

April 10, 2002

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
AND
U. S. ENVIRONMENTAL PROTECTION AGENCY
REGION IX**

**MONITORING AND REPORTING PROGRAM NO. R9-2002-0025
NPDES PERMIT NO. CA0107409**

**FOR THE CITY OF SAN DIEGO
E. W. BLOM POINT LOMA METROPOLITAN WASTEWATER TREATMENT
PLANT**

**DISCHARGE TO THE PACIFIC OCEAN
THROUGH THE POINT LOMA OCEAN OUTFALL
SAN DIEGO COUNTY**

Monitoring and Reporting Program (MRP) No. R9-2002-0025 supersedes and entirely replaces the monitoring and reporting requirements previously established by MRP No. 95-106. MRP No. R9-2002-0025 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 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 the U. S. Environmental Protection Agency, Region IX (hereinafter EPA), Water Division Director (hereinafter Director) and shall not be changed without notification to and the approval of the Executive Officer and the Director. Samples shall be collected at times representative of "worst case" conditions with respect to compliance with the requirements of Order No. R9-2002-0025.
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 ± 5 percent from true discharge rates throughout the range of expected discharge volumes.

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 (40CFR 136), Guidelines Establishing Test Procedures for the Analysis of Pollutants, as amended, unless otherwise specified for sludge in 40CFR 503, or unless other test procedures have been specified in Order No. R9-2002-0025 and/or in this monitoring and reporting program.
4. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services in accordance with the provision of Section 13176 CWC or a laboratory approved by the Executive Officer.
5. Monitoring results must be reported on discharge monitoring report (DMR) forms approved by the Executive Officer.
6. If the discharger monitors any pollutant more frequently than required by this MRP, using test procedures approved under 40 CFR 136, or as specified in 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.
7. 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. R9-2002-0025 and any enforcement order issued by the Regional Board, and records of all data used to complete the application for Order No. R9-2002-0025. 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 or Director. It is recommended that the discharger maintain the results of all analyses indefinitely.
8. 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.
9. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in Order No. R9-2002-0025 or in this MRP. The discharger shall report the analysis results, calculation results, data, and equations used in calculations.
 10. 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.
 11. 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 EPA, the discharger will participate in the National Pollutant Discharge Elimination System (NPDES) discharger monitoring report quality assurance (QA) performance study.
 12. The discharger shall report all instances of noncompliance not reported under 40 CFR 122.44 at the time monitoring reports are submitted. The reports shall contain the information listed in 40 CFR 122.44.
 13. The monitoring reports shall be signed by an authorized person as required by 40 CFR 122.44.
 14. A composite sample is generally 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.

The 100-milliliter minimum volume of an aliquot does not apply to automatic self-purging samplers.

15. 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.
16. 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.
17. 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.
18. MRP No. R9-2002-0025 may be modified by the Regional Board and EPA to enable the discharger to participate in comprehensive regional monitoring activities conducted in the Southern California Bight during the term of this permit. The intent of regional monitoring activities is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled scientific resources of the region. During these coordinated sampling efforts, the discharger's sampling and analytical effort may be reallocated to provide a regional assessment of the impact of the discharge of municipal wastewater to the Southern California Bight. Anticipated modifications to the monitoring program will be coordinated so as to provide a more comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollution sources. If predictable relationships among the biological, water quality and effluent monitoring variables can be demonstrated, it may be appropriate to decrease the discharger's sampling effort. Conversely, the monitoring program may be intensified if it appears that the objectives cannot be achieved through the discharger's existing monitoring program. These changes will improve the overall effectiveness of monitoring in the Southern California Bight. Minor changes may be made without further public notice.
19. By July 1 of each year, the discharger shall submit an annual report to the Regional Board and EPA 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. R9-2002-0025 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. R9-2002-0025 and this MRP, and provide a summary of performance relative to the requirements in this MRP.

20. The discharger shall submit an annual report containing the following information:
- a. The number of equivalent unit connections to the sewerage system at the beginning of the year.
 - b. The number of new equivalent unit connections added to the sewerage system during the year.
 - c. The increase in influent flow volume resulting from the unit connections described in (b) above.
 - d. The number of equivalent unit connections which have been authorized but not yet connected.
 - e. The anticipated increase in influent flow volume resulting from connecting the units described in (d) above.
21. 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.
22. Monitoring results shall be reported at intervals and in a manner specified in this MRP and Order No. R9-2002-0025. Monitoring reports shall be submitted to the Regional Board and to EPA according to the following schedule:

REPORTS	Report Period	Report Due
MONTHLY REPORTS Influent and Effluent Solids Removal/Disposal Receiving Water Quality Report Tijuana Cross-Border Emergency Connection (when flowing)	Monthly	By the 1 st day of 2 nd following month (e.g., March 1 for January)

REPORTS	Report Period	Report Due
QUARTERLY REPORTS Sludge Analysis	January-March April-June July-September October-December	June 1 September 1 December 1 March 1
SEMI-ANNUAL REPORTS Pretreatment Report	January-June	September 1
ANNUAL REPORTS Pretreatment Report (Provision A.19) Sludge analysis QA Report Flow measurement Outfall inspection Receiving waters monitoring report Kelp report	January-December	April 1 April 1 April 1 July 1 July 1 July 1 October 1

23. All influent, effluent, and receiving water data shall be submitted annually to EPA for inclusion in the STORET database. The data shall be submitted in an electronic format specified by EPA.

B. INFLUENT AND EFFLUENT MONITORING

Influent monitoring is required to determine the effectiveness of pretreatment and nonindustrial source control programs, to assess the performance of treatment facilities, and to evaluate compliance with effluent limitations. As such, influent monitoring results must accurately characterize raw wastewater from the entire service area of the treatment facilities, unaffected by in-plant or return or recycle flows or the addition of treatment chemicals.

Effluent monitoring is required to determine compliance with the permit conditions and to identify operational problems and improve plant performance. Effluent monitoring also provides information on wastewater 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 can be obtained. The sampling station shall be located downstream from any in-plant return flows and from the last connection through which wastes can be admitted to the outfall.

Influent and effluent monitoring shall be conducted as shown in the following table. In addition monitoring of the waste flow in the standby emergency connection from the City of Tijuana, Mexico, shall be conducted as shown in the following table, whenever there is flow from Mexico and/or the SBIWTP through the connection.

INFLUENT AND EFFLUENT SAMPLING AND ANALYSIS REQUIREMENTS

CONSTITUENT	Unit	Sample type	Sampling frequency		
			Influent stream	Effluent stream	Emergency connection
flowrate	MGD	recorder/totalizer	Continuous	Continuous	Continuous
BOD ₅ @20°C	mg/l	24 hr. composite	Daily	Daily	Weekly
volatile suspended solids	mg/l	24 hr. composite	Daily	Daily	Weekly
total dissolved solids	mg/l	24 hr. composite	Daily	Daily	Weekly
temperature	°C	grab	Daily	Daily	Weekly
floating particulates	mg/l	24 hr. composite	Daily	Daily	Weekly
<i>TABLE A parameters</i>					
grease & oil	mg/l	grab	Daily	Daily	Weekly
total suspended solids	mg/l	24 hr. composite	Daily	Daily	Weekly
settleable solids	ml/l	grab	Daily	Daily	Weekly
turbidity	NTU	grab	Daily	Daily	Weekly
pH	units	grab	Daily	Daily	Weekly
<i>Table B parameters for protection of marine aquatic life</i>					
arsenic	µg/l	24 hr. composite	Weekly	Weekly	Weekly
cadmium	µg/l	24 hr. composite	Weekly	Weekly	Weekly
chromium (VI) ¹	µg/l	24 hr. composite	Weekly	Weekly	Weekly
copper	µg/l	24 hr. composite	Weekly	Weekly	Weekly
lead	µg/l	24 hr. composite	Weekly	Weekly	Weekly
mercury	µg/l	24 hr. composite	Weekly	Weekly	Weekly
nickel	µg/l	24 hr. composite	Weekly	Weekly	Weekly
selenium	µg/l	24 hr. composite	Weekly	Weekly	Weekly
silver	µg/l	24 hr. composite	Weekly	Weekly	Weekly
zinc	µg/l	24 hr. composite	Weekly	Weekly	Weekly
cyanide	µg/l	24 hr. composite	Weekly	Weekly	Weekly

CONSTITUENT	Unit	Sample type	Sampling frequency		
			Influent stream	Effluent stream	Emergency connection
ammonia (as N)	mg/l	24 hr. composite	Weekly	Weekly	Weekly
acute toxicity	TUa	24 hr. composite	-	Semi-annually	-
chronic toxicity	TUc	24 hr. composite	-	Monthly	-
phenolic compounds (nonchlorinated)	µg/l	24 hr. composite	Weekly	Weekly	Weekly
phenolic compounds (chlorinated)	µg/l	24 hr. composite	Weekly	Weekly	Weekly
endosulfan	µg/l	24 hr. composite	Weekly	Weekly	Weekly
endrin	µg/l	24 hr. composite	Weekly	Weekly	Weekly
HCH ²	µg/l	24 hr. composite	Weekly	Weekly	Weekly
radioactivity	pci/l	24 hr. composite	Monthly	Monthly	Monthly
<i>Table B parameters for protection of human health - non carcinogens</i>					
acrolein	µg/l	grab	Monthly	Monthly	Monthly
antimony	µg/l	24 hr. composite	Monthly	Monthly	Monthly
bis(2-chloroethoxy) methane	µg/l	24 hr. composite	Monthly	Monthly	Monthly
bis(2-chloroisopropyl) ether	µg/l	24 hr. composite	Monthly	Monthly	Monthly
chlorobenzene	µg/l	grab	Monthly	Monthly	Monthly
chromium (III) ¹	µg/l	24 hr. composite	Monthly	Monthly	Monthly
di-n-butyl phthalate	µg/l	24 hr. composite	Monthly	Monthly	Monthly
dichlorobenzenes ³	µg/l	24 hr composite	Monthly	Monthly	Monthly
diethyl phthalate	µg/l	24 hr. composite	Monthly	Monthly	Monthly
dimethyl phthalate	µg/l	24 hr. composite	Monthly	Monthly	Monthly
4,6-dinitro-2-methylphenol	µg/l	24 hr. composite	Monthly	Monthly	Monthly
2,4-dinitrophenol	µg/l	24 hr. composite	Monthly	Monthly	Monthly
ethylbenzene	µg/l	grab	Monthly	Monthly	Monthly
fluoranthene	µg/l	24 hr. composite	Monthly	Monthly	Monthly

CONSTITUENT	Unit	Sample type	Sampling frequency		
			Influent stream	Effluent stream	Emergency connection
hexachlorocyclopentadiene	µg/l	24 hr. composite	Monthly	Monthly	Monthly
nitrobenzene	µg/l	24 hr. composite	Monthly	Monthly	Monthly
thallium	µg/l	24 hr. composite	Monthly	Monthly	Monthly
toluene	µg/l	grab	Monthly	Monthly	Monthly
tributyltin	µg/l	24 hr. composite	Monthly	Monthly	Monthly
1,1,1-trichloroethane	µg/l	grab	Monthly	Monthly	Monthly
<i>Table B parameters for protection of human health - carcinogens</i>					
acrylonitrile	µg/l	grab	Monthly	Monthly	Monthly
aldrin	µg/l	24 hr. composite	Weekly	Weekly	Weekly
benzene	µg/l	grab	Monthly	Monthly	Monthly
benzidine	µg/l	24 hr composite	Monthly	Monthly	Monthly
beryllium	µg/l	24 hr. composite	Monthly	Monthly	Monthly
bis(2-chloroethyl) ether	µg/l	24 hr. composite	Monthly	Monthly	Monthly
bis(2-ethylhexyl) phthalate	µg/l	24 hr. composite	Monthly	Monthly	Monthly
carbon tetrachloride	µg/l	grab	Monthly	Monthly	Monthly
chlordane ⁵	µg/l	24 hr. composite	Weekly	Weekly	Weekly
chlorodibromomethane	µg/l	24 hr. composite	Monthly	Monthly	Monthly
chloroform	µg/l	grab	Monthly	Monthly	Monthly
DDT ⁶	µg/l	24 hr. composite	Weekly	Weekly	Weekly
1,4-dichlorobenzene	µg/l	24 hr. composite	Monthly	Monthly	Monthly
3,3'-dichlorobenzidine	µg/l	24 hr. composite	Monthly	Monthly	Monthly
1,2-dichloroethane	µg/l	grab	Monthly	Monthly	Monthly
1,1-dichloroethylene	µg/l	grab	Monthly	Monthly	Monthly
dichlorobromomethane	µg/l	24 hr. composite	Monthly	Monthly	Monthly
dichloromethane	µg/l	grab	Monthly	Monthly	Monthly

CONSTITUENT	Unit	Sample type	Sampling frequency		
			Influent stream	Effluent stream	Emergency connection
1,3-dichloropropene	µg/l	24 hr. composite	Monthly	Monthly	Monthly
dieldrin	µg/l	24 hr. composite	Weekly	Weekly	Weekly
2,4-dinitrotoluene	µg/l	24 hr. composite	Monthly	Monthly	Monthly
1,2-diphenylhydrazine	µg/l	24 hr. composite	Monthly	Monthly	Monthly
halomethanes ⁷	µg/l	24 hr. composite	Monthly	Monthly	Monthly
heptachlor	µg/l	24 hr. composite	Monthly	Monthly	Monthly
heptachlor epoxide	µg/l	24 hr. composite	Monthly	Monthly	Monthly
hexachlorobenzene	µg/l	24 hr. composite	Monthly	Monthly	Monthly
hexachlorobutadiene	µg/l	24 hr. composite	Monthly	Monthly	Monthly
hexachloroethane	µg/l	24 hr. composite	Monthly	Monthly	Monthly
isophorone	µg/l	24 hr. composite	Monthly	Monthly	Monthly
N-nitrosodimethylamine	µg/l	24 hr. composite	Monthly	Monthly	Monthly
N-nitroso-di-N-propylamine	µg/l	24 hr. composite	Monthly	Monthly	Monthly
N-nitrosodiphenylamine	µg/l	24 hr. composite	Monthly	Monthly	Monthly
PAHs ⁸	µg/l	24 hr. composite	Monthly	Monthly	Monthly
PCBs ⁹	µg/l	24 hr. composite	Weekly	Weekly	Weekly
1,1,2,2-tetrachloroethane	µg/l	grab	Monthly	Monthly	Monthly
TCDD equivalents ¹⁰	µg/l	24 hr. composite	Monthly	Monthly	Monthly
tetrachloroethylene	µg/l	grab	Monthly	Monthly	Monthly
toxaphene	µg/l	24 hr. composite	Weekly	Weekly	Weekly
trichloroethylene	µg/l	grab	Monthly	Monthly	Monthly
1,1,2-trichloroethane	µg/l	grab	Monthly	Monthly	Monthly
2,4,6-trichlorophenol	µg/l	24 hr. composite	Monthly	Monthly	Monthly
vinyl chloride	µg/l	grab	Monthly	Monthly	Monthly
remaining "priority pollutants"	µg/l	24 hr. composite	Monthly	Monthly	Monthly

SAMPLING OF RETURN STREAMS

Parameter	Units	Sample type	Sampling frequency
flowrate	MGD	recorder/totalizer	continuous
total suspended solids	mg/l	24 hr. composite	daily
BOD ₅ @20°C	mg/l	24 hr. composite	daily

The discharger shall report the Mass Emission Rate (MER) in lb/day or mt/yr for all constituents that have MER effluent limitations or MER benchmarks established by Discharge Specifications B.1 and/or B.11 of Order No. R9-2002-0025. The discharger shall also report the concentration and flowrate used to calculate the MER for each constituent.

The system-wide percent removals of TSS and BOD₅ shall be calculated using the following formula (mass emissions in metric tons):

$$\% \text{ Removal (TSS or BOD}_5\text{)} = \frac{(\text{System Influent} - \text{Return Streams}) - \text{Outfall Discharge}}{\text{System Influent} - \text{Return Streams}} \times 100$$

Where,

System Influent = PLMWTP Influent, NCWRP [make sure this term has previously been defined] Influent Pump Station, and NCWRP Influent from Penasquitos Pump Station.

Return Streams = NCWRP Filter Backwash, NCWRP Plant Drain, NCWRP Secondary and Un-disinfected Filtered Effluent Bypass, NCWRP Final Effluent, and MBC Centrate

The TSS and BOD₅ concentration, together with flow rate, of each stream shall be measured daily and a system-wide removal rate calculated according to the above formula. In the event that a flow rate measurement, TSS concentration, or BOD₅ concentration is not obtained from a stream, the median value for the previous calendar year for that stream shall be used as a surrogate number to allow completion of the calculation. The discharger shall be required to flag values where surrogate numbers are used in their self-monitoring reports submitted to the Regional Board. The failure to obtain a value may still be considered a violation of the permit that could result in enforcement action depending on the frequency of failures and efforts by the discharger to prevent such failures.

C. SLUDGE MONITORING REQUIREMENTS

General sludge monitoring and reporting requirements are contained in Sludge Requirements, Section I, of Order No. R9-2002-0025.

D. RECEIVING ENVIRONMENT MONITORING

Receiving environment monitoring shall be conducted as specified below. Station location, sample type, sample preservation, and analyses, when not specified, shall be by methods approved by the Executive Officer and Director.

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:

<u>Station</u>	<u>Depth (m)</u>	<u>N. Latitude</u>	<u>W. Longitude</u>	<u>Descriptor</u>
A1	18	32° 39.56'	117° 15.72'	
A2	59	32° 39.37'	117° 16.68'	
A5	62	32° 41.32'	117° 17.27'	
A6	18	32° 41.56'	117° 16.18'	

<u>Station</u>	<u>Depth (m)</u>	<u>N. Latitude</u>	<u>W. Longitude</u>	<u>Descriptor</u>
A7	18	32° 40.53'	117° 16.01'	
A8	63	32° 39.84'	117° 16.84'	
A9	63	32° 40.83'	117° 17.12'	
A10	47	32° 39.50'	117° 16.13'	
A12	47	32° 40.47'	117° 16.42'	
A14	47	32° 41.43'	117° 16.63'	
A15	61	32° 40.10'	117° 16.90'	
A16	61	32° 40.58'	117° 17.05'	
B1	62	32° 35.00'	117° 16.18'	
B2	18	32° 46.00'	117° 16.18'	
B3	59	32° 45.42'	117° 18.38'	
B5	60	32° 49.25'	117° 19.60'	
B8	88	32° 45.50'	117° 20.77'	
B9	98	32° 45.33'	117° 21.70'	10.5 Km north of diffuser "Y"
B10	116	32° 45.22'	117° 22.16'	
B11	88	32° 46.57'	117° 21.35'	
B12	98	32° 46.36'	117° 22.30'	12.7 Km north of diffuser "Y"
B13	116	32° 46.38'	117° 22.64'	
C4	9	32° 39.95'	117° 14.98'	Approx. 660 m (2200 ft) west of the Point Loma Lighthouse and 1600 m south of the treatment plant outfall pipe
C5	9	32° 40.75'	117° 15.40'	Approx. 800 m (2600 ft) seaward of the Point Loma treatment plant immediately south of the outfall pipe
C6	9	32° 41.62'	117° 15.68'	Approx. 890 m (2900 ft) seaward and perpendicular to a point 1260 m north of the outfall pipe
C7	18	32° 42.98'	117° 16.33'	1.5 Km seaward of Station D7
C8	18	32° 43.96'	117° 16.40'	1.5 Km seaward of Station D8

<u>Station</u>	<u>Depth (m)</u>	<u>N. Latitude</u>	<u>W. Longitude</u>	<u>Descriptor</u>
E1	88	32° 37.53'	117° 18.35'	
E2	98	32° 37.45'	117° 19.09'	4.6 Km south of diffuser "Y"
E3	116	32° 37.29'	117° 20.09'	
E4	88	32° 38.50'	117° 18.57'	
E5	98	32° 38.38'	117° 19.28'	3.1 Km south of diffuser "Y"
E6	116	32° 38.28'	117° 20.00'	
E7	88	32° 39.00'	117° 18.65'	
E8	98	32° 38.91'	117° 19.34'	2.1 Km south of diffuser "Y"
E9	116	32° 38.75'	117° 20.06'	
E10	88	32° 39.50'	117° 18.81'	
E11	98	32° 39.40'	117° 19.42'	1.2 Km south of diffuser "Y"
E12	116	32° 39.37'	117° 19.96'	
E13	88	32° 40.01'	117° 18.89'	
E14	98	32° 39.94'	117° 19.49'	0.3 Km west of diffuser "Y"
E15	116	32° 39.88'	117° 19.91'	
E16	88	32° 40.52'	117° 19.07'	
E17	98	32° 40.48'	117° 19.54'	0.9 Km north of diffuser "Y"
E18	116	32° 40.38'	117° 19.88'	
E19	88	32° 41.04'	117° 19.18'	
E20	98	32° 40.96'	117° 19.67'	1.8 Km north of diffuser "Y"
E21	116	32° 40.89'	117° 20.00'	
E22	88	32° 41.58'	117° 19.25'	
E23	98	32° 41.47'	117° 19.77'	2.7 Km north of diffuser "Y"
E24	116	32° 41.40'	117° 20.06'	
E25	98	32° 42.38'	117° 20.07'	4.5 Km north of diffuser "Y"
E26	98	32° 43.82'	117° 20.57'	7.3 Km north of diffuser "Y"

b. Shore Stations. Shore stations shall be located and numbered as follows:

<u>Station</u>	<u>N. Latitude</u>	<u>W. Longitude</u>	<u>Description</u>
D1	32° 35.08'	117° 07.96'	Approx. 480 m (1600 ft) north of the pier at the end of Palm Ave in Imperial Beach
D2	32° 38.22'	117° 08.65'	Silver Strand State Beach, Area 4, just west of the Coronado Cays
D3	32° 40.58'	117° 10.74'	At the foot of Avenida del Sol seaward of the Hotel del Coronado
D4	32° 39.94'	117° 14.62'	Located at the southernmost tip of Point Loma just north of the lighthouse
D5	32° 40.85'	117° 14.94'	Directly in front of the Point Loma Wastewater Treatment plant where the outfall pipe enters the ocean
D6	32° 41.92'	117° 15.33'	Approx. 1260 m (4150 ft) north of the outfall pipe at NOSC seawater pump station
D7	32° 43.16'	117°15.44'	Sunset Cliffs at the foot of the stairs seaward of Ladera Street
D8	32° 44.22'	117°15.32'	Ocean Beach at the foot of the stairs seaward of Bermuda Street
D9	32° 44.80'	117°15.24'	Just south of the Ocean pier at the foot of the stairs seaward of Narragansett Street

c. Fish trawl and rig fish stations. Trawl stations shall be located and numbered as follows:

<u>Station</u>	<u>Depth (m)</u>	<u>N. Latitude</u>	<u>W. Longitude</u>
SD1	60	32° 46.40'	117° 18.60'
SD3	60	32° 41.76'	117° 17.30'
SD6	60	32° 39.47'	117° 16.85'
SD7	100	32° 35.06'	117° 18.39'
SD8	100	32° 37.54'	117° 19.37'
SD9	90	32° 39.24'	117° 18.84'
SD10	100	32° 39.16'	117° 19.50'
SD11	90	32° 40.73'	117° 19.96'
SD12	100	32° 40.65'	117° 19.81'

<u>Station</u>	<u>Depth (m)</u>	<u>N. Latitude</u>	<u>W. Longitude</u>
SD13	100	32° 42.83'	117° 20.25'
SD14	100	32° 44.30'	117° 20.96'
Rig fish stations shall be located in an area centered around the following sites			
RF1	107	32° 40.32'	117° 19.78'
RF2	96	32° 45.67'	117° 22.02'

2. Receiving Water Sampling and Analyses Requirements .

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

Parameter	Units	Stations	Sample Type	Sampling Frequency	Reporting Frequency
visual observations	---	A1, A2, A5-A7, A10, A12, A14, B1-B3, B5, B8-B13, C4-C8, D1-D9, E2, E4-E25	visual	monthly	monthly
temperature	°C	A1, A2, A5-A7, A10, A12, A14, B1-B3, B5, B8-B13, C4-C8, E2, E4-E25	profile	monthly	monthly
salinity	ppt	A1, A2, A5-A7, A10, A12, A14, B1-B3, B5, B8-B13, C4-C8, E2, E4-E25	profile	monthly	monthly
dissolved oxygen	mg/l	A1, A2, A5-A7, A10, A12, A14, B1-B3, B5, B8-B13, C4-C8, E2, E4-E25	profile	monthly	monthly
light transmittance	%	A1, A2, A5-A7, A10, A12, A14, B1-B3, B5, B8-B13, C4-C8, E2, E4-E25	profile	monthly	monthly
secchi disk	m	A1, A2, A5-A7, A10, A12, A14, B1-B3, B5, B8-B13, C4-C8, E2, E4-E25	visual	monthly	monthly
total suspended solids	mg/l	A1, A2, A5-A7, A10, A12, A14, B1, B3, B5, B9, B12, C4-C8, E2, E5, E8, E10, E12, E14, E16, E18	grab	monthly	monthly

Parameter	Units	Stations	Sample Type	Sampling Frequency	Reporting Frequency
pH	units	A1, A2, A5-A7, A10, A12, A14, B1-B3, B5, B8-B13, C4-C8, E2, E4-E25	profile	monthly	monthly
total and fecal coliforms	CFU/100 ml	A1, A2, A5-A7, A10, A12, A14, B1-B3, B5, B9, B12, C4-C8, D1-D9, E2, E5, E8, E10, E12, E14, E16, E18	grab	weekly-monthly	monthly
enterococcus	CFU/100 ml	A1, A2, A5-A7, A10, A12, A14, B1-B3, B5, B9, B12, C4-C8, D1-D9, E2, E5, E8, E10, E12, E14, E16, E18	grab	weekly-monthly	monthly
kelp	---	---	aerial photos	annually	annually

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 D1 through D9, shall 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 below).

Total suspended solids shall be measured monthly at three depths (1 meter below the surface, mid-depth and bottom). Oil and grease shall be measured monthly in surface waters (top 1 meter). 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, secchi disc and light transmittance measurements shall be taken on the same day and as close together in time as possible.

Total coliforms, fecal coliforms and enterococcus shall be sampled at nine shore stations (D1-D9) 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 eight kelp bed stations (A1, A6, A7, C4, C5, C6, C7, C8) 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 (1 m below the surface, mid-depth and bottom).

Total coliforms, fecal coliforms and enterococcus shall be measured at least monthly at the remaining offshore stations at the following depth increments. Station B2, shall be sampled at three depths (1 m, 12 m and 18 m). Stations along the 45-meter contour (A10, A12, A14) shall be sampled at two depths (1 m and 40 m). Stations along the 60-meter contour (A2, A5, B1, B3, B5) shall be sampled at three depths (1 m, 40 m and 60 m) Stations along the 88-meter contour (E10 and E16) shall be sampled at five depths (1 m, 40 m, 60 m, 80 m and 88 m). Stations along the 98-meter contour (E2, E5, E8, E14, B9, B12) shall be sampled at five depths (1 m, 40 m, 60 m, 80 m and 98 m). Stations along the 116-m contour (E12, E18) shall be sampled at six depths (1 m, 40 m, 60 m, 80 m, 98 m , and 116 m).

3. Benthic Monitoring Requirements

a. Sediment Sampling and Analyses Requirements. Sediment samples shall be collected on a quarterly basis from twenty-three stations (B8-B13, E1-3, E5, E7-9, E11, E14, E15, E17, E19-21, E23, E25, E26) using a 0.1-m² 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 EPA approved or methods developed by NOAA's National Status and Trends Program for Marine Environmental Quality or methods developed in conjunction with the Southern California Bight Regional Monitoring Program. For chemical analysis of sediment, samples shall be reported on a dry weight basis.

Parameter	Units	Sample type	Frequency
Sediment grain size	µm	grab	quarterly
Total Organic Carbon	%	grab	quarterly
Total Nitrogen	%	grab	quarterly
Acid soluble 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

Parameter	Units	Sample type	Frequency
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
<i>PCBs and Chlorinated Pesticides</i>			
PCBs ¹¹	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

Parameter	Units	Sample type	Frequency
Hexachlorobenzene	ng/kg	grab	quarterly
Mirex	ng/kg	grab	quarterly
Trans-nonachlor	ng/kg	grab	quarterly
<i>Polycyclic Aromatic Hydrocarbons</i>			
Acenaphthene	µg/kg	grab	quarterly
Acenaphthylene	µg/kg	grab	quarterly
Anthracene	µg/kg	grab	quarterly
Benz(a)anthracene	µg/kg	grab	quarterly
Benzo(b)fluoranthene	µg/kg	grab	quarterly
Benzo(k)fluoranthene	µg/kg	grab	quarterly
Benzo(ghi)pyrene	µg/kg	grab	quarterly
Benzo(a)pyrene	µg/kg	grab	quarterly
Benzo(e)pyrene	µg/kg	grab	quarterly
Biphenyl	µg/kg	grab	quarterly
Chrysene	µg/kg	grab	quarterly
Dibenz(ah)anthracene	µg/kg	grab	quarterly
Fluoranthene	µg/kg	grab	quarterly
Fluorene	µg/kg	grab	quarterly
Indeno(123cd)pyrene	µg/kg	grab	quarterly
Naphthalene	µg/kg	grab	quarterly
1-Methylnaphthalene	µg/kg	grab	quarterly
2-Methylnaphthalene	µg/kg	grab	quarterly
2,6-Dimethylnaphthalene	µg/kg	grab	quarterly
2,3,5-Trimethylnaphthalene	µg/kg	grab	quarterly
Perylene	µg/kg	grab	quarterly
Phenanthrene	µg/kg	grab	quarterly

Parameter	Units	Sample type	Frequency
1-Methylphenanthrene	µg/kg	grab	quarterly
Pyrene	µg/kg	grab	quarterly

b. Infauna Monitoring. For analyses of benthic infauna, two replicate samples of bottom sediments shall be collected and analyzed quarterly from the following 21 stations: B8-B13, E2, E5, E7-E9, E11, E14, E15, E17, E19-E21, E23, E25, and E26.

The benthic infaunal samples shall be collected using a 0.1-m² 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. All organisms, including infauna organisms, obtained during benthic monitoring shall be counted and identified to as low a taxon as possible. This enumeration and identification of organisms continues the historical data base developed by the discharger. This information shall be submitted quarterly. 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. Quarterly 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 m²
- 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. Fish Monitoring. Fish trawls shall be conducted 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 semiannually at three trawl stations (SD1, SD3, and SD6) and quarterly at each of eight trawl stations (SD7-SD14). 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. Captured organisms shall be identified at all stations (SD1-SD14).

Fish collected by trawls should be identified to species. At all stations, 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 SD7-SD14. 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 sulfides. 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 both liver and muscle 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.

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. Tissue shall be chemically analyzed for the same set of constituents as trawl-caught fish. The species targeted for analysis at the rig

fishing stations shall be primarily rockfish. The selected species will be representative of a typical sport fisherman's catch. These include but are not limited to: greenbotched rockfish (Sebastes rosenblatti); canary rockfish (Sebastes pinniger), squarespot rockfish (Sebastes hopkinsi), and additional species of the genus Sebastes.

4. Remote Sensing.

The discharger shall participate and coordinate with state and local agencies and other dischargers in the San Diego Region in the development and implementation of a remote sensing monitoring program for the trans border ocean region. This remote sensing monitoring program is intended to identify and track (in near real time) the fate and transport of the effluent from the Point Loma Ocean Outfall, the South Bay Ocean Outfall, wet weather discharge from the Tijuana River, and other sources of coastal sewage and stormwater plumes in the area. This program will focus on obtaining satellite and aircraft imagery in an area extending up to 100 Km North and 100 Km south of the US-Mexico Border and up to 15 Km offshore. The discharger shall provide both technical and financial assistance with the implementation of this program.

5. Kelp Bed Monitoring.

Kelp bed monitoring is intended to assess the extent to which the discharge of wastes may affect the areal extent and health of coastal kelp beds. 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 Region coastline, from the international boundary to the San Diego Region/Santa Ana Region boundary shall be photographed on the same day. The images produced by the surveys shall be presented in the form of a 1:24,000 scale phot-mosaic of the entire San Diego Region coastline. Onshore reference points, locations of all ocean outfalls and diffusers, and the 30-foot (MLLW) and 60-foot (MLLW) depth contours shall be shown. The areal extent of the various 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.

Table Footnotes

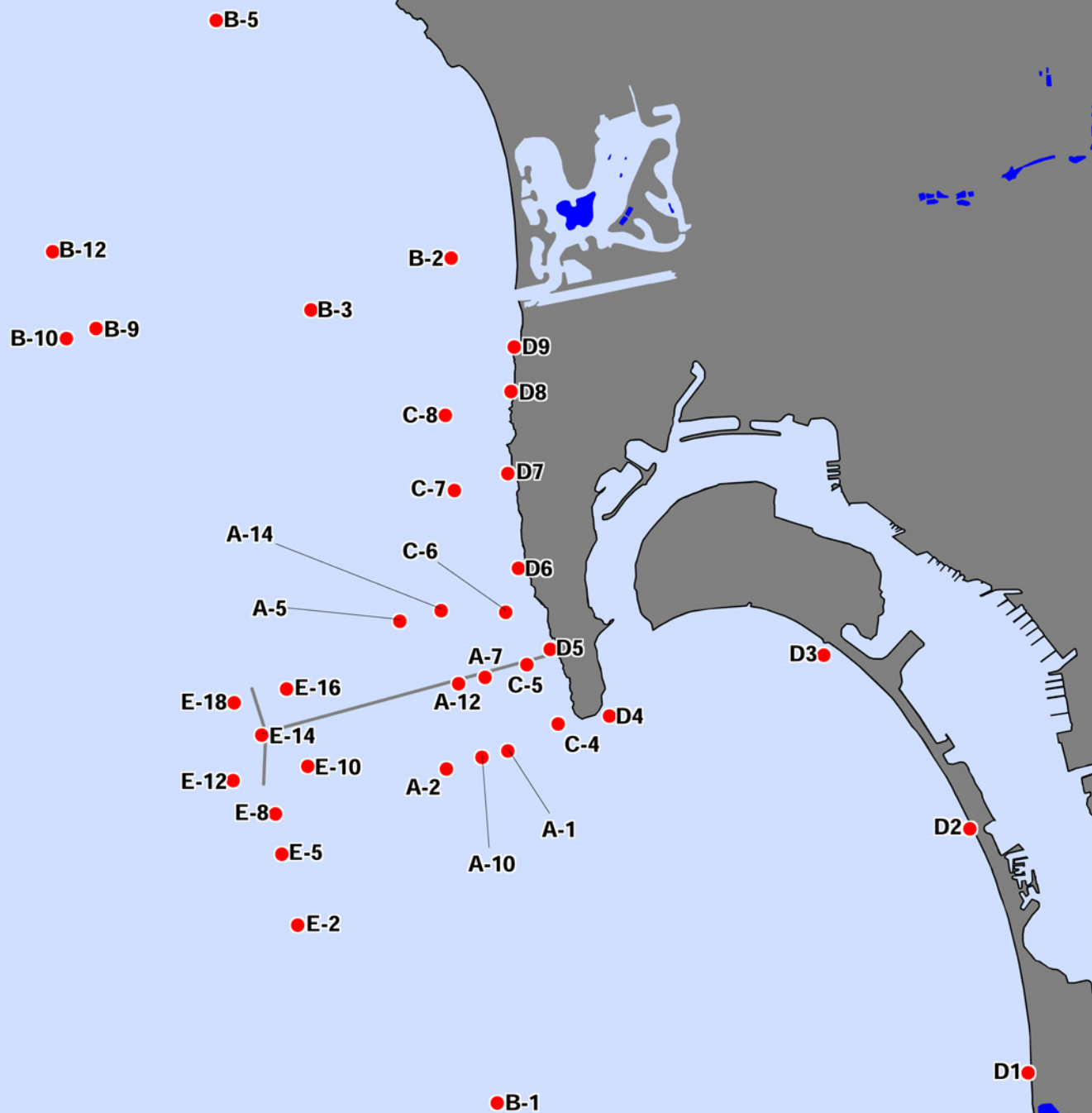
1. The discharger may, at its option, meet the effluent limitation and effluent mass emission benchmark for chromium (VI) or chromium (III) as a total chromium limitation and benchmark.
2. Endosulfan shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.

3. HCH shall mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.
4. Dichlorobenzenes shall mean the sum of 1,2- and 1,3-dichlorobenzene.
5. Chlordane shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.
6. DDT shall mean the sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.
7. Halomethanes shall mean the sum of bromoform, bromomethane (methyl bromide), chloromethane (methyl chloride).
8. PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene and pyrene.
9. PCBs (polychlorinated biphenyls) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254 and Aroclor-1260.
10. TCDD equivalents shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown in the table below.

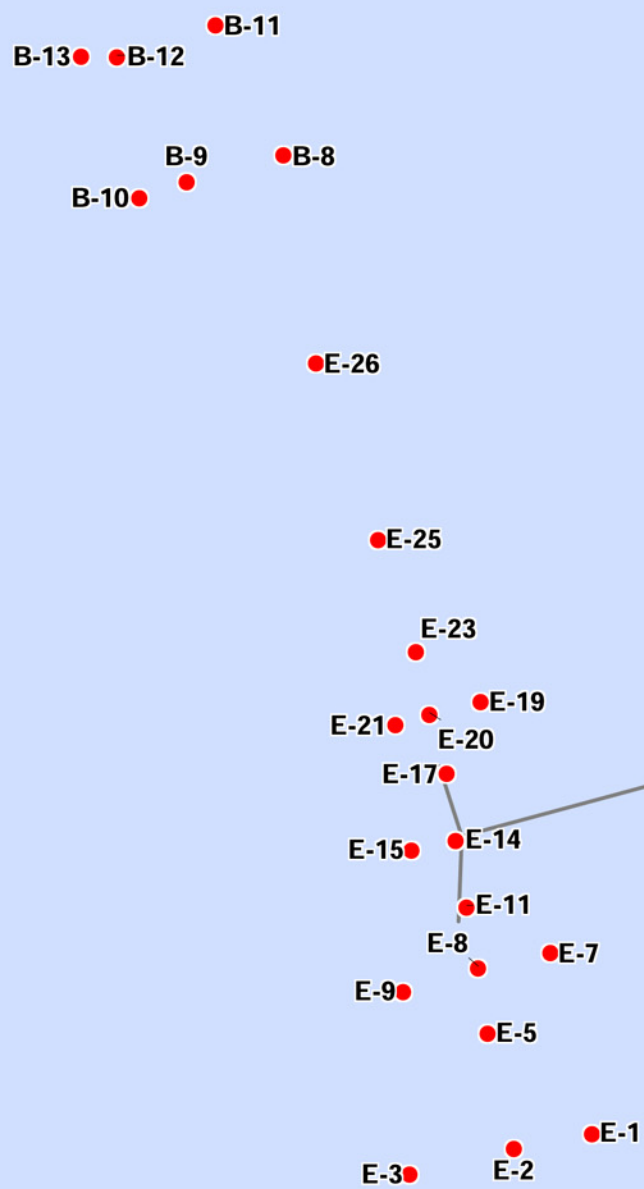
<u>Isomer Group</u>	<u>Toxicity Equivalence Factor</u>
2,3,7,8-tetra CDD	1.0
2,3,7,8-penta CDD	0.5
2,3,7,8-hexa CDDs	0.1
2,3,7,8-hepta CDD	0.01
octa CDD	0.001
2,3,7,8 tetra CDF	0.1
1,2,3,7,8 penta CDF	0.05
2,3,4,7,8 penta CDF	0.5
2,3,7,8 hexa CDFs	0.1
2,3,7,8 hepta CDFs	0.01
octa CDF	0.001

11. For sediment and fish tissue PCBs shall mean the sum of the following congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, 206. These represent consensus based numbers developed by agencies participating in offshore regional monitoring programs in Southern California. These 41 congeners are thought to represent the most-important PCB congeners in terms of mass and toxicity.

Shoreline Water Quality and Bacteria Station Locations



Sediment Station Locations



Fish Trawl Locations

●SD-14

●SD-13

SD-12●

●SD-11

SD-10●

●SD-9

●SD-8

●SD-7

