

**Proposed Draft Amendments to the Standard Monitoring
Procedures (Appendix III) of the California Ocean Plan**

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**Ocean Standards Unit
Division of Water Quality
State Water Resources Control Board
Cal/EPA**

APPENDIX III STANDARD MONITORING PROCEDURES

The purpose of this appendix is to provide direction to the Regional Boards on the implementation of the California Ocean Plan and to ensure the reporting of useful information. It is not feasible to cover all circumstances and conditions that could be encountered by all dischargers. Therefore, this appendix should be considered as the basic component of any discharger monitoring program. Regional Boards can deviate from the procedures required in the appendix only with the approval of the State Water Resources Control Board unless the Ocean Plan allows for the selection of alternate protocols by the Regional Boards. If no direction is given in this appendix for a specific provision of the Ocean Plan, it is within the discretion of the Regional Board to establish the monitoring requirements for the provision.

The following text is referenced by applicable chapter in the Ocean Plan. All references to 40 CFR PART 136 are to the revised edition of May 14, 1999.

SWAMP Comparable¹

All monitoring conducted in compliance with Monitoring and Reporting Programs must be comparable with the Quality Assurance requirements of the Surface Water Ambient Monitoring Program.

Ocean Plan Chapter II. B. Bacterial Standards:

For all bacterial analyses, sample dilutions should be performed so the range of values extends from 2 to 16,000. The detection test methods used for each analysis shall be reported with the results of the analysis.

Test Detection methods used for coliforms (total and fecal) shall be those presented in Table 1A of 40 CFR PART 136, unless alternate methods have been approved in advance by US EPA pursuant to 40 CFR PART 136.

Detection methods used for enterococcus shall be those presented in EPA publication EPA 600/4-85/076, Test Methods for *Escherichia coli* and Enterococci in Water By Membrane Filter Procedure or any improved method determined by the Regional Board to be appropriate. The Regional Board may allow analysis for *E. coli* by approved test methods to be substituted for fecal coliform, if sufficient information exists to support comparability of *E. coli* methods with approved fecal coliform methods.

Effluent Monitoring, Bacteria – Non-Storm Water Point Sources

¹ SWAMP COMPATABLE

- a- Measurement of quality objectives (MQOs) for your project are equivalent to or better than SWAMP MQOs.
- b- Use the SWAMP Quality Assurance management Plan (QAMP) as a guideline for your project's requirements: www.waterboards.ca.gov/swamp/qamp.html. The EPA has a document that assists users in selecting data quality objectives: EPA guidance document for the Data Quality Objectives Process (EPA QA/G-4: www.epa.gov/quality/qs-docs/g4-final.pdf).
- c- Your data is formatted to match the database requirements of the SWAMP

For non-storm water point sources discharging greater than 10 MGD, or within one nautical mile of shore, or within one nautical mile of a commercial shellfish bed, monitoring for all Ocean Plan indicator bacteria, shall be required at least five days per week.

Effluent Monitoring, Bacteria – Permitted Storm Water Point Sources

Monitoring for indicator bacteria shall be required periodically on storm water outfalls representative of the area required to be monitored. For Municipal storm water discharges, at a minimum, all outfalls greater than 36 inches in diameter or width must be monitored:

- 1- during wet weather with a minimum of three storm per year, and
- 2- when flowing during dry weather, and if located at an AB 411 beach, at least five times per week

Ocean Plan Chapter II. H-D. Table B. Compliance with Table B Objectives:

Procedures, calibration techniques, and instrument/reagent specifications used to determine compliance with Table B shall conform to the requirements of federal regulations (40 CFR PART 136). All methods shall be specified in the monitoring requirement section of waste discharge requirements.

Where methods are not available in 40 CFR PART 136, the Regional Boards shall specify suitable analytical methods in waste discharge requirements. Acceptance of data should be predicated on demonstrated laboratory performance.

Laboratories analyzing monitoring data shall be certified by the Department of Health Services, in accordance with the provisions of Section 13176 CWC, and must include quality assurance quality control data with their reports.

The State or Regional Board may, subject to EPA approval, specify test methods which are more sensitive than those specified in 40 CFR PART 136. Total chlorine residual is likely to be a method detection limit effluent limitation in many cases. The limit of detection of total chlorine residual in standard test methods is less than or equal to 20 ug/l.

Effluent Monitoring, Table B – Non-Storm Water Point Sources

Monitoring for the substances in Table B shall be required periodically. ~~For discharges less than 1 MGD (million gallons per day), the monitoring of all the Table B parameters should consist of at least one complete scan of the Table B constituents one time in the life of the waste discharge requirements.~~ For discharges less than between 1 and 10 MGD, the monitoring frequency shall be at least one complete scan of the Table B substances annually. Discharges greater than 10 MGD shall be required to monitor at least semiannually.

Effluent Monitoring, Table B – Permitted Storm Water Point Sources

Monitoring for substances in Table B shall be required periodically on representative storm water outfalls. For Phase I municipal storm water discharges, at a minimum, 10% of all outfalls greater than 36 inches in diameter or width must be monitored during three storms per year for Table B Marine Aquatic Life parameters. For Phase II

municipal storm water discharges, at a minimum, 10% of all outfalls greater than 36 inches in diameter or width must be monitored during three storms per permit cycle for Table B Marine Aquatic Life parameters. For industrial storm water discharges all outfalls must be monitored during each storm event for Table A parameters.

Permitted Storm Water Discharges – Receiving water and sediment quality

For Phase I Municipal storm water discharges, receiving water, and sediment, chemistry and toxicity monitoring shall be conducted, at a minimum, during three storms per permit cycle. The Regional Board will determine the locations of the monitoring sites. Constituents to be monitored must include Ocean Plan Table B for Marine Aquatic Life and US EPA National Water Quality Criteria ². For sediment toxicity only acute toxicity with an alternative species (e.g. Eohaustorius) will be required. This requirement may be satisfied individually or through participation in a regional monitoring program at the discretion of the Regional Board.

Agricultural Nonpoint source discharges

Agricultural irrigation tail water and storm water runoff, at a minimum, will be monitored for OP pesticides and pyretheroids that are used for agricultural production in the watershed, Table B Marine Aquatic Life constituents and chlorinated pesticides. This may be required individually or on a regional basis (e.g., on a probabilistic basis). The location and frequency will be at the Regional Board's discretion.

Table B Toxicity Tests

Compliance monitoring for the acute toxicity objective (TUa) in Table B shall be determined using an US EPA approved protocol as provided in 40 CFR PART 136. Acute toxicity monitoring requirements in permits prepared by the Regional Boards shall use marine test species instead of freshwater species when measuring compliance.

The Regional Board shall require the use of critical life stage toxicity tests specified in this Appendix to measure TUc. Other species or protocols will be added to the list after SWRCB review and approval. A minimum of three test species with approved test protocols shall be used to measure compliance with the toxicity objective. If possible, the test species shall include a fish, an invertebrate, and an aquatic plant. After a screening period, monitoring can be reduced to the most sensitive species. Dilution and control water should be obtained from an unaffected area of the receiving waters. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay test and reported with the test results.

Use of critical life stage bioassay testing shall be included in waste discharge requirements as a monitoring requirement for all discharges greater than 100 MGD by January 1, 1991 at the latest. For other major dischargers, critical life stage bioassay testing shall be included as a monitoring requirement one year before the waste discharge requirement is scheduled for renewal.

²US EPA National Water Quality Criteria, 2006. National Recommended Water Quality Criteria for Non-Priority Pollutants: <http://epa.gov/waterscience/criteria/wqcriteria.html>.

The tests presented in Table III-1 shall be used to measure TUc. Other tests may be added to the list when approved by the State Board.

Benthic Community Monitoring

For non-Storm Water Point Sources discharging greater than 10 MGD, or within 1 nautical mile of shore, or within one nautical mile of a State Water Quality Protection Area or Marine Protected Area, benthic community monitoring shall be conducted, at a minimum, once per permit cycle. This requirement may be satisfied individually or through participation in a regional monitoring program at the discretion of the Regional Board.

Mussel Watch

For non-storm water point sources discharging greater than 10 MGD, or within 1 nautical mile of shore, and for Phase I Municipal storm water discharges, bioaccumulation monitoring shall be conducted by a mussel watch program, at a minimum, once per permit cycle. Constituents to be monitored must include OP Pesticides, Ocean Plan Table B metals, PAHs, and Chlorinated Hydrocarbons. Sand Crabs and/or Solid Phase Microextraction may be added or substituted for mussels at the discretion at the Regional Board. This requirement may be satisfied individually or through participation in a regional monitoring program at the discretion of the Regional Board.

Model Monitoring Requirements

In addition to the minimum requirements described herein, Regional Boards may further consider the standard monitoring described in the SCCWRP Model Monitoring Programs for POTWs and the SCCWRP Model Monitoring Programs for Storm Water in designing appropriate risk based monitoring programs.

**TABLE III-1
APPROVED TESTS – CHRONIC TOXICITY (TUc)**

<u>Species</u>	<u>Effect</u>	<u>Tier</u>	<u>Reference</u>
giant kelp, <i>Macrocystis pyrifera</i>	percent germination; germ tube length	1	1,3
red abalone, <i>Haliotis rufescens</i>	Abnormal shell development	1	1,3
oyster, <i>Crassostrea gigas</i> ; mussels, <i>Mytilus spp.</i>	Abnormal shell development; percent survival	1	1,3
urchin, <i>Strongylocentrotus purpuratus</i> ; sand dollar, <i>Dendraster excentricus</i>	Percent normal development	1	1,3
urchin, <i>Strongylocentrotus purpuratus</i> ; sand dollar, <i>Dendraster excentricus</i>	Percent fertilization	1	1,3
shrimp, <i>Holmesimysis costata</i>	Percent survival; growth	1	1,3
shrimp, <i>Mysidopsis bahia</i>	Percent survival; growth; fecundity	2	2,4
topsmelt, <i>Atherinops affinis</i>	Larval growth rate; percent survival	1	1,3
Silversides, <i>Menidia beryllina</i>	Larval growth rate; percent survival	2	2,4

Table III-1 Notes

The first tier test methods are the preferred toxicity tests for compliance monitoring. A Regional Board can approve the use of a second tier test method for waste discharges if first tier organisms are not available.

Protocol References

1. Chapman, G.A., D.L. Denton, and J.M. Lazorchak. 1995. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms. U.S. EPA Report No. EPA/600/R-95/136.
2. Klemm, D.J., G.E. Morrison, T.J. Norberg-King, W.J. Peltier, and M.A. Heber. 1994. Short-term methods for estimating the chronic toxicity of effluents and receiving water to marine and estuarine organisms. U.S. EPA Report No. EPA-600-4-91-003.
3. SWRCB 1996. Procedures Manual for Conducting Toxicity Tests Developed by the Marine Bioassay Project. 96-1WQ.
4. Weber, C.I., W.B. Horning, I.I., D.J. Klemm, T.W. Nieheisel, P.A. Lewis, E.L. Robinson, J. Menkedick and F. Kessler (eds). 1988. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-87/028. National Information Service, Springfield, VA.