75% dominance index
- Shannon-Weiner's diversity index (H')
- Pielou evenness (J')

Annual reports will include community parameters along with more detailed statistical comparisons including community, temporal, and spatial analyses. Methods may include, but are not limited to, various multivariate analyses such as cluster analysis, ordination, and regression. The discharger should also conduct additional analyses, as appropriate, to elucidate temporal and spatial trends in the data.

- c. Random sampling An additional array of 40 randomly selected stations shall

be sampled and analyzed annually for sediment chemistry and benthic infauna, following the procedures outlined in Benthic Monitoring Requirements E.3.a and E.3.b. The stations shall be reselected each year by USEPA using the USEPA probability-based EMAP design. The area shall extend from the mouth of the San Dieguito River south to the Mexican border. Results shall be included in the annual receiving water report.

#### 4. Fish Monitoring Requirements

- a. Fish trawls. Fish trawls shall be conducted quarterly to assess the community structure of demersal fish and macro-invertebrates and the presence of priority pollutants in fish. Single trawls for demersal fish and macro-invertebrates shall be conducted quarterly at seven trawl stations (SD15 - SD21). Trawls shall be conducted using a Marinovich 7.62 m (25 ft) head rope otter trawl, using the guidance specified in the field manual developed for the Southern California Bight Pilot Project. Organisms captured at each trawl station shall be identified.

Fish collected by trawls should be identified to species. At all station, community structure analysis should be conducted. Community structure analysis consists of the wet weight of each species, number of individuals per species, total numerical abundance, species richness, species diversity (i.e., Shannon-Wiener), multivariate pattern analyses (e.g., ordination and classification analyses). Abnormalities and disease symptoms shall be recorded and itemized (e.g., fin erosion, internal and external lesions, tumors).

Chemical analyses of fish tissue shall be performed semiannually on selected target species from seven trawl stations (SD15 - SD21). The list of constituents shall be the same as for sediments with the exception that total lipids will be measured instead of organic carbon, nitrogen and grain size. The species targeted for analysis will be selected for their ecological or commercial importance and abundance at each sampling location. Three replicate composite samples shall be prepared from each trawl station for liver tissue. Each composite sample shall consist of tissues taken from at least three fish of the same species.

The species targeted for analysis at the trawl stations shall be primarily flatfish. The targeted species include but are not limited to the following: Pacific sanddab (Citharichthys sordidus), longfin sanddab (Citharichthys xanthostigma), speckled sanddab (Citharichthys stigmaeus), bigmouth sole (Hippoglossina stomata), or hornyhead turbot (Pleuronichthys verticalis). The California scorpionfish (Scorpaena guttata) and the halfbanded rockfish (Sebastes semicinctus) shall be targeted at sites that do not contain sufficient

number of flatfish.

- b. Rig fishing. Rig fishing shall be performed semiannually to monitor the uptake of pollutants in fish which are consumed by man in order to determine the impact on public health, and to assess the impacts on local fish populations. Twice each year, fish shall be collected by hook and line or by setting baited lines from within the zone of initial dilution (ZID) and at some point removed from the ZID. The fish shall be representative of those caught by recreational and commercial fishermen in the area. Fish samples shall be identified as to species, number of individuals per species, standard length and wet weight. Physical abnormalities and disease symptoms shall be recorded and itemized (e.g., fin rot, internal and external lesions, and tumors).

Three replicate composite samples of the target species shall be obtained from each station. Each composite shall consist of a minimum of three individuals. Muscle tissue shall be chemically analyzed for the same set of constituents as trawl-caught fish.

I John H. Robertus, Executive Officer of the San Diego Regional Water Quality Control Board, do hereby certify the foregoing is a full, true, and correct copy of Monitoring and Reporting Program No. 96-50 adopted by the California Regional Water Quality Control Board, San Diego Region, on November 14, 1996.

Original signed by

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John H. Robertus  
Executive Officer