STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER QUALITY

DRAFT

FINAL FUNCTIONAL EQUIVALENT DOCUMENT AMENDMENT OF THE WATER QUALITY CONTROL PLAN FOR OCEAN WATERS OF CALIFORNIA

CALIFORNIA OCEAN PLAN

September 1, 2000

NOTICE OF FILING

To: Any Interested Person

From: State Water Resources Control Board
P.O. Box 944213
Sacramento, CA 95814

Subject: Notice of Filing submitted under Section 21080.5 of the Public Resources Code

Project Proponent: State Water Resources Control Board

Project Title: Water Quality Control Plan for Ocean Waters of California

Contact Person: Francis H. Palmer; Telephone No. (916) 657-0797

Project Location: The Coastal Waters of California

Project Description: This is to advise that amendments to the Water Quality Control Plan for Ocean Waters of California have been filed. Amendments are proposed for (1) replacement of an acute toxicity effluent limitation in Table A with an acute toxicity water quality objective, (2) revision of water quality objectives for the protection of human health, (3) revision of the methods for compliance determination for chemical water quality objectives, (4) changes in format and organization of the Ocean Plan, (5) establishment of special protection designations for water quality and designated uses including nomination procedures, and (6) administrative changes to the Ocean Plan.

Action on this amendment will be taken in accordance with Section 21080.5 of the Public Resources Code. The State Water Resources Control Board's planning program qualifies as regulatory program exempt from the requirement to prepare an environmental impact report or negative declaration under the California Environmental Quality Act (Public Resources Code, Section 21000 et seq.)

Copies of the Functional Equivalent Document (which includes the Draft Ocean Plan and discussion of the proposed amendments) may be obtained from the contact person above.

_____ _____

Stan Martinson, Chief Date
Division of Water Quality

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ASBS	Areas of Special Biological Significance
ATEL	Acute Toxicity Effluent Limitation
BCF	Bioconcentration Factor
BMPs	Best Management Practices
BWT	Body Weight
Cal/EPA	California Environmental Protection Agency
CAS	Chemical Abstracts Service
CEQA	California Environmental Quality Act
CPF	Cancer Potency Factor
CV	Coefficient of Variation
CWC	California Water Code
CWA	Clean Water Act
Dm	Minimum Probable Initial Dilution
DHS	California Department of Health Services
DNQ	Detected, But Not Quantified
FCR	Fish and Shellfish Consumption Rate
FED	Functional Equivalent Document
IRIS	Integrated Risk Information System
LC 50	Lethal Concentration 50
MDL	Method Detection Limit
ug/l	micrograms per liter
ML	Minimum Level
ng/l	nanograms per liter
ND	Not Detected
NMS	National Marine Sanctuaries
NPDES	National Pollutant Discharge Elimination System
NTR	National Toxics Rule
ONRW	Outstanding National Resource Water
OSRW	Outstanding State Resource Water
PCBs	Polychlorinated Biphenyls
PMP	Pollutant Minimization Program
POTWs	Publicly Owned Treatment Works
PQL	Practical Quantitation Level
Rfd	Reference Dose
RL	Risk Level
RWQCB	Regional Water Quality Control Board
SCTAG	Southern California Toxicity Assessment Group
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
TIE	Toxicity Identification Evaluation
TRE	Toxicity Reduction Evaluation
TSD	U.S EPA Technical Support Document for Water Quality Based Toxics Control
TUa	Toxicity Unit Acute

TUc	Toxicity Unit Chronic
U.S. ACE	United States Army Corps of Engineers
U.S. EPA	United States Environmental Protection Agency
WET	Whole Effluent Toxicity
WQBEL	Water Quality-Based Effluent Limit
WQO	Water Quality Objective
WQPP	Water Quality Protection Plan
ZID	Zone of Initial Dilution

SUMMARY

The State Water Resources Control Board (SWRCB) staff has prepared this draft Final Functional Equivalent Document to consider six amendments to the California Ocean Plan (Ocean Plan). The report contains a description of the sections proposed for amendment.

Issues proposed as Amendments

1. Replacement of the Acute Toxicity Effluent Limitation in Table A with an Acute Toxicity Water Quality Objective: Staff proposes to replace the current technology-based acute toxicity effluent limitations with an acute water quality objective.

2. Revision of Water Quality Objectives for the Protection of Human Health in Table B: Staff proposes to change the objectives for 12 compounds, using Cal/EPA-recommended cancer potency factors and a California-specific fish consumption rate in their recalculations.

3. Addition of Provisions for Compliance Determination for Chemical Objectives: Staff proposes to revise the compliance determination section of the Ocean Plan using the Minimum Level concept, and to adopt statewide Minimum Levels to be included as an appendix to the Ocean Plan.

4. Revisions of the Format of the California Ocean Plan: Staff proposes to change the format of the Ocean Plan to make it consistent in format with that of other statewide water quality control plans as described in Section 13050(j) of the California Water Code.

5. Development of Special Protection for Water Quality and Designated Uses specifying Procedures for Nomination and Designation of Special Category Waters: Staff proposes to amend the Ocean Plan to include definitions and procedures for the designation and implementation of Outstanding National Resource Waters, Outstanding State Resource Waters and Areas of Special Biological Significance.

6. Administrative Changes in the California Ocean Plan: Staff proposes administrative changes to the Ocean Plan. These would include:
   a. definition of references used for specific governmental agencies,
   b. definition of dredged materials,
   c. description of the relationship of the Ocean Plan to other State plans and policies,
   d. change reference to the water quality objective for radioactivity,
   e. change references that list test methods for total and fecal bacteria and for acute toxicity
   f. change of a subtitle in Appendix II.
   g. Change Ocean Plan effective date.

INTRODUCTION

In October 1992, the State Water Resources Control Board (SWRCB) adopted Resolution 92-88 directing staff to review a series of high priority issues identified in the 1992 Triennial Review and Workplan (SWRCB 1992). Staff was further authorized to make recommendations to the SWRCB for any necessary changes to the Ocean Plan. The SWRCB further resolved that the California Ocean Plan (Ocean Plan) may be amended annually or as each major issue analysis is completed. The purpose of this report is to present staff recommendations for modification of some parts of the Ocean Plan.

Recommendations are made for resolving the following five "higher priority" issues raised during the 1992 Triennial Review of the Ocean Plan. In addition staff has proposed to make seven administrative changes to the Ocean Plan:

1. Replacement of the Acute Toxicity Effluent Limitation in Table A with an Acute Toxicity Water Quality Objective: Staff proposes to replace the current technology-based acute toxicity effluent limitations with an acute water quality objective.

2. Revision of Water Quality Objectives for the Protection of Human Health in Table B: Staff proposes to change the objectives for 12 compounds, using Cal/EPA-recommended cancer potency factors and a California-specific fish consumption rate in their recalculations.

3. Addition of Provisions for Compliance Determination for Chemical Objectives: Staff proposes to revise the compliance determination section of the Ocean Plan using the Minimum Level concept, and to adopt statewide Minimum Levels to be included as an appendix to the Ocean Plan.

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   d. change reference to the water quality objective for radioactivity,
   e. change references that list test methods for total and fecal bacteria and for acute toxicity
   f. change of a subtitle in Appendix II.
   g. Change Ocean Plan effective date.

In October 1998, the SWRCB released a Draft Functional Equivalent Document (DFED) describing the six proposed amendments followed by three public hearings to receive comments on the DFED. This draft Final Functional Equivalent Document (draft FFED) contains modifications to some elements of the proposed issues based on the comments received as well as SWRCB staff response to those comments.

Background

The Ocean Plan establishes water quality objectives for California's ocean waters and provides the basis for regulation of wastes discharged into the State's coastal waters. It applies to point and nonpoint source discharges. The SWRCB adopts the Ocean Plan, and both the SWRCB and the six coastal Regional Water Quality Control Boards (RWQCBs) implement and interpret the Ocean Plan.

Currently, the 1997 Ocean Plan contains six chapters that describe beneficial use designations, water quality objectives, requirements for management of wastes, effluent and receiving water requirements, discharge prohibitions, and general provisions for exceptions and monitoring programs:

Chapter One of the Ocean Plan identifies the applicable beneficial uses of marine waters. These uses include protection and enhancement of marine life and Areas of Special Biological Significance (ASBS) (SWRCB 1999a), fish migration, fish spawning, shellfish harvesting, rare and endangered species, recreation, industrial water supply, commercial and sport fishing, mariculture, aesthetic enjoyment, and navigation. To protect beneficial uses, the SWRCB has established in Chapter Two a set of narrative and numerical water quality objectives. These objectives include numerical bacteriological standards for the protection of water-contact recreation and shellfish harvesting as well as narrative objectives for protection of marine biological communities and their habitat.

Chapter Three provides the guidance needed to design systems for discharges into marine waters by listing the considerations a discharger must address before a new discharge is permitted.

Chapter Four contains effluent limitations and receiving water quality objectives for the protection of marine waters. The effluent limitations listed in Table A apply to all publicly owned treatment works (POTWs) and to industries that do not have effluent limitation guidelines established by the U. S. Environmental Protection Agency (U.S. EPA). The water quality objectives in Table B apply to all receiving waters under the jurisdiction of the Ocean Plan and are established for protection of aquatic life and for protection of human health from both carcinogens and noncarcinogens. There are 20 objectives for protecting aquatic life, 24 for protecting human health from noncarcinogens, and 34 for protecting human health from exposure to carcinogens. When a discharge permit is written, the water quality objectives for the receiving water are converted into effluent limitations that apply to discharges into State ocean waters. These effluent limitations are established on a discharge-specific basis depending on the initial dilution calculated for each outfall and the Table B objectives.

Chapters Five and Six contain sections on discharge prohibitions (e.g., municipal or industrial sludges, bypassing, discharge into ASBSs, and others) and general provisions. The provisions mandate that the RWQCBs require dischargers to monitor their discharges. The provisions also provide a mechanism for allowing exceptions to the Ocean Plan under special circumstances, provided that beneficial uses are protected and that the public interest is served.

Staff is recommending changes in the 1997 Ocean Plan format (as described in Issue 4) to be consistent with Section 13050 (j) of the California Water Code which specifies the content of water quality control plans. The proposed format would reorganize the Plan into the following three sections:

Chapter 1 - Beneficial uses to be protected;

Chapter 2 - Water quality objectives; and

Chapter 3 - Program of implementation needed for achieving water quality objectives

History of the Ocean Plan

The Ocean Plan was first formulated by the SWRCB as part of the State Policy for Water Quality Control. Changes in the California Water Code (CWC) in 1972 required the SWRCB to redraft its proposed Policy as a Water Quality Control Plan. At that time, it was the intent of the SWRCB to "...determine...the need for revising the Plan to assure that it reflects current knowledge..." (SWRCB 1972). The Ocean Plan was reviewed and amended in 1978 to fulfill the intent of the SWRCB and the requirements of State and Federal law for periodic review. In 1983, a second review and revision were completed (SWRCB 1983). Major changes to the Ocean Plan in 1983 included the addition of several chemicals to the receiving water limitations, modification of the bacterial standards, and incorporation of parts of the 1972 and 1978 guideline documents.

In 1986 the CWC was amended to require the SWRCB to review the Ocean Plan at least once every three years and to develop toxicity bioassays for use in compliance monitoring of toxicity in whole effluents. The next triennial review was performed in 1987 and resulted in Ocean Plan amendments in 1988 and 1990. The 1988 amendments (SWRCB 1988) changed several beneficial use designations to be consistent with the SWRCB's standard list, revised water quality objectives in Table B, established a uniform procedure for granting exceptions to Ocean Plan objectives, and made several relatively minor changes.

The 1990 amendments (SWRCB 1990) added the following: (1) an appendix for standard monitoring procedures to implement Ocean Plan requirements, (2) a bacterial monitoring requirement for enterococcus, (3) new and/or revised water quality objectives to Table B for protection of aquatic life and human health, (4) definitions of acute and chronic toxicity to replace previous definitions, (5) a chronic toxicity objective to Table B, (6) a section on measuring toxicity to the appendix for implementing the acute toxicity requirement in Table A and the chronic toxicity receiving water objective in Table B, and (7) a list of seven critical life stage test protocols for use in measuring chronic toxicity.

Major Issues Identified in the 1992 Triennial Review

To begin the 1992 Triennial Review, the SWRCB held a public hearing to solicit input on potential Ocean Plan issues. Thirty-five issues were presented by the public at the hearing and in written comments. The testimony and comments were summarized, and the SWRCB adopted a workplan that identified 24 high priority issues to be addressed(SWRCB 1992).

High priority issues under review fall into seven categories: (1) water quality objectives and regulatory implementation, (2) toxicity objectives and regulatory implementation, (3) bacterial standards, (4) administrative cleanup of Ocean Plan format and terminology, (5) sediment quality objectives, (6) suspended solids regulation, and (7) nonpoint source control. A more detailed description of the issues under review is contained in the 1992 document, "California Ocean Plan: Triennial Review and Workplan" (SWRCB 1992).

Two conditions occurred that extended the review period necessary for a thorough assessment of the issues: (1) several issues were addressed by external contractors, a process that required securing funds and preparing contracts, and (2) staff resources allocated for the review were reduced after the SWRCB adopted the workplan (although most resources were restored in July 1997).

In 1997, the SWRCB adopted two Ocean Plan amendments relating to issues raised during the 1992 Triennial Review: (1) the list in Appendix II of test protocols used to measure compliance with the chronic toxicity objective was revised to reflect advances in conducting these tests, and (2) a number of minor changes were made to clarify and standardize terminology referring to water quality objectives and effluent limitations.

Staff analysis and evaluation of the remaining high priority issues from the 1992 Triennial Review were carried over into the recent 1998-1999 Triennial Review. The SWRCB released a staff report in August 1998 describing these and other issues prior to conducting public hearings in September and October 1998. In July 1999, the SWRCB completed the 1998-1999 Triennial Review by approving the 1999-2002 California Ocean Plan Triennial Review Work Plan (SWRCB,1999b)

Scientific Peer Review of the Proposed Amendments

In 1997, Section 57004 was added to the California Health and Safety Code (Senate Bill 1320-Sher) which calls for an external scientific peer review of the scientific basis for any rule proposed by any board, office or department within Cal/EPA. Scientific peer review is a mechanism for ensuring that regulatory decisions and initiatives are based on sound science. Scientific peer review also helps strengthen regulatory activities, establishes credibility with stakeholders, and ensures that public resources are managed effectively.

The SWRCB utilized the services of the University of California - Berkeley (Department of Civil and Environmental Engineering) to perform the required scientific peer review of proposed Amendments 1, 2, and 3. Peer review suggestions and comments have been incorporated into the descriptions for these issues. Proposed Amendments 4, 5, and 6 are not scientifically based and are not subject to the peer review process.

CEQA Analysis and Impact of the Proposed Amendments

State agencies are subject to the environmental impact assessment requirements of the California Environmental Quality Act (CEQA). However, CEQA authorizes the Secretary of the Resources Agency to exempt specific State regulatory programs from the requirements to prepare Environmental Impact Reports (EIRs), Negative Declarations, and Initial Studies if certain conditions are met. The SWRCB environmental review process is certified by the Resources Agency to be "functionally equivalent" to the CEQA process [Title 22, C.C.R. Sec. 15251(g)]. Accordingly, the SWRCB prepares Functional Equivalent Documents (FEDs) in lieu of the more commonly used EIR. A Draft Functional Equivalent Document (DFED) is prepared by the agency and circulated for public review and comment. Responses to comments and consequent revisions to the information in the DFED are subsequently presented in a draft Final Functional Equivalent Document (draft FFED) for consideration by the SWRCB. After the SWCRB has certified the document as adequate, the title of the document becomes the Final FED (FFED).

The proposed project is amendment of the California Ocean Plan. A DFED describing the potential environmental impacts of this project was previously prepared and circulated for public comment and review. The SWRCB staff have reviewed the public comments, prepared responses to those comments, and incorporated appropriate revisions into the proposed project (proposed amendments to California Ocean Plan). Accordingly, this document is the draft FFED that will be presented to the SWRCB for consideration. Discussion of the proposed amendments to the Ocean Plan is presented in the following sections. The potential environmental impacts that could occur as a consequence of the proposed project are summarized in an Environmental Checklist Form (Appendix C).

If the SWRCB adopts the six recommended amendments, there will be no significant adverse environmental impacts from the proposed Ocean Plan amendments (for the purposes of CEQA, two of the amendments are not considered to be a "project"). The purpose of the Ocean Plan is to protect the quality of California's coastal waters for the use of the people of the State. The proposed changes will serve to better protect ocean waters for the identified beneficial uses. Since no significant adverse effects are expected, mitigation measures are not warranted. A detailed explanation of CEQA findings is presented on Pages 148 to 152.

The proposed Ocean Plan amendments do not alter the State’s existing regulatory framework for controlling storm water and nonpoint sources of discharge.

The U.S. EPA and the State Water Resources Control Board have determined that numeric effluent limits are infeasible for storm water permits. Municipal storm water dischargers are required to reduce the discharge of pollutants "to the maximum extent practicable" utilizing "best management practices" (BMPs) in lieu of numeric limits. If the implemented BMPs do not result in the attainment of water quality standards, dischargers are required to utilize additional BMPs to achieve the standards.

Industrial storm water dischargers are required to control discharges using "best available technology" and "best conventional pollutant control technology" in lieu of numeric limits. Industrial storm water dischargers must also implement additional BMPs if the technology-based controls are not adequate to achieve water quality standards.

Nonpoint discharges are regulated by the State according to the three-tiered management approach listed below (in order of increasing stringency):

1. Self determined implementation of BMPs;
2. Regulatory-based encouragement of BMPs;
3. Establishment of effluent limitations in waste discharge requirements.

The scarcity of monitoring activities in downstream ocean receiving waters has not permitted a comprehensive analysis of the degree to which the implementation of BMPs are effective in attaining Ocean Plan water quality objectives.

Project Description

The CWC (Sec. 13170.2) requires that the California Ocean Plan be reviewed at least every three years to guarantee that the current standards are adequate and are not allowing degradation to indigenous marine species or posing a threat to human health.

This project, if approved by the SWRCB, will amend the 1997 California Ocean Plan. The following amendments are proposed for adoption:

Issue 1: Replacement of the Acute Toxicity Effluent Limitations in Table A with an Acute Toxicity Water Quality Objective;

Issue 2: Revision of Chemical Water quality Objectives for Protection of Marine Life and Human Health;

Issue 3: Compliance Determination for Chemical Water Quality Objectives;

Issue 4: Change Format of the California Ocean Plan;

Issue 5: Development of Special Protection for Water Quality and Designated Uses in Ocean Waters of California.

Issue 6: Administrative Changes to the California Ocean Plan.

Statement of Goals

To amend the California Ocean Plan by addressing certain high priority concerns introduced to the SWRCB in the 1992 Triennial Review of the California Ocean Plan;

To update the California Ocean Plan based on a review of currently used methods and the best available scientific information;

To improve the California Ocean Plan by providing added clarification in definitions and terminology, without proposing changes in water quality objectives or waste discharge requirements.

Proposed Project

The proposed project is the SWRCB adoption of the proposed amendments to the California Ocean Plan listed (above) in the Project Description

Format Used in Issue Presentation

Each issue description and analysis contains the following sections:

Issue: A brief description of the issue.

Present Ocean Plan: A summary of the current Ocean Plan provisions related to the issue.

Issue Description: A detailed description of the issue, plus the historical development of the current Ocean Plan approach, and, if appropriate, a description of what led the SWRCB to establish the current provisions. A brief summary of changes made to each issue in response to comments following preparation of the October 1998 DFED is also presented.

Comments Received: Comments received on the DFED are identified in this draft FFED by issue. When multiple comments were received addressing the same concern, SWRCB staff prepared a "combined comment" that paraphrases the individual comments. Commenters are identified by number at the end of the comment. Responses prepared by SWRCB staff are presented following each comment.

Alternatives for Board Action and Staff Recommendation: For each issue, staff has prepared at least two alternatives for SWRCB action and a suggestion is made for which alternative should be adopted by the SWRCB.

Proposed Ocean Plan: If appropriate, the wording of the proposed amendment is provided to indicate the exact change to the 1997 Ocean Plan.

Presented in Appendix A is the proposed Ocean Plan as the document would appear if only the format change associated with Issue 4 is approved. Presented within Appendix B is the proposed Ocean Plan as the document would appear if all the proposed changes presented in this document are approved by the SWRCB and U.S. EPA.

Commenters and Affiliation

Individuals or organizations who submitted written comments on the draft Functional Equivalent Document (SWRCB 1998) before the close of the hearing record (December 28, 1998) or who gave testimony at the November and December 1998 public hearings are listed below. Each of the commenters is referred to by number when referenced in the various issues. When an agency or individual submitted written comments, staff has relied on that source to characterize these comments. All comments presented at the hearing pertaining to proposed amendments have been addressed.

Written Comments

No. 1
Bay Area Dischargers Association. P.O. Box 24055, MS 702, Oakland, CA 94623
David R. Williams

No. 2
City of Los Angeles. 433 South Spring St., 4th Fl. Los Angeles, CA 90013
Judith A. Wilson

No. 3
Center for Marine Conservation. Pacific Regional Office, 580 Market Street Suite 550, San Francisco, CA 94104
Linda M. Sheehan

No. 4
City of Riverside. 3900 Main Street, Riverside, CA 92522
Gail Briggs McPherson

No. 5
City of San Bernardino. Municipal Water Department. 300 North "D" Street, San Bernardino, CA 92418
Valerie Housel

No. 6
County Sanitation Districts of Los Angeles County, 1955 Workman Mill Road, Whittier, CA 90607-4998
Margaret H. Nellor

No. 7
Department of Fish and Game, 4949 Viewridge, Drive San Diego, CA 92123
Donald L. Lollock

No. 8
Department of Pesticide Regulation, 830 K Street, Room 307, Sacramento, CA 95814
Kevin Bennet

No. 9
FGL Environmental 2500 Stagecoach Road, Stockton, CA 95215
Kurt Wilkinson

No. 10
Goleta Sanitary District, P.O. Box 906, Goleta, CA 93116
Kamil S. Azoury, PE

No. 11
Los Angeles Department of Water and Power, 111 North Hope, Street Los Angeles, CA 90051-0100
Manuel F. Perez

No. 12
Monterey Bay National Marine Sanctuary, 299 Foam Street, Suite D, Monterey, CA 93940
Patrick Cotter

No. 13
Orange County Sanitation Districts, 10844 Ellis Avenue Fountain Valley, CA 92708-7018
Robert P. Ghirelli
No. 14
Port of San Diego and Lindbergh Field Air Terminal, P.O. Box 488, San Diego, CA 92112-0488
Ruth Kolb

No. 15
Public Utilities Commission City and County of San Francisco, 1212 Market Street, 2nd floor, San Francisco, CA 94102
Michele' Pla

No. 16
San Diego Regional Water Quality Control Board, 9771 Clairemont Mesa Boulevard, Suite A, San Diego, CA 94244-2130
Arthur L. Coe

No. 17
Sempra Energy, 101 Ash Street, San Diego, CA 92101-3017
Jim Dodson

No. 18
Sewer Authority Mid-Coastside, 1000 N. Cabrillo Highway, P.O. Box 3100, Half Moon Bay, CA 94019
David R. Dickson

No. 19
Surfrider Foundation National Office, 122 South El Camino Real, #67, San Clemente, CA 92672
Eve J. Kliszewski

No. 20
Surfrider Foundation Long Beach Chapter, PO Box 3087 Long Beach Ca 90803
Donald Schulz P.E.

No. 21
Tri-TAC, County Sanitation Districts of Los Angeles County, P.O. Box 4998, Whittier, CA 90607
Margaret Neller

No. 22
United States Environmental Protection Agency, Region IX 75 Hawthorne Street, San Francisco, CA 94105-3901

No. 23
Western States Petroleum Association, 1115 11th Street, Suite 150, Sacramento, CA 95814
Jeff Sickenger

Public Hearing Commenters and Affiliation

No. 3
Center for Marine Conservation Pacific Regional Office, 580 Market Street, Suite 550, San Francisco, CA 94104
Linda M. Sheehan

No. 12
Monterey Bay National Marine Sanctuary, 299 Foam Street, Suite D, Monterey, CA 93940
William J. Douros

No. 15
Public Utilities Commission City and County of San Francisco, 1212 Market Street - 2nd floor, San Francisco, CA 94102
Michele' Pla

No. 17
Sempra Energy, 101 Ash Street, San Diego, CA 92101-3017
Fred Jacobsen

No. 18
Sewer Authority Mid-Coastside, 1000 N. Cabrillo Highway, P.O. Box 3100, Half Moon Bay, CA 94019
David R. Dickson

ISSUE 1: REPLACEMENT OF THE ACUTE TOXICITY EFFLUENT LIMITATIONS IN TABLE A WITH AN ACUTE TOXICITY WATER QUALITY OBJECTIVE

Present Ocean Plan

The Acute Toxicity Effluent Limitations (ATEL) were adopted in 1972 by the SWRCB to prevent waste discharges of lethal toxicity to the ocean.

Issue Description

Currently, California requires testing of ocean discharges for acute toxicity by exposing freshwater organisms to undiluted effluent. This testing is intended to provide an estimate of mortality to resident species within the immediate vicinity of the discharge. However, while a freshwater discharge may not be toxic to freshwater organisms, it will be highly toxic to marine organisms. In addition, turbulence and the presence of ammonia in many ocean discharges may be lethal to biota in the immediate vicinity of the discharge pipe, but not cause adverse impacts on marine communities a relatively short distance away. These three particular discharge characteristics (ammonia, freshwater, and turbulent flow) are rapidly diluted and become less toxic to marine organisms after mixing with the receiving water.

SWRCB staff have consulted with the Southern California Toxicity Assessment Group (SCTAG) for several years on issues concerning acute and chronic toxicity and the limitations associated with ATEL. SCTAG has recommended that the acute toxicity tests be based on conditions outside the zone of turbulent mixing where ammonia, freshwater and turbulent flow do not create lethal conditions for marine life.

SCTAG, which is comprised of representatives from the waste discharger community, consulting laboratories, and regulatory agencies, forwarded several written recommendations to SWRCB staff in letters dated June 27, 1994, and October 10, 1997 (SCTAG, 1994; SCTAG, 1997). SCTAG's comments and proposals for the ATEL issue are summarized below:

- The acute requirement should be water quality-based similar to the Ocean Plan's chronic toxicity objective. Waste treatment plant technology (other than its effect on bioassay organisms) should not form the basis for acute toxicity testing.

- The protocols used to test acute toxicity of discharges to seawater should utilize marine organisms.

- This water quality-based acute toxicity requirement should incorporate a mixing zone based on the fact that freshwater discharges to the ocean are by their nature toxic to marine organisms.

Presented below is an explanation of the origin of Ocean Plan ATEL and current U.S. EPA requirements for toxicity testing.

<u>The Origin of the ATEL</u>

The ATEL originally were developed in 1971 as part of a statewide policy for water quality control to satisfy federal requirements for water quality standards. Federal regulations adopted in the early 1970's required that sewage treatment works meet minimum criteria in order to receive federal grants.

In response, the SWRCB developed a comprehensive policy for the protection of water quality along the California coast. The policy was applied to the development of basin plans and more specifically, ocean

waste discharge requirements such as acute toxicity. The policy later became the Water Quality Control Plan for Ocean Waters of California in 1972. The 1972 Ocean Plan established advanced primary as the minimum allowable level of treatment for sewage treatment plants.

The original 1972 Ocean Plan contained two tables, A and B, that listed effluent limitations for waste discharges, with the ATEL included in Table B. When the Ocean Plan was revised in 1978, Table A was retained for technology-based effluent limitations and Table B was converted to a list of water quality objectives to be met in the receiving water upon completion of initial dilution. Initial dilution is the term used to describe the process where rapid and irreversible turbulent mixing of wastewater and ocean water occur in near proximity to the point of discharge. Because the ATEL is an effluent limitation, it was moved to Table A.

The ATEL in Table A was established using "toxic unit acute" (TUa) as the unit of measure. TUa is the reciprocal of the effluent concentration that causes 50% of the organism to die by the end of a predefined exposure period.

To properly evaluate effects of the discharge upon the receiving water, SCTAG recommended that the acute toxicity requirement should be water quality-based rather than technology-based. Adopting a water quality-based approach would require making several changes to the Ocean Plan. These changes would involve establishment of an acute toxicity water quality objective and creation of an acute toxicity mixing zone. The acute zone would be located inside the Ocean Plan's initial dilution zone where existing water quality objectives must be met. The proposed acute toxicity water quality objective would be met at the edge of the acute toxicity mixing zone. These changes are consistent with U.S. EPA' guidance document entitled Technical Support Document for Water Quality-based Toxics Control (TSD) (March, 1991). The TSD describes the Whole Effluent Toxicity (WET) approach adopted by the U.S. EPA that relies on both acute and chronic toxicity testing and associated water quality objectives to protect aquatic life.

Establishment of Acute Toxicity Mixing Zones

Creation of an acute toxicity mixing zone provides for a more accurate estimate of ecologically significant acute effects of ocean discharges by accounting for the relatively small turbulent, freshwater-influenced region of the discharge (U.S. EPA, 1991; WSDE, 1994). The U.S. EPA has established several methods for establishing mixing zones. These methods consist of the following:

1. Establish a no mixing zone policy where acute toxicity water quality objective shall be met at the point of discharge.

2. Require that acute toxicity water quality objectives be met within a very short distance from the point of discharge during critical low flow (7Q10) for receiving waters. (This alternative applies to rivers and streams and is not applicable to ocean discharges.)

3. Discharger shall follow whichever is most restrictive: a) the acute toxicity objective shall be met within 10 percent of the distance from the edge of outfall to the edge of the initial dilution zone, b) the acute toxicity objective shall be met within 50 times the discharge length scale in any spatial direction or c) the acute toxicity objective shall be met within a distance of 5 times the local water depth in any horizontal direction.

4. Discharger shall provide data indicating that a drifting organism would not be exposed to a one hour average exceeding the acute water quality objective or would not receive harmful exposure when evaluated by other valid toxicological tests.

The State of Washington, which introduced the use of an acute mixing zone in 1994, provides a model for California. The State of Washington based its criteria on U.S EPA's recommendation 3a described above which requires that the acute toxicity objective be met within ten percent of the distance from the edge of the outfall structure to the edge of the chronic mixing zone (WSDE, 1994). Washington's decision to use 10 percent of the chronic linear dimension for determining the size of acute mixing is based upon the conservative nature and level of protection provided that would produce negligible or no measurable effects on populations of critical species in the receiving water, and the ease of application for most dischargers to apply the requirement independent of outfall design and geometry.

If the Washington approach is adopted, acute toxicity monitoring requirements in permits prepared by RWQCBs would use marine test species instead of freshwater organisms for measuring compliance. The boundary of the acute mixing zone is where the acute toxicity (TUa) water quality objective should be met.

Establishment of an Acute Toxicity Water Quality Objective

A TUa water quality objective of 0.3 has been recommended by U.S. EPA in their Technical Support Document for Water Quality-based Toxics Control (TSD). This objective is derived from a multiple year study which evaluated over 1200 effluent toxicity tests of both industrial and municipal sources with over 100 chemicals and species from several families (U.S. EPA, 1995b). According to study results, U.S. EPA has determined that at least 90% of the species subjected to an acute whole effluent toxicity test would have survival rates of 99% if exposed to 0.3 TUa.

A 0.3 TUa is intended for situations providing a mixing zone that allows a minimum 3:1 dilution of receiving water to effluent. For example, an NPDES permittee required to comply with the 0.3 TUa without a mixing zone would have a calculated Lethal Concentration 50 (LC50) of 333% effluent[1], which is impossible (Denton et al.,1996). LC50 is defined as the concentration of effluent that is lethal to 50% of the test organisms.

Calculation of Effluent Limitation from Acute Toxicity Water Quality Objective

If an acute mixing zone is adopted, calculation of an acute toxicity effluent limitation will require a specific equation to derive the limitation from the proposed acute toxicity objective. The acute toxicity equation modifies the existing effluent limitation equation used for other parameters in the Ocean Plan by providing that the acute effluent concentration limit (Ce) will be met at the edge of the acute mixing zone (one tenth of the initial dilution zone) as expressed in the following equation:

The effluent limitation for the acute toxicity objective listed in Table B shall be determined through the use of the following equation:

Equation 2: $Ce = Ca + (0.1)\, Dm\, (Ca)$

Ce = the effluent concentration limit,
Ca = the concentration (water quality objective) to be met at the edge of the acute mixing zone,
Dm = minimum probable initial* dilution expressed as parts seawater per wastewater, where $Dm \geq 350:1$ (see text below).

U.S. EPA Approach for the Selection of Acute or Chronic Toxicity Testing

[1] 0.3 TUa = 100/LC50
LC50 = 333% effluent

Consistent with the Chapter 3 of U.S.EPA's TSD, there are three possible toxicity testing requirement scenarios:

1. Permitted ocean dischargers will be required to conduct chronic toxicity tests only, or

2. Permitted ocean dischargers will be required to conduct acute toxicity tests only, or

3. Permitted ocean dischargers will be required to conduct both chronic and acute toxicity tests in order to comply with their permit requirements.

The decision to require either acute or chronic tests or both is based on the dilution factor (Dm) approach recommended by the U.S EPA in the TSD and described below.

When the dilution factor of the effluent is greater than 1,000:1 at the edge of the initial dilution zone, a discharger should conduct acute toxicity testing. This discharge would be considered a low priority for chronic toxicity testing because the effluent concentration would be below 0.1 percent at the edge of the mixing zone and thus incapable of causing an excursion above the chronic toxicity water quality objective (TUc) of 1.0.

When the dilution factor of the effluent falls between 100:1 and 1000:1 at the edge of the initial dilution zone, a discharger can conduct either acute or chronic toxicity testing. Effluents have been shown to be both acutely and chronically toxic within this range of receiving water dilution. Although either acute or chronic testing can be required within this dilution range, acute testing would be most appropriate at the higher end of this dilution range (1000:1 or 0.1 percent) for the reason described previously. At the lower end of this dilution range (100:1 or 1.0 percent) chronic tests may be more appropriate. Where other factors are equal, chronic testing may be preferable since interim results taken from chronic test provide data on acute toxicity as well.

A discharger should conduct chronic toxicity testing if the dilution factor of the effluent falls below 100:1 at the edge of the mixing zone. "The rationale for this recommendation is that chronic toxicity has been observed in some effluents down to the 1.0 percent effect criterion. Therefore, chronic toxicity tests, although somewhat more expensive to conduct, should be used directly in order to make decisions about toxic impact." (U.S.EPA, 1991)

SWRCB staff are proposing U.S.EPA's TSD dilution factor approach in determining whether to use acute or chronic toxicity testing for a given ocean waste discharge. Staff have reviewed the dilution factors for the major permitted ocean dischargers in the State and determined that the highest dilution factors approach 250:1. These higher dilution factors are at the lower end of the dilution range (100:1 to 1000:1), where "chronic toxicity testing is preferable since the interim results in a chronic test provide information on acute toxicity as well." (U.S.EPA, 1991).

Staff recommend that chronic, rather than acute toxicity testing be conducted for ocean discharges with minimum initial dilutions in the range of 100:1 to 350:1. The RWQCBs may require that acute toxicity testing be conducted in addition to chronic toxicity testing (for the 100:1 to 350:1 dilution range) as necessary for the protection of beneficial uses of ocean waters. Where initial dilutions range from 350:1 to 1000:1 either acute or chronic testing or both may be appropriate depending on the specific discharge. The RWQCB shall make this determination.

Peer Reviewer Comments

Dr. Alex Horne, of the University of California, Berkeley, scientific peer reviewer for this issue, in his review of the proposed acute toxicity change agreed with the proposed changes and stated:

"The staff of the State Board has produced a clear and scientifically defensible document to amend the Ocean Plan from technology based to water quality based. The new document is an improvement. Considering the sometimes awkward use of toxic units in the past and difficulty of setting ocean standards, the first proposed amendment is a definite step in the direction of better protection of the environment. The cooperation with the Southern California Toxicity Assessment Group adds to the practicality of the recommendations.

I agree with the major recommendations in the first proposed amendment. The new equation is a more logical step to protect the environment and take into account the realities of ocean wastewater disposal and how it is currently measured."

However, Dr. Horn indicated that eventually measurements should include field testing in addition to waste discharge testing. Dr. Horne added that he has a "long term concern that the type of land-based thinking and toxicity testing currently used has reached its limits. It is time to consider using the actual biotic environment as the measure of toxic effects in situ, but in conjunction with indirect inferences from laboratory studies of pure cultures of organisms or the concentration of chemicals in the environment."

Public Comment and Board Staff Response

Comment 1.1: EPA's Technical Support Document (TSD) states (Section 3.1.3) that in determining the need for a water quality-based whole effluent toxicity (WET) limit, the regulatory authority is required to consider several factors (40 CFR 122.44 (d) (1) (ii)), including existing controls. The regulatory authority is also required to consider whether technology-based limits are sufficient to maintain state water quality standards. If existing permits already have technology-based limits, a review of the historical monitoring data can be used. The TSD also states that the regulatory authority can independently evaluate receiving water toxicity data in deciding whether a WET limit is necessary. A review of the DFED does not reveal that the state evaluated either of these two factors in its justification for the need to establish an acute WET limit. Rather, the justification is based on SCTAG's and a scientific peer reviewer's belief. The DFED must consider the factors in 40 CFR 122.44 (d) (1) and demonstrate that the existing effluent limits are flawed or inadequate to protect state water quality objectives. (11)

Response: The SWRCB is not establishing an acute WET limit. Rather, the SWRCB is proposing to replace technology-based acute toxicity effluent limitations with an acute toxicity water quality objective. The purpose of the proposed change is to replace a requirement that is technology-based with one that is ecologically relevant. The cited regulation, 40 C.F.R. §122.44(d)(1), does not apply to which type of regulation is more appropriate.

Section 122.44(d)(1) answers the question "When is a permit writer required to include water quality-based effluent limitations in a permit to prevent excursions above a water quality objective?" The regulation provides that when a discharge has the reasonable potential to cause or contribute to an excursion above a water quality objective (or criterion in the federal parlance), the permit must include water quality-based limits for the pollutants of concern. In determining whether a discharge has "reasonable potential", the permit writer is directed to consider several factors, such as sensitivity of test species when evaluating whole effluent toxicity. Thus, if the SWRCB adopts the proposed acute toxicity water quality objective, the RWQCBs will use Section 122.44(d)(1) on a permit-specific basis to determine whether they must include an effluent limit based on the objective.

Comment 1.2: The 1990 Ocean Plan FED (SWRCB, 1990) evaluated the existing acute toxicity bioassay in relationship to the then proposed chronic toxicity objective and found that the chronic approach more accurately represented the level of protection required by the Ocean Plan narrative objectives than the standard acute bioassay techniques. Thus, when ensuring the Ocean Plan narrative objective of "no discharge of toxics in toxic amounts", it was argued that the chronic tests would be more reliable in ensuring environmental protection and, therefore, the test to use to determine the presence of effluent toxicity. (11)

Response: Staff agrees that critical life stage tests are more sensitive indicators of receiving water impacts than acute toxicity tests. Critical life stage tests and initial dilution zones are intended to protect the ecology of the receiving water versus the acute mixing zone which is intended to prevent lethality to passing organisms (U.S.EPA, 1991). This is especially true when one considers the test methods (e.g. fathead minnow protocol) that were available for acute toxicity testing in 1990.

The newly proposed acute toxicity objective is water quality-based and allows for a dilution based on the dimensions of the acute mixing zone. In addition, marine test species will now be used to measure receiving water impacts of the ocean discharge instead of freshwater species previously used to measure performance standards of the effluent.

The acute test methods used to monitor compliance with the acute toxicity effluent limitation have undergone considerable development and revision since 1990. The newer protocols use different test organisms and younger life stages that are much more sensitive than the adult freshwater test methods used previously. U.S. EPA published these methods in the fourth edition "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (U.S.EPA 1993b). As a result, staff believes that the proposed acute toxicity objective will provide useful information on acute receiving water impacts.

Staff has reviewed the 1990 FED, Amendment of the Water Quality Control for Ocean Waters of California, and the 1990 Ocean Plan, and could find no evidence to support the contention by the commenter that only critical life stage tests are to be used to "determine the presence of effluent toxicity".

Comment 1.3: We are surprised with the approach the October 1998 DFED used to justify the development of a 40:1 minimum dilution ratio. This minimum dilution ratio becomes the default number for all small ocean dischargers. It appears as though the state decided it wanted an effluent limit of 1.5 and back calculated what the dilution factor would have to be in order to support this limit. This approach is scientifically indefensible.

The DFED is recommending water quality-based effluent limits for acute toxicity testing based on the argument that it is more environmentally protective than the current limit. However, in reviewing the DFED's analysis of attainability, the purely arbitrary selection of a minimum 40:1 dilution factor ensures that the TUa does not go below 1.5, while actual dilution factors of between 50 and 200 will allow for TUa values ranging from between 1.8 and 6.3. This allows for a higher acute toxicity limit than is currently provided for using the technology-based limits.

The FED should explain more clearly the rationale for the selection of 40 as the minimum initial dilution to be used in the proposed equation to calculate effluent limitations for all waste discharges which have minimum initial dilution less than or equal to 40. (11,17,19,22)

Response: Staff agrees with the comment and have presented an approach outlined in Chapter 3 - Effluent Characterization from U.S.EPA's TSD (U.S. EPA, 1991) as an alternative to the 40:1 minimum dilution ratio proposed in the DFED for waste dischargers with lower dilution factors. This approach is described on page 14.

In response to the comment regarding the apparently less stringent acute toxicity limitation; higher TUa values (1.8 to 6.3) for dilution factors ranging from 50:1 to 200:1 are less stringent if one were to assume the technology-based effluent limitation and the proposed water quality-based acute toxicity objective are one and the same. In fact, they are used for different purposes.

The acute toxicity effluent limitation is not a measure of receiving water toxicity but rather the toxicity of the effluent at the end of the pipe, which is why freshwater test species are used (except facilities such as power plants which discharge seawater). The 1.0, 2.0 and 2.5 TUa values were derived from a study conducted in the early 1970's to determine the level of wastewater treatment performance that was attainable by a well run advanced primary treatment plant (Esvelt et al., 1971). In contrast, the proposed amendment is a receiving water objective, intended to assess the acute toxicity impacts of discharges on the Pacific Ocean using marine test species.

In response to the comment regarding the level of environmental protection, the EPA believes that the level of protection associated with 0.3 TUa is protective of aquatic life and is strongly supported by a large body of data referenced in the March 1991 TSD. Use of marine species would also more closely estimate the response of indigenous species to effluent discharged into the Pacific Ocean.

Comment 1.4: The DFED assumes 1) that the acute toxicity mixing zone should be 10% of the existing mixing zone, and 2) that there is a linear relationship between the acute and chronic dilution factors. The first assumption is arbitrary and no supporting evidence has been provided to substantiate the second assumption. Consequently, it is not appropriate to incorporate these assumptions.

We do not believe the FED should adopt the Washington State model for determining the size of the acute zone. It is unclear what factors were used in the development of this model and whether any of these factors are unique to Washington State. The DFED further states that Washington based its 10% number on the TSD recommendations. This is misleading since the TSD only describes an approach for establishing an acute mixing zone. It does not suggest the 10% factor. DWP believes that it is arbitrary and scientifically unsupportable to merely accept Washington's model and that California should develop its own dilution factor for establishing the acute mixing zone. (11,15,16,17)

Response: Staff agrees that the Washington State approach may incorporate factors that are unique to the state's hydrologic basin for inland discharges. However, the receiving water for both states' ocean discharges is the Pacific Ocean. In addition, chronic mixing zones (initial dilution zone) for ocean discharges in Washington and California are determined using computer models that require site specific data on discharge depth, density of effluent, and outfall characteristics such as port size, number, spacing, and orientation. The 10% acute mixing zone is then determined as a percentage of the initial dilution zone on a site specific basis.

The State of Washington model for the 10% acute mixing zone is derived from the "third alternative" described in Section 4.3.3, Prevention of Lethality to Passing Organisms, in the TSD (U.S.EPA, 1991). Alternative 3a states:"The CMC should be met within 10 percent of the distance from the edge of the outfall structure to the edge of the regulatory mixing zone in any spatial direction."

The State of Washington approach assumes a linear relationship instead of a volumetric one. If a three dimensional approach were followed, the size of the acute mixing zone would calculate to 1/1000th instead of 1/10th of the initial dilution zone. An acute mixing zone which is 1/1000th the size of a initial dilution zone would result in calculated LC50 values greater than 100% effluent. For example, an ocean discharger with a minimum initial dilution of 200:1 (among the highest dilution factors of the 93 ocean dischargers) would have a calculated LC50 value of 277% effluent using the volumetric approach.

Dr. Alex Horne, the scientific peer reviewer for the proposed amendment, commented that the proposed 10% acute mixing zone is a satisfactory method because it is tied to the modelled approach used in determining the chronic mixing zone and the "actual local plume dispersion and mathematical simulation models can be expected to agree over the small distances involved." (Horne, 1998)

Staff agrees that additional research needs to be conducted in this field to better estimate acute mixing zones on a site specific basis. The proposed changes reflect the latest information available to staff in developing the proposed acute toxicity objective. This issue will be revisited as more information becomes available.

Comment 1.5: The DFED (p. 17) notes that the proposed acute mixing zone would allow the use of marine species instead of freshwater fish. However, the actual language in the amendment does not mention this. Therefore, the Board should clarify in the Ocean Plan whether it really intends for acute toxicity to be evaluated using marine species.(6,13,14,21)

Response: Staff has made changes to the draft FFED specifying that marine test species are to be used to measure acute toxicity of ocean waste discharges.

Comment 1.6: We support the inclusion of an acute mixing zone for marine discharges. SWRCB staff has taken a complicated subject and simplified it in a utilitarian way for implementation in the Ocean Plan. We would recommend that this amendment go one step further, and incorporate guidance from the U.S.EPA which provides recommendations for when acute or chronic (but not both) need to be conducted for a given effluent. (6,21)

Response: Staff agrees and have incorporated the U.S. EPA guidance to determine whether acute and/or chronic toxicity testing should be conducted based on the dilution factor for a specified ocean waste discharge.

Comment 1.7: The proposed TUa of 0.3 is the recommended TUa that is listed in the TSD guidance document. While EPA identifies how the objective was derived, it is important to note that no supporting information is available to support the credibility of the 0.3 number (e.g., the test species used, the protocols used, the laboratories performing the test, the QA/QC procedures used). Thus, the state should recognize that proposing the use of EPA's TUa objective is in lieu of conducting a more costly, but more California-specific, study and that acceptance of the EPA-recommended number brings with it the shortcomings associated with its development. (11)

Response: Staff disagrees with the commenter's assertions that: (1) there is no supporting information available to substantiate the 0.3 TUa recommended by U.S.EPA in the TSD (U.S.EPA, 1991) and the Water Quality Guidance for the Great Lakes System (U.S.EPA, 1995b), and (2) the State of California must conduct additional toxicity studies.

U.S.EPA conducted a multi-year study that evaluated "over 1200 toxicity tests with over 100 chemicals and species from several families" (U.S.EPA, 1995b) in developing the acute numeric criterion of 0.3 TUa. "EPA has determined that at least 90 percent of the species subjected to an acute WET test would have survival rates of 99 percent if exposed to 0.3 TUa. EPA believes that the level of protection associated with 0.3 TUa is protective of aquatic life and is strongly supported by the large body of data referenced in the March 1991, TSD."(U.S.EPA, 1995b)

The study conducted by U.S.EPA to develop a numeric acute criterion (0.3 TUa) was evidently robust enough to withstand public scrutiny since it is now incorporated into the Great Lakes Guidance in 40 CFR Part 132, Appendix F, procedure 6.A.1. U.S.EPA has established under this procedure that an acute WET

criterion of 0.3 TUa, or a numeric interpretation of a narrative at least as stringent as the acute WET numeric criterion, be adopted by the Great Lakes States and Tribes (U.S.EPA, 1995b).

Comment 1.8: The DFED argues the importance of creating an acute mixing zone because it will allow for the use of marine test organisms which are more appropriate for ocean discharges (page 21). The DWP concurs that marine test species are more appropriate, and believes that the DFED should and could make this change irrespective of establishing acute mixing zones, acute toxicity water quality objectives, or mandating the existence of water quality-based effluent limits. The DFED also states that acute mixing zones are also necessary in order to provide more accurate toxicity assessments of small, turbulent, freshwater discharges. Power plant discharges are neither small nor freshwater in nature. (11)

Response: The existing acute toxicity effluent limitations are technology-based and derived from a study conducted in the early 1970's to determine the level achievable by a well run advanced primary wastewater treatment plant. Acute toxicity required by Table A is measured by conducting toxicity tests on organisms with undiluted effluent. In contrast, the water quality-based objectives contained in Table B are designed to be protective outside a defined dilution zone. This zone is dependent upon the design of the outfall; that is, the dilution zone is based upon the site specific characteristics of each ocean discharge.

SWRCB staff acknowledges that the discharges of once-through cooling water from coastal power plants are neither small nor freshwater in composition. However approximately 85% of permitted ocean discharges consist of freshwater. Adjusting the salinity of a freshwater discharge in order to test with marine species runs counter to the purpose of Table A. Effluent limitations in Table A are intended to measure the effluent itself as opposed to measuring receiving water impacts

Comment 1.9: DWP believes that power plant dischargers should not be required to conduct acute toxicity bioassays and should be exempt from this requirement should the state choose to go forward with establishing acute water quality-based effluent limits. (11)

Response: Staff agrees that power plant dischargers should not be required to conduct acute toxicity bioassays in accordance with U.S. EPA's TSD recommendation that dischargers with dilution factors less than 100:1 conduct only chronic toxicity testing.

Comment 1.10: DWP recommends the adoption of Alternative 1 (make no change to the existing ATEL) modified for the inclusion of the use of marine test species and the August 1993 test method.(11)

Response: Staff believes that it is appropriate to replace the existing technology-based ATEL with a water quality-based receiving water objective for acute toxicity.

Comment 1.11: The DFED indicates that the effluent limits resulting from the proposed Alternative 3 would be no more restrictive than the existing effluent limits in Table A. However, the proposed Alternative 3 would result in more restrictive limits for discharges with existing dilution factors of less than 73.3:1. This is because the proposed acute toxicity objective of 0.3 TUa will be applied as a daily maximum limit, not a 30 day average limit. To be equivalent, the proposed objective and/or dilution factor would need to be adjusted so that it more closely approximates the instantaneous maximum limit of TUa = 2.5 in the existing plan. (17)

Response: Staff has reviewed the sampling method (composite versus grab samples) and testing schedule (monthly, quarterly, annually, etc.) for acute and chronic testing requirements in 30 ocean discharging NPDES permits (out of a total of 93). Fourteen of the permits have exactly the same sampling methods and testing schedule for both the chronic and acute permit requirements. Eight of the permits have the same sampling approach (grab) for acute and chronic, yet tighter testing schedules (e.g., monthly versus quarterly) for the acute requirement. The remaining seven NPDES permits either have acute or chronic (but not both)

testing requirements. Therefore, changing the acute toxicity effluent limitation to an acute toxicity objective will not result in more restrictive limits for discharges with existing dilution factors of less than 73.3:1.

In addition to the permit information described above, staff support U.S EPA TSD recommendations for conducting chronic or acute toxicity testing based on the modeled dilution factor for each ocean discharge. For dilution factors less than 100:1, TSD recommends using chronic toxicity testing to meet compliance.

Comment 1.12: As written, the proposed implementation language for power plants (see DFED, page 29, Item 6), would inappropriately apply acute toxicity limits to in-plant wastestreams. The word chronic should be deleted from the third line of the power plant implementation procedure, under this proposed amendment. (17)

Response: The proposed acute water quality objective will not apply to in-plant waste streams but will apply to the final effluent discharge as adjusted for dilution. For existing power plants and other heat exchange discharges, it is unlikely that the acute toxicity objective will apply in waste discharge requirements because acute toxicity testing will generally not be required for ocean discharges with minimum initial dilutions of less than 350:1, as described on page 14.

The commenter also recommended deleting the word chronic toxicity from the ninth line of the fourth paragraph on page 13 of the Ocean Plan. The chronic toxicity objective and the implementation provisions for meeting compliance with the chronic toxicity objective are not under consideration in the current round of proposed Ocean Plan amendments. Further, staff understands this statement in the 1997 Ocean Plan to mean that chronic toxicity is to be measured in the final effluent discharge "as adjusted for dilution with ocean waters".

Comment 1.13: The Ocean Plan states that the Table A limits and therefore the existing acute toxicity limits apply only to publicly owned treatment works and industrial discharges for which Effluent Limitations Guidelines have not been established pursuant to Sections 301, 302, 304, or 306 of the Federal Clean Water Act. Since EPA has established Effluent Limitations Guidelines for approximately 51 industrial categories, the current Table A limits arguably should not apply to many discharges, including steam electric power plants (see 40 CFR 423 - the Steam Electric Power Generating Point Source Category). (17)

Response: Staff Agrees.

Comment 1.14: Sempra Energy recommends the SWRCB adopt an alternative which retains the existing acute toxicity limits (i.e., Alternative 1), but also clarifies that Table A limits do not apply to the approximately 51 categories for which EPA has adopted Effluent Limitations Guidelines. (17)

Response: The 1997 Ocean Plan states that "Table A effluent limitations apply only to publicly owned treatment works and industrial dischargers for which effluent guidelines have not been established pursuant to Sections 301,302, 304, and 306 of the Federal Clean Water Act". For those categories of industrial dischargers for which EPA has adopted effluent limitations guidelines under the Clean water Act, Table A does not apply.

Comment 1.15: The existing Ocean Plan specifies that acute toxicity is to be expressed in terms of Toxic Units Acute (TUa). The existing Ocean Plan defines TUa in terms of LC50 (when LC50 can be measured) but also specifies a method of determining TUa (based on survival in 100% test water) when it is not possible to measure LC50 (due to greater than 50% survival of test organisms in 100% test water). The DFED recommends that the definition of TUa be revised by deleting the method of determining TUa when the LC50 cannot be measured. The proposed revision of this definition is puzzling since such a revision is not necessary in order to establish a water quality objective for acute toxicity. Although the proposed revision of this

definition would be an important and fundamental change, the DFED does not explain why the existing Ocean Plan definition of TUa is inappropriate or why that definition should be changed. (16)

A disturbing implication of the proposed revision of this definition is that it would not be possible to measure receiving water acute toxicity below 1 TUa, i.e. unless the quality of the receiving waters was so poor that LC50 cannot be measured. (16). Consequently, it would not be possible to measure acute toxicity in receiving waters at or near the level of the proposed water quality objective (0.3 TUa) or to determine whether receiving waters meet the proposed water quality objective. The DFED does not acknowledge or address this. Since it would be so important and since other proposed revisions are so closely related to it, the proposed revision of this definition should be explicitly addressed and explained in the DFED before any other proposed changes related to acute toxicity are addressed. (16)

Response: Staff agrees with the comment that the existing definition of acute toxicity should be retained. If the SWRCB adopts an acute toxicity water quality objective, the staff in the future may propose to expand the definition of acute toxicity beyond the existing percentage of wastewater causing 50 % survival of test organisms. Staff believes that the definition should be broadened so that it applies to other media as well**.**

Comment 1.16: The DFED asserts that the proposed revisions would "not result in the lowering of water quality" (p. 18), would be "more environmentally protective" (pp. 21 & 25), would "serve to better protect ocean waters" (p. 24), would be "more protective of the beneficial uses" (p.25), and would be "expected to result in better water quality of the ocean" (p. 25). The DFED also asserts that the proposed revision would result in acute toxicity effluent limitations which are "more attainable" than those in the existing Ocean Plan (pp. 21 and 26). It is not clear how these seemingly conflicting assertions are to be reconciled. (16)

Response: Staff agrees that it appears contradictory when the DFED stated the proposed acute toxicity objective would be both more environmentally protective and, at the same time, attainable for the regulated community when compared to existing technology-based acute toxicity limitation.

The proposed acute toxicity water quality-objective is to be used as an indicator of aquatic community responses in the receiving water (Pacific Ocean). Therefore it will be more environmentally relevant. The current technology-based limitation in contrast, is intended as a measure of the performance of the waste treatment plant and not as an indicator of a discharge's potential environmental impacts.

Secondly, the proposed objective will require the use of marine test species to measure the receiving water impacts instead of the freshwater species presently used to measure the acute toxicity of whole effluent. Marine test species are more appropriate where the receiving water is the Pacific Ocean.

Finally, the proposed acute water quality objective will allow for a mixing zone on a site specific basis to more accurately model the discharge characteristics of each ocean outfall. The current technology-based acute effluent limitation is inappropriate because the testing is conducted with 100% effluent with no consideration of mixing with the marine receiving water.

Staff has clarified the attainment analysis by deleting the second and third paragraphs discussing dilution factors of ocean outfalls and by adding the TSD (U.S.EPA, 1991) recommendations for determining whether acute or chronic toxicity testing should be conducted (See page 14).

Comment 1.17: The proposed revised definition of TUa is problematic. However, if that proposed revision is retained, it would also be appropriate to specify that the product of the coefficient and the initial dilution factor used to calculate acute toxicity effluent limitations not be less than the minimum value necessary to prevent "impossible" acute toxicity effluent limitations. If the proposed revised definition of TUa is appropriate, 1 TUa would the lowest acute toxicity which could be measured (because 100% is the highest

LC50 that can be measured). If the proposed water quality objective of 0.3 TUa is also appropriate, it is apparent from the proposed equation for calculating acute toxicity effluent limitations that, in order to produce a calculated acute toxicity effluent limitation of 1 TUa, the product of the coefficient and the initial dilution factor would have to be 2.33. By comparison, the product of the proposed coefficient of 0.1 and proposed default initial dilution factor of 40 would be 4. (16)

Response: Staff agrees and, for purposes of deriving effluent limitations from acute and chronic toxicity water quality objectives, has proposed to follow the method outlined in the TSD (U.S EPA, 1991).

Comment 1.18: Although the existing Ocean Plan clearly specifies the use of marine organisms for chronic toxicity tests, it does not do so for acute toxicity tests. Although the proposed revisions to the Ocean Plan would specify use of USEPA approved acute toxicity test protocols, the proposed revisions would not specify use of acute toxicity protocols that use marine organisms. Perhaps the Ocean Plan should be revised to specify that acute toxicity tests are to be conducted using marine organisms. This would ensure use of acute toxicity tests appropriate to the receiving waters, as well as statewide consistency. (16)

Response: Staff agrees and has proposed the change in this draft FFED.

Comment 1.19: For power plant discharges of seawater to the ocean, the toxicity of low salinity to marine organisms should not be a consideration for purposes of calculating acute toxicity effluent limitations. (16)

Response: Low salinity is not a consideration for calculating acute toxicity for power plant dischargers.

Comment 1.20: If and when acute toxicity water quality objectives are included in Table B, the Compliance Determination section (in Chapter IV of the existing Ocean Plan) should be revised to clearly indicate that power plant effluent limits for acute toxicity are to be applied to the combined final effluent, as the existing Ocean Plan (p. 13) indicates for chronic toxicity and total chlorine residual. (16)

Response: Staff agrees and draft FFED has been revised accordingly.

Comment 1.21: The DFED (pp. 19 & 20) identifies three alternatives for SWRCB action, but no options for implementation of Alternative No. 3, besides the one recommended in the DFED. The DFED should identify and discuss other options for implementation of Alternative No. 3. (16)

Response: Staff disagrees and believes the currently recommended implementation approach for Alternative No. 3 in the draft FFED is clearly stated and an additional listing of implementation options is unnecessary. However, please note that several changes have been made in the proposed amendment to reflect public comments on the October 1998 DFED.

Comment 1.22: A fourth alternative that should also be addressed is that of retaining the existing Table A technology-based acute toxicity effluent limitations but also adding a Table B water quality objective for acute toxicity. Under this alternative, the acute toxicity effluent limitations which would apply to a particular discharge would be whichever limitations are determined to be more stringent for that discharge: those which are technology-based or those which are water quality-based. (16)

Response: Staff disagrees that a fourth alternative be added that retains the current Table A effluent limitation and adds a Table B water quality objective. Staff believes that the Ocean Plan should focus on the receiving water and protection of beneficial uses.

Comment 1.23: In summary, we believe that the DFED does not adequately address acute toxicity or make the case that the proposed Ocean Plan revisions related to acute toxicity are appropriate. We believe that

significant modifications to the DFED and the proposed revisions are needed in order to address acute toxicity in a coherent and defensible manner. We suggest that SWRCB consideration of the proposed revisions associated with acute toxicity be postponed so that other approaches can be developed and evaluated and so that the DFED can be modified accordingly. (16)

Response: Staff disagrees but notes that a number of refinements to this issue have been made as a result of comments on the October 1998 DFED. The proposed acute toxicity objective has been scientifically peer reviewed by a recognized expert in the field and is consistent with what U.S.EPA recommends in the TSD (U.S.EPA, 1991).

Comment 1.24: The Goleta Sanitary District supports replacing the ATEL with an acute water quality objective. (10)

Response: Comment noted.

Comment 1.25: The City of Los Angeles supports this amendment; however, we would like to see a more clear definition of the acute mixing zone. We believe that this acute mixing zone must be site specific. (2)

Response: The acute mixing zone as proposed is site specific because it is based on the initial dilution zone or chronic mixing zone that has been designated for each ocean discharge outfall. The initial dilution zone is determined using a computer model which requires data on the following characteristics of the outfall: discharge depth, density of effluent, and outfall characteristics such as port size, number, spacing, and orientation. The acute mixing zone is then determined as a percentage of the chronic mixing zone on a site specific basis.

Comment 1.26: To allow the use of marine species instead of freshwater fish proposed in the DFED is a simplified approach. However, we would like to note that the conversion of this test from freshwater fish to the marine species may require a two-year transition period. (2)

Response: Under the proposed amendment, waste dischargers who are required to conduct acute toxicity tests must use marine test species. However, RWQCBs may allow a compliance schedule for dischargers who are having difficulty making the transition from freshwater acute test species to marine acute test species.

Comment 1.27: The Department of Pesticide Regulation supports the proposed amendment, but believes that the relationship between the chronic toxicity objective of 1 toxic unit (TU) and the acute toxicity objective of 0.3 TU should have been better defined. The fact that the chronic toxicity objective was derived from no observable effect levels rather than chronic LC50 values was not readily evident. Information supporting this fact should have been included in the issue discussion. (8)

Response: The relationship between the chronic toxicity objective of 1 TUc and the proposed acute toxicity objective of 0.3 TUa was not examined because it is not the focus of Issue 1. The replacement of the technology-based acute toxicity effluent limitation with a water quality-based acute toxicity objective is the subject proposed for amendment to the California Ocean Plan.

The No Observable Effect Concentration (NOEC) is used in the calculation of toxic units chronic (TUc) because it is a measure of sublethal endpoints such as growth, percent germination, normal shell development, etc., depending upon the organism being tested. In contrast, Lethal Concentration 50 (LC50) is used in the calculation of toxic units acute (TUa) because it is a measure of lethality. Staff based its recommendation on the U.S.EPA's Technical Support Document for Water Quality-based Toxics Control (TSD) (EPA/505/2-90-001). On pages 6-7, the TSD contains an in-depth discussion of the origin of toxic units and the distinction

between toxic units acute (TUa = 100/LC50) and toxic units chronic (TUc = 100/NOEC). The recommended acute toxicity objective of 0.3 is explained on page 35 of the TSD

Comment 1.28: WSPA strongly supports a water quality-based approach to toxicity standards, provided suitable science is developed in advance to support the implementation process. In particular, WSPA strongly supports use of a mixing zone in applying these standards. The approach proposed for implementing an acute toxicity water quality objective is consistent with EPA's TSD and one which WSPA generally supports.

To our knowledge, there are no externally peer-reviewed studies that failing an acute WET test correlates with acute toxicity in marine receiving waters. In fact, we know of no externally peer-reviewed studies that show that failing an acute WET test correlates with any impact in the ocean. Therefore, we recommend that the SWRCB implement acute whole effluent testing in NPDES permits only as a trigger for further studies, not as numerical limits, until such time that the SWRCB can demonstrate through externally peer-reviewed studies that the test actually measures the impact being regulated in this proposed rule. We recommend that the SWRCB policy establish a study trigger level using proposed Formula 2 (p. 18 and p. 28 of Draft FED). Exceeding the trigger level once would necessitate accelerated testing to determine whether a pattern of toxicity exists. If a pattern is established (e.g., more than half the samples in a series exceed the trigger level), the discharger would be required to conduct a Toxicity Identification and Reduction Evaluation. This approach would eliminate the need for permit violation provisions. (23)

Response: Staff agrees there are few externally peer-reviewed studies which examine the correlation of acute toxicity in ocean discharge effluents with acute toxicity in the Pacific Ocean. However, the absence of peer-reviewed studies in this area does not mean that acute toxicity test results are not indicative of receiving water impacts. For example, there is ample evidence to support the use of freshwater WET tests as indicators of aquatic community responses in freshwater ecosystems. "Single species tests provide an early warning signal so that actions can be taken to minimize significant ecosystem impacts (especially with regard to the discharge or release of toxic chemicals)." (U.S.EPA, 1999). Staff agree that additional research needs to be conducted in this field to better estimate acute toxicity impacts in the receiving waters. The proposed changes reflect the latest information available to staff in developing the proposed acute toxicity objective. This issue will be revisited as more information becomes available.

Implementation of Toxicity Reduction Evaluations (TREs) was one of the high priority issues raised during the 1998-1999 California Ocean Plan Triennial Review. SWRCB staff, in response to public comments submitted for the issue, recommended deferring establishment of TRE triggers to the individual RWQCBs, whose staff is more familiar with permitted ocean dischargers in the specific region.

Comment 1.29: Although WSPA strongly supports use of a mixing zone in acute WET permit limits (this is consistent with EPA's approach in the TSD), limiting the mixing zone to 10% of the initial dilution zone is arbitrary. The initial dilution zone is widely recognized as the zone of immediate mixing; therefore, using the entire zone is adequately protective. This is especially true given that usual acute WET tests are 96-hour exposure tests and aquatic life will virtually never be in the initial dilution zone for 96 hours. (23)

Response: Staff disagrees with the commenter's recommendation that the dimensions of the acute mixing zone should be consistent with that of the initial dilution zone or chronic mixing zone. The acute mixing zone is intended to prevent lethality to passing organisms and the initial dilution zone is intended to protect the ecology of the receiving water (U.S.EPA, 1991). The acute toxicity objective must be met at the edge of the proposed acute mixing zone and the chronic toxicity objective must be met at the edge of the initial dilution zone. In summary, the proposed acute toxicity objective and the chronic toxicity objective are intended to measure different toxic effects on marine organisms. The same size mixing zones for both objectives would be inconsistent with what U.S.EPA recommends in the TSD.

The scientific peer reviewer, Dr.Alex Horne, commented the proposed acute mixing zone is a satisfactory method because it is tied to the modelled approach used in determining the chronic mixing zone and the "actual local plume dispersion and mathematical simulation models can be expected to agree over the small distances involved." (Horne, 1998)

Staff agrees that additional research needs to be conducted in this field to better estimate acute mixing zones on a site specific basis. This issue will be revisited as more information becomes available.

Staff disagrees with the contention that "life will virtually never be in the initial dilution zone for 96 hours". There are many benthic species which are sedentary in close proximity of ocean discharge outfalls and in constant contact with the discharge effluent plume.

Comment 1.30: The Sanctuary is encouraged by the SWRCB's statement that "the proposed water quality-based toxicity objective is more environmentally protective than the current technology-based (acute toxicity effluent limitation) ATEL in Table A of the (1997) Ocean Plan" (FED page 25). However, the environmental impact analysis presented on page 24 appears to be an economic impact analysis instead of an environmental evaluation. Before the new acute water quality objective, TUa 0.3, is published in Table B of the Ocean Plan, a complete environmental impact analysis should be conducted to evaluate the possible effect of changing the TUa values currently published in Table A of the 1997 Ocean Plan (page 21, paragraph 3). (12)

Response: The SWRCB complies with the CEQA through a "functional equivalent" process certified by the Resources Agency that does not require the preparation of an Environmental Impact Report (EIR). However, the environmental regulations do require that the SWRCB consider the potentially adverse environmental consequences and economic impacts of proposed policies. The Functional Equivalent Document satisfies these requirements. Proposed adoption of a 0.3 TUa was evaluated and determined by the SWRCB to represent a less than significant environmental impact. The basis for this determination are the results of a multiyear U.S.EPA study that included more than 1,200 toxicity tests using 100+ chemicals and numerous aquatic species (U.S.EPA, 1995b). The testing indicated that the revised standard will provide a more appropriate assessment of future impacts, but will not allow deterioration of current conditions. As a consequence of the improved representiveness of the revised methodology, adoption of the TUa could be considered a long-term beneficial impact.

Comment 1.31: The term "control" should be shown as a dilution factor of "0% effluent" to ensure that this dilution will be included in the dilution series prepared by analytical laboratories for acute toxicity testing. The total number of dilutions in the test is six (DFED page 31). (12)

Response: Comment noted, however the text describing the dilution series has been deleted.

Comment 1.32: U.S. EPA supports the use of marine species for acute toxicity testing of marine waters and discharges to marine waters. Given that marine species may respond differently than freshwater species to the same effluents, however, the FED should clarify the relationship between 1.5 TUa, as currently measured using freshwater species, and 1.5 TUa, as proposed to be measured using marine species. Does the State Board anticipate that a discharger who is meeting the current 1.5 TUa effluent limitation (using freshwater species) might have more, or less, difficulty meeting 1.5 TUa (using marine species) under the proposed amendment? The FED seems to imply that the two limitations are expected to be equivalent; however, this may not be the case due to differing sensitivities of the species and life stages used in the standard tests. (22)

Response: Marine test species are more appropriate indicators of marine receiving water impacts which is why the proposed acute toxicity objective is more environmentally relevant. The question of whether a freshwater test species may be more sensitive to a toxicant in an effluent discharged into the Pacific Ocean is inappropriate because the freshwater test species would never survive in marine waters. The marine test

species, in contrast, would more closely estimate the response of indigenous species to the effluent in the receiving waters.

Staff agrees that marine species may respond differently to toxicants in whole effluent than freshwater species, yet this difference in sensitivity is not limited to the freshwater versus marine comparison. *Ceriodaphnia* (a freshwater cladoceran), for example, is much more sensitive to insecticides than the freshwater fish test species, the fathead minnow. A marine corollary is the comparison of *Holmesimysis costata* (a mysid shrimp) which is much more sensitive to insecticides than *Atherinops affinis* (a marine fish). For this reason, U.S.EPA and the SWRCB recommend that a screen of test species from different phyla be conducted to establish which test species is most sensitive to the whole effluent.

Staff has reviewed U.S.EPA's TSD for alternatives to the 40:1 or 1.5 TUa proposal for waste dischargers with lower dilution factors. U.S.EPA recommends the selection of chronic versus acute toxicity testing be determined by the dilution factor for each specific discharge, according to the criteria described on page 14.

Staff agrees with U.S.EPA's TSD recommendations (based on the dilution factor) for determining whether to use acute or chronic toxicity testing for a given ocean waste discharge. Staff have reviewed all of the dilution factors for the 93 permitted ocean dischargers in the State and have determined the highest dilution factors approach 250:1. These dilution factors are at the lower end of the dilution range (100:1 to 1000:1), where "chronic toxicity testing is preferable since the interim results in a chronic test provides data on acute toxicity as well" (U.S.EPA, 1991).

Staff recommends that chronic, rather than acute toxicity testing be conducted for ocean discharges with minimum initial dilutions in the range of 100:1 to 350:1. The RWQCBs may require that acute toxicity testing be conducted in addition to chronic testing for dilution values in this range if deemed necessary for the protection of beneficial uses of ocean waters.

Comment 1.33: We agree that the establishment of 0.3 TUa as a water quality objective for acute toxicity will likely be more protective overall than relying on the current technology-based effluent limit for acute toxicity; however, since the implementation procedures outlined in the DFED may result in less stringent effluent limits for some dischargers which could lower ambient water quality in some areas an antidegradation analysis of the proposed objective must be performed to ensure that the antidegradation requirements of 40 CFR 131(1)(2) are met. (22)

Response: Federal antidegradation requirements are contained in 40 C.F.R. §131.12. The regulation establishes a three-part test that applies to activities that lower water quality. The first tier requires that instream water uses be protected and maintained. The second tier applies where water quality is higher than necessary to protect instream uses. Under this tier, the state can allow a lowering of water quality, provided that instream uses are protected and that the state finds that the lowering "is necessary to accommodate important economic or social development" in the area. The third tier applies to outstanding national resource waters.

Federal antidegradation requirements are triggered by a lowering of water quality. It does not appear that the proposed replacement of the technology-based acute toxicity effluent limitations with an acute toxicity water quality objective will, in fact, result in a lowering of water quality. For further discussion of why the acute toxicity objective is more environmentally relevant, see response to Comment 1.16.

If, for the sake of argument, a water quality-based effluent limit for acute toxicity was less stringent than the previous Table A technology-based limits, SWRCB would not be required to perform an antidegradation analysis prior to adopting the proposed Ocean Plan amendment. EPA Region 9 has previously advised the state that "EPA Region IX and EPA Headquarters' current interpretation is that an antidegradation analysis

should be conducted during the most appropriate point in the process", i.e. at the water quality standard-setting stage or the permitting stage. Thus, "flexibility is available to states in deciding what is the most appropriate phase in which to conduct" the analysis. (Letter to Mr. Gerard Thibeault, Executive Officer, Santa Ana Regional Board, from Catherine Kuhlman, Acting Deputy Director, Water Management Division, dated October 21, 1992). We believe that, should an antidegradation analysis be required, it should more appropriately be done at the permitting stage.

In response to subsequent phone conversations and meetings with the commenter, staff will clarify the attainment analysis section of Issue 1 by (1) deleting the second and third paragraphs dealing with dilution factors of ocean outfalls and (2) adding TSD (U.S.EPA, 1991) recommendations for determining whether acute or chronic toxicity testing should be conducted based on the modelled dilution factor for each ocean discharge.

Comment 1.34: The proposed amendments should provide guidance regarding how a permitting authority should address the issue of anti-backsliding at the time of re-issuance of a permit. (22)

Response: The Clean Water Act's antibacksliding provisions would not apply. The relevant provisions are in Section 402(o)(1) of the Clean Water Act. The section prohibits, with certain exceptions, a permit issuer from replacing existing permit limits with less stringent limits in two types of cases. First, technology-based limits based on best professional judgment cannot be revised to reflect subsequently EPA-promulgated effluent limitation guidelines which are less stringent. Second, the Act prohibits backsliding from water quality-based effluent limitations. In this case, the SWRCB is proposing to replace technology-based acute toxicity limitations based on best professional judgment with, assuming reasonable potential, water quality-based limits. This approach is not subject to antibacksliding restrictions.

Comment 1.35: Page 17 of the DFED states that the USEPA "evaluated 496 effluent toxicity tests of both industrial and municipal sources with over 100 chemicals and species from several families (USEPA, 1991)". In the referenced Technical Support Document (USEPA, 1991, page 35) there is no mention of the number of chemicals nor species from several families. (22)

Response: The reference to the number of chemicals and test species from several families is U.S.EPA's Water Quality Guidance for the Great Lakes System: Supplementary Information Document (EPA-820-B-95-001) (p. 327). Staff has made the revisions for the reference and added that data from over 1200 effluent toxicity tests were collected, instead of 496 in determination of the numeric acute WET criterion.

Comment 1.36: On page 30, the definition of lethal concentration should also include the test type option of static/renewal techniques, along with the static or continuous flow toxicity test techniques. This is important when the potential toxicant(s) in the effluent may be volatile or adsorb to the exposure chambers. (22)

Response: U.S. EPA's fourth edition Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (USEPA, 1993) discusses in detail static (non-renewal or renewal) and flow through toxicity testing, and the test situations where either method is more appropriate. Since permitted ocean dischargers are required to use this manual for acute toxicity testing and RWQCB permit writers determine the type of acute test to conduct, staff believes the test type option should not be added to the definition of LC50 in the Ocean Plan.

Comment 1.37: On page 31, for the example of calculation of dilution series for testing: the 90 percent effluent concentration is too high for marine test species. For example, if the effluent has a salinity of 0-2 ppth and the test method requires a test salinity of 34 ppth, then the highest effluent concentration that can be tested is 67% effluent. (22)

Response: Staff disagrees that the 90 percent effluent concentration is too high for marine test species. *Menidia* and Topsmelt are two marine (fish) test species that can tolerate a wide salinity range of 5 to 36 ppth and can be tested in up to 100 percent effluent (adjusted for salinity). There are marine test species with much tighter salinity ranges (*Holmesimysis costata*, 34 $\pm$ 2ppth), yet the salinity of the effluent can be adjusted to these concentrations with the addition of dry sea salts (the highest effluent concentration that can be adjusted to 34 ppth salinity using hypersaline brine is 67 percent).

It should be noted that the proposed sample calculation and accompanying dilution series has been deleted from the draft FFED.

Comment 1.38: On page 32, the correct reference citation for the U.S.EPA Regions 9 and 10 Guidance is: Denton, D.L. and M. Narvaez. 1996. Regions 9 and 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs Final. (22)

Response: Comment noted. Staff has changed the citation

Comment 1.39: San Francisco supports the change from a technology-based to a water quality-based acute toxicity test. Adequate technology-based limits are already in place for wastewater treatment plants in the form of secondary treatment standards. Since toxicity testing is intended to directly protect the receiving water, it is appropriate to use a water quality-based test. The TUa value of 0.3 is appropriately based on EPA recommendations. We also support the use of marine species, where appropriate, for testing. All of these changes move the testing process toward a closer approximation of the environment we are trying to protect.

We have the following additional comments:

Acute vs. chronic testing - The NPDES permits will include limits and testing for both acute and chronic toxicity. The Ocean Plan should explicitly allow permittees to limit their testing to the more restrictive limit (i.e., more sensitive test). This will save funds, is equally protective, and is supported by EPA. The document should indicate the time necessary to establish which test is the more sensitive (e.g., one year). (15)

Response: Staff has utilized the argument provided in Chapter 3 "Effluent Characterization" (page 59) of the TSD for selecting the appropriate test method. This method utilizes both dilution factor and test sensitivity based upon EPA studies.

Staff has reviewed the major discharger dilution factors in the State and have determined the highest dilution factors approach 250:1. These dilution factors are at the lower end of the dilution range (100:1 to 1000:1), where "chronic toxicity testing is preferable since the interim results in a chronic test gives data on acute toxicity as well"(U.S.EPA, 1991).

Critical life stage tests are more sensitive indicators of receiving water impacts than acute toxicity tests. Critical life stage tests and the initial dilution zone are intended to protect the ecology of the receiving water; in contrast, the acute mixing zone is intended to prevent lethality to passing organisms (U.S.EPA, 1991). Therefore, a comparison of sensitivity between acute and chronic toxicity test results is unnecessary because test organisms used in critical life stage toxicity tests have more sensitive life stages and endpoints than species used in acute toxicity tests. Consequently, staff recommends that chronic, rather than acute, toxicity testing be conducted for ocean discharges with minimum initial dilution factors less than 350:1. This is also consistent with U.S.EPA recommendations in the TSD (U.S.EPA, 1991).

Comment 1.40: 1) Dischargers should have the option of determining Dm (minimum probable initial dilution) on the basis of actual dilution studies (e.g., tracer studies using dye); 2) To promote statewide consistency, the SWRCB should provide guidance on the appropriate models and default assumptions for

calculating Dm when studies are not available. 3) Discharge and oceanographic characteristics affect the calculation of initial dilution: waste flow characteristics, tides, density structure, etc. It is appropriate to use conservative assumptions for this calculation. EPA recommends: "The 10th percentile value from the cumulative frequency of each parameter should be used to define the period of minimal dilution." The Ocean Plan approach (e.g. page 30) is to assume no currents, which is unnecessarily restrictive. In addition, the EPA 10th percentile approach should be referenced for the other parameters. (15)

Response: A review of the approaches used to evaluate the initial dilution zone for ocean waste discharges is not under consideration in the current round of proposed Ocean Plan amendments. Staff, however, may review this issue at a later time.

Summary of Changes Resulting from Comments

The following proposed changes have been made to this issue since the October 1998 Draft FED

1. Deleted the requirement for dischargers having initial minimal dilutions (Dm) of less than or equal to 40 to use a Dm of 40 in the acute toxicity objective calculation.
2. Added statement describing when chronic or acute toxicity testing will be performed based on discharger dilution (Dm).
3. Deleted the sample calculation and dilution series from the proposed Ocean Plan Amendment.
4. Retained the definition of acute toxicity present in the 1997 Ocean Plan and added that the test shall be performed on marine test species.
5. Added that acute toxicity measurements of power plant dischargers are to be measured in the combined final effluent as adjusted for ocean water dilution.
6. Changed the reference for acute toxicity testing to U.S. EPA's Fourth Edition Methods (U.S. EPA, 1993b).

Alternatives for Board Actions and Staff Recommendations

1) Make no change in the ATEL listed in Table A of the California Ocean Plan.

This alternative would maintain the current technology-based effluent limitation.

2) Delete the ATEL from Table A of the Ocean Plan.

This alternative would delete the acute toxicity component of waste discharge limitations for permitted ocean dischargers. The chronic toxicity water quality objective in Table B would be the primary estimate of aquatic community responses to ocean waste discharges.

3) Replace the ATEL with an acute water quality objective.

This alternative will require the adoption of an acute mixing zone for acute toxicity testing. The acute mixing zone would be smaller than that allowed for chronic toxicity testing and would be determined on a site specific basis. The revisions would require: (a) deleting the ATEL from Table A , Effluent Limitations, (b) adding an acute toxicity water quality objective (TUa value of 0.3) to Table B, (c) excepting the acute toxicity objective from the equation used to calculate effluent concentration limitations, (d) adding an effluent limit concentration equation for the acute toxicity objective, (e) adding a section for determining an acute mixing zone for the acute toxicity objective and (f) adding a section describing whether acute and/or chronic testing would be required based on the initial dilution factor.

Staff Recommendation: Adopt Alternative 3

Environmental Impact Analyses

There would be no significant adverse environmental impacts associated with the proposed amendment to revise the ATEL from a technology-based limitation to a water quality-based acute toxicity objective. Proposed adoption of a 0.3 TUa was evaluated and determined by the SWRCB to represent a less than significant environmental impact. The basis for this determination are the results of a multiyear study that included more than 1,200 toxicity tests using 100+ chemicals and numerous aquatic species. The testing indicated that the revised standard will provide a more appropriate assessment of future impacts, but will not allow deterioration of current conditions. The amendment also provides for an acute mixing zone which would encompass ten percent of the existing zone of initial dilution or chronic mixing zone. The acute zone is a limited region that is typically repulsive to marine life due to the differences between the marine waters and the effluent. These differences can include low salinity, higher temperature and presence of ammonia or chlorine and other quickly degraded compounds. These differences represent existing conditions and the adoption of an acute zone will not change or cause further degradation within this limited area.

Since the proposed amendment is attainable by existing waste dischargers using existing waste treatment technology, it would not be necessary to upgrade existing facilities. Thus, the proposed amendment would not result in land-use changes or construction impacts. Because the changes will not substantively alter laboratory methods and procedures, the amendment is not expected to create hazards to health and safety. The proposed changes specified in this issue will serve to better protect ocean waters for identified beneficial uses because the new water quality-based acute toxicity objective will more accurately assess aquatic community responses to ocean waste discharges. Since no significant adverse effects are expected, mitigation measures are not proposed. In addition, the proposed water quality objective has broader applicability than the acute toxicity effluent limitations.

Compliance With Section 13241 Of The California Water Code

Section 13241 of the CWC requires that the following factors be considered when new or revised water quality objectives are proposed:

Past, present, and probable future beneficial uses of water.

The recommendations proposed by SWRCB staff for replacing the technology-based ATEL with water quality-based acute toxicity objective in alternative 3 will provide a more accurate estimate of ecologically significant acute effects of ocean discharges. Diluting the effluent with sea water will allow for the use of marine test species which are more appropriate for ocean waste discharges. Marine test species' responses to the effluent are more indicative of the receiving water impacts and would therefore be protective of the current and future beneficial uses.

Environmental characteristics of the hydrographic unit under consideration, including the quality of water thereto.

The proposed objective, if adopted, would be used to monitor the toxicity of the discharge to the ocean in the vicinity of the discharge. Each waste discharge permit is issued with consideration to the specifics of the hydrogeographic area receiving the discharge. This objective is expected to result in a better assessment of the impacts to water quality than is performed under the current effluent limitation.

Water quality conditions that could reasonably be achieved through the coordinated control of all the factors which affect water quality in the area;

This proposed issue is not expected to adversely impact water quality.
Economic Considerations.

No change in current wastewater treatment will be needed to meet the proposed acute toxicity objective.

The dilution allowance for the proposed acute toxicity water quality objective (for dischargers with minimum initial dilution factors ranging from 100:1 to 350:1) will result in calculated TUa values which are higher than the 1.5, 2.0. 2.5 TUa effluent limitation values currently listed in Table A of the Ocean Plan. These higher values are attainable but are also more realistic indicators of receiving water impacts. In contrast, the TUa values in Table A of the Ocean Plan were never intended to measure acute toxicity impacts in the receiving water. They were intended as a measure of wastewater treatment plant performance. And, unlike the continued modification and improvement of acute toxicity test methods, the acute effluent limitation has remained unchanged since its adoption in the early 1970's.

By adopting the U.S. EPA's approach (U.S. EPA, 1991) to determining whether acute or chronic toxicity tests should be conducted, the use of acute toxicity tests by ocean dischargers holding waste discharge requirements would not be anticipated unless specifically required by a RWQCB in a Waste Discharge Requirement.

Compliance with the chronic toxicity objective in Table B of the California Ocean Plan is attainable for all permitted ocean dischargers based on past chronic toxicity test data obtained from dischargers who are already required to perform this test.

The following table summarizes a survey of private consulting laboratories and waste discharging facilities performed to determine if the costs of conducting toxicity tests will increase by adding a dilution (determined by the size of the acute mixing zone) to the toxicity testing regime. Currently, acute toxicity tests are conducted with 100% effluent using freshwater protocols for freshwater effluent.

Table 1: Cost comparison of conducting acute toxicity tests without dilution (100 percent effluent) versus with dilution.

	Number of Respondents	Cost Increase for dilution allowance?
Private Consulting Laboratories	2	No
Waste Discharging Facilities	6	5 No, 1 Yes*

*The City of San Francisco conducts flow-through instead of static renewal acute toxicity tests. If they were required to dilute the 100 percent (%) effluent for toxicity testing purposes, a dilutor may have to be purchased for a one-time cost of approximately $5,000.00 to $10,000.00.

Currently, the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) requires all larger permitted dischargers (greater than 1 million gallons per day) to conduct flow-through acute toxicity tests.

SFBRWQCB is, however, considering a proposal to amend the acute toxicity test requirements in their Basin Plan because of the more rigorous (younger life stage test organisms, etc.) test requirements required by the U.S. EPA in their fourth edition acute toxicity testing manual.

The need for developing housing within the region.
Because no change in wastewater treatment is anticipated to meet the acute toxicity water quality objective, adoption of this issue should not have either a direct or indirect impact on the development of new housing.

The need to develop and use recycled water.
Since the proposed objectives will be attainable using current waste water treatment technology, the proposed objective will not limit expanded use of recycled water.

Proposed Ocean Plan Amendment

Presented below are the proposed changes to the 1997 Ocean plan that will result if *only* the changes proposed in Issue 1 are approved. Presented in Appendix B are the *combined* changes to the 1997 Ocean Plan that will occur if this amendment and the five other proposed amendments are also approved. The organization of the text presented below differs significantly from that presented in Appendix B due to the format change associated with Issue 4 and the addition of several sections and corresponding text from the other proposed amendments. For example, within the 1997 Ocean Plan, Tables A and B are presented in Chapter IV, Quality Requirements for Waste Discharges. Within Appendix B of this Document, Table A is located in Chapter III, Program of Implementation and Table B, is located in Chapter II, Water Quality Objectives.

1. Chapter IV, Table A Effluent limitations, page 7, delete the current Acute Toxicity Effluent Limitation:

~~Acute* Toxicity TUa 1.5 2.0 2.5~~

2. Chapter IV, TABLE B, WATER QUALITY OBJECTIVES, page 8, add an acute toxicity objective:

Chronic* Toxicity	TUc	1
Acute* Toxicity	TUa	0.3

3. Chapter IV, Implementation Provisions for Table B , A. Calculation of Effluent Limitations, page 11, add an equation for determining the effluent limitation for the acute toxicity objective:

a. Effluent limitations for water quality objectives listed in Table B, with the exception of radioactivity and the acute toxicity objective, shall be determined through the use of the following equation:

Equation 1: $Ce = Co + Dm (Co-Cs)$

Where:

Ce = the effluent concentration limit, (ug/l)
Co = the concentration (water quality objective) to be met at the completion of initial* dilution,
Cs = background seawater concentration (see Table C below),
Dm = minimum probable initial* dilution expressed as parts seawater per wastewater.

The effluent limitation for the acute toxicity objective listed in Table B shall be determined through the use of the following equation:

Equation 2 Ce = Ca + (0.1) Dm (Ca)
where:
Ce = the effluent concentration limit, (TUa)
Ca = the concentration (water quality objective) to be met at the edge of the acute mixing zone
Dm = minimum probable initial* dilution expressed as parts seawater per wastewater

4. Chapter IV, A. Calculation of Effluent Limitations, page 11, add a section on the determination of an acute mixing zone:

b.Determining a Mixing Zone for the Acute Toxicity Objective
The mixing zone for the acute toxicity objective shall be ten percent (10%) of the distance from the edge of the outfall structure to the edge of the initial dilution zone. There is no vertical limitation on this zone.

5. Chapter IV, Implementation Provisions for Table B , page 11, add the Technical Support Document (U.S.EPA, 1991) recommendations for determining whether acute or chronic toxicity testing is required for a given ocean discharge based on the dilution factor for the outfall.

Toxicity Testing Requirements based on the Minimum Initial Dilution Factor for Ocean Waste Discharges

Dischargers shall conduct **acute** toxicity testing if the minimum initial dilution of the effluent is greater than 1000:1 at the edge of the mixing zone.

Dischargers shall conduct either **acute** or **chronic** toxicity testing if the minimum initial dilution ranges from 350:1 to 1000 and will be dependent on the specific discharge conditions. The Regional Board shall make this determination

Dischargers shall conduct **chronic** toxicity testing for ocean waste discharges with minimum initial dilution factors ranging from 100:1 to 350:1. The Regional Boards may require that acute toxicity testing be conducted in addition to chronic as necessary for the protection of beneficial uses of ocean waters.

Dischargers shall conduct **chronic** toxicity testing if the minimum initial dilution of the effluent falls below 100:1 at the edge of the mixing zone.

6. Chapter IV, A. Calculation of Mass Emissions Rate Limits, page 12, equation (2) will be designated equation (3):

Equation 3: lbs/day = 8.34 x Ce x Q

7. Chapter IV, Implementation Provisions for Table B, page 13, Revise paragraph 4 of page 13 to read as follows:

Due to the large total volume of powerplant and other heat exchange discharges, special procedures must be applied for determining compliance with Table B objectives on a routine basis. Effluent concentration values (Ce) shall be determined through the use of equation 1 considering the minimal probable initial* dilution of the combined effluent (in-plant waste streams plus cooling water flow). These concentration values shall then be converted to mass emission limitations as indicated in equation 3. The mass emission limits will then serve as requirements applied to all inplant waste* streams taken together which discharge into the cooling water flow, except that limits

for total chlorine residual, acute* and chronic* toxicity and instantaneous maximum concentrations in Table B shall apply to, and be measured in, the combined final effluent, as adjusted for dilution with ocean water. The Table B objective for radioactivity shall apply to the undiluted combined final effluent.

8. Appendix 1, DEFINITION OF TERMS , ACUTE TOXICITY, page 18, revise the definition for acute toxicity by specifying that toxicity shall be measured using marine test species.

ACUTE TOXICITY

b. Lethal Concentration 50% (LC50)

LC50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard marine test species. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC50 may be determined after the test samples are adjusted to remove the influence of those substances.

When is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$TUa = \frac{Log(100-S)}{1.7}$$

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

9.Appendix II, Chapter IV., Compliance with Toxicity Limitations and Objectives:, page 23, delete the first paragraph and add the following text:

~~Compliance with the acute toxicity limitation (TUa) in Table A shall be determined using an established protocal, e.g., American Society for Testing Materials (ASTM) EPA, American Public Health Association or State Board.~~

Compliance with the acute toxicity objective (TUa) in Table B shall be determined using marine test species listed in U.S.EPA's Fourth Edition Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (EPA/600/4-90/027F).

ISSUE 2: REVISION OF WATER QUALITY OBJECTIVES FOR THE PROTECTION OF HUMAN HEALTH IN TABLE B

Present Ocean Plan

Table B of the 1997 Ocean Plan contains numeric water quality objectives for the protection of marine aquatic life and for the protection of human health. These water quality objectives apply to all discharges within the jurisdiction of the Plan. Permit effluent limitations are derived using Table B objectives, background seawater concentrations, and the minimum initial dilution of the waste discharge.

Issue Description

The Clean Water Act (CWA, Section 303(c)(2)(B)) requires States to adopt numeric criteria for toxic pollutants which could impair designated uses and for which U.S. EPA has developed criteria guidance under Section 304(a). CWA Section 304(a) requires the U.S. EPA to develop and publish criteria guidance for water quality criteria that accurately reflects the latest scientific knowledge. In California, water quality objectives are equivalent to CWA Section 303 criteria.

In June 1990, the U.S. EPA Regional Administrator approved the 1990 California Ocean Plan. The 1990 Ocean plan added numeric water quality objectives to Table B for the protection of human health from the consumption of contaminated seafood. The water quality objectives added at this time were priority pollutants for which Section 304(a) criteria guidance were available.

The development of water quality objectives, however, is an ongoing process. New scientific data describing the effects of pollutants on aquatic life and human health are constantly being developed. In approving the 1990 Ocean Plan, the U.S. EPA Regional Administrator (U.S.EPA 1990) recommended that the SWRCB re-evaluate nine objectives during the next Ocean Plan triennial review to ensure consistency with current scientific information (Table 2).

Table 2. Reproduction of the U.S. EPA Administrator's list of objectives requiring re-evaluation (U.S. EPA 1990). The original title read: "We recommend that the objectives for the toxic pollutants listed here be re-evaluated in the next triennial review to ensure consistency with current scientific information."

Priority Pollutant	U.S. EPA Gold Book (ug/L)	Ocean Plan, 1990 (ug/L)
Dichlorobenzenes	2600.	5100.
1,1-dichloroethylene	1.85	7100.
Heptachlor (including heptachlor epoxide)	0.00029	0.00072
N-nitrosodi-N-propylamine	1.24	none
1,1,2,2-tetrachloroethane	10.7	1200.
Tetrachloroethylene	8.85	99.
1,1,1-trichloroethane	1030.	540000.
1,1,2-trichloroethane	41.8	43000.

The Ocean Plan objectives listed in the above table were selected for re-evaluation by the U.S. EPA Administrator because these objectives exceeded the water quality criteria guidance levels found in the U.S. EPA Gold Book (U.S. EPA 1986) or the Gold Book update (U.S. EPA 1987). The current Ocean Plan Table B list does not contain a water quality objective for N-nitrosodi-N-propylamine.

Since approving the 1990 Ocean Plan, however, U.S. EPA has periodically updated their CWA Section 304(a) criteria guidance. The National Toxics Rule (NTR, U.S. EPA 1992) promulgated water quality criteria for 126 priority pollutants for States that were not in compliance with CWA Section 303(c)(2)(B). More recently, U.S. EPA established numeric criteria under the California Toxic Rule (CTR) for non-ocean waters (U.S. EPA 2000). Additionally, U.S. EPA Region VIII established a CWA 304(a) Numeric Criteria Chart on July 14, 1993 (U.S. EPA 1993a). This chart was updated April 1, 1997 (U.S. EPA 1997). The criteria contained in these charts (although very similar to NTR criteria) were derived using the most current scientific information at that time.

In addition to the objectives identified for re-evaluation by U.S. EPA, SWRCB staff compared existing Ocean Plan objectives with criteria listed in both the NTR and the CTR. Five existing Ocean Plan human health objectives were found to exceed the NTR criteria. These same five human health objectives also exceeded the CTR criteria.

Based on this comparison, SWRCB staff decided to re-evaluate a total of 14 water quality objectives for the protection of human health (nine objectives recommended by U.S. EPA plus five that exceed NTR and CTR criteria) (Table 3). Four of the 14 pollutants were formerly regulated as non-carcinogens in Table B of the Ocean Plan: 1,1-dichloroethylene, isophorone, 1,1,2,2-tetrachloroethane, and 1,1,2-trichloroethane.

Table 3 includes individual compounds that are currently regulated as chemical groups in the Ocean Plan. These chemical groups are enumerated in Issue 3 under the section “Compliance determination of pollutants regulated as chemical groups.” “Heptachlor” is currently defined in the Ocean Plan as the sum of heptachlor and heptachlor epoxide. “Halomethanes” are defined as the sum of bromoform, bromomethane, chloromethane, chlorodibromomethane, and dichlorobromomethane. Once a water quality objective is established for a chemical now regulated as part of a chemical group, the Ocean Plan definition must be modified.

Table 3. State water quality objectives selected for re-evaluation. These Ocean Plan objectives exceed U.S. EPA water quality criteria for the protection of human health.

Chemical Name	Ocean Plan Chemical Group	CAS Number	Human Health Criteria & Objectives (ug/L)			Notes
			Gold Book Criteria (U.S. EPA 1987)	Existing CA Ocean Plan Objective (SWRCB 1990)	Nat. Toxics Rule Criteria (U.S. EPA 1992)	
1. Chlorodibromomethane	halomethanes	124-48-1	none	130.	34.	b
2. 1,3-dichlorobenzene	dichlorobenzenes	541-73-1	2,600.	5,100.	2,600.	a, b
3. Dichlorobromomethane	halomethanes	75-27-4	15.7	130.	22.	b, c
4. 1,2-dichloroethane		107-06-2	243.	130.	99.	b
5. 1,1-dichloroethylene		75-35-4	1.85	7,100.	3.2	a, b
6. Heptachlor	heptachlor	76-44-8	0.00029	0.00072	0.00021	a, b
7. Heptachlor epoxide	heptachlor	1024-57-3	0.00029	0.00072	0.00011	a, b
8. Isophorone		78-59-1	520,000.	150,000.	600.	b, d
9. N- nitrosodi-N-propylamine		621-64-7	1.24	None	1.4	a
10. 1,1,2,2-tetrachloroethane		97-34-5	10.7	1,200.	11.	a, b
11. Tetrachloroethylene		127-18-4	8.85	99.	8.85	a, b
12. Thallium		7440-28-0	48.	14.	6.3	b
13. 1,1,1-trichloroethane		71-55-6	1,030.	540,000.	none	a
14. 1,1,2-trichloroethane		79-00-5	41.8	43,000.	42.	a, b

a = Chemical identified in 1990 by U.S. EPA for reevaluation
b = Ocean plan objective exceeds National Toxics Rule criteria
c = CA Toxics Rule criterion for dichlorobromomethane is 46 ug/L (U.S. EPA 2000)
d = U.S. EPA Region VIII 304(a) criterion for isophorone is 2600 ug/L (U.S. EPA 1997)

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SWRCB staff used the U.S. EPA methodology for calculating water quality criteria for the protection of human health (U.S. EPA 1980a, U.S. EPA 1994a). The goal of this methodology is to estimate ambient water concentrations that do not represent a significant risk to the public. Assumptions related to this methodology were previously described in the 1990 Ocean Plan FED (SWRCB 1990).

Essentially, this method estimates a protective water concentration (objective) for a pollutant of concern by considering three areas:

- toxicological evaluation of the pollutant,
- human exposure to the pollutant, and
- bioconcentration potential of the pollutant.

Toxicological Evaluation of the Pollutant

The toxicological evaluation of a pollutant incorporates two steps. First, the health hazards associated with the pollutants are identified. This includes an examination of the types of health effects that can be caused by exposure to the chemical (e.g., reduced organ weights, tumor formation, or impaired nervous system). Next, the levels of exposure required to produce these health effects are measured in animal toxicity tests (i.e., dose-response studies). Two toxicological measurements of the pollutant are useful in calculating water quality objectives: the reference dose (RfD) and the cancer potency factor (CPF).

The RfD is an estimate of a daily exposure to humans that is likely to be without deleterious, non-carcinogenic effects during a lifetime. RfDs were obtained from U.S. EPAs Integrated Risk Information System (IRIS) database (Office of Health and Environmental Assessment). The IRIS database contains up-to-date, scientifically-defensible values for toxicological effects of pollutants.

The CPF (also called q_1* or cancer slope factor) is a measure of the probability of a pollutant to induce cancer at low doses. CPFs are conservative, upper 95% confidence limits of risk associated with the pollutant. The "actual" risk from exposure to the pollutant may be lower or even zero; however, it is unlikely that the actual risk is higher than the risk predicted by the CPF. To calculate objectives for carcinogenic pollutants, the CPFs were obtained from the IRIS database and from Cal/EPA's Standards and Criteria Workgroup *Criteria for Carcinogens* list (Cal/EPA 1994), if present. When CPFs were obtained from both Cal/EPA and IRIS, the Cal/EPA value was used to maintain consistency with other California regulatory programs that conduct carcinogen risk assessments.

Human Exposure to the Pollutant

General Exposure Assumptions. Chronic human exposure to the pollutant was assumed to be primarily from ingestion of contaminated seafood over a 70 year lifetime. Seafood includes fish, shellfish, or other marine resources used for human consumption. Other routes of exposure such as recreational and occupational contact or drinking water intake are not considered for saline water quality objectives. SWRCB staff used the default U.S. EPA human body weight value of 70 kg.

Seafood Consumption Rate. The U.S. EPA consumption rate for fish and shellfish obtained from estuarine and freshwaters (6.5 g/day) was not used in the calculations. Rather, a higher seafood consumption rate of 23 g/day was used based on a recommendation from the California Department of Health Services (DHS 1989) during the 1990 Ocean Plan triennial review. SWRCB staff determined that the 23 g/day seafood consumption rate is consistent with a recent median California seafood consumption estimate provided by OEHHA (1997) of 21 grams per day (g/day).

Cancer Risk Level. Deriving objectives for carcinogens requires the selection of an acceptable risk level (RL). The selected RL is separate from and additive to the naturally occurring cancer risk level. Maximum protection of human health (i.e., absence of all increased carcinogenic risks) would require a

water quality objective of zero for carcinogenic pollutants. However, a publicly acceptable level of safety does not require the absence of all risks. RL is defined as the number of new cancers that may result in a population of specified size due to an increase in pollutant exposure.

Selection of an appropriate risk level is, essentially, a policy decision. Risk levels of 10^{-5}, 10^{-6}, and 10^{-7} are often used by other States in developing their objectives. The NTR carcinogen criteria were calculated at the 10^{-6} risk level. Moreover, the water quality objectives in the present Ocean Plan were adopted at the 10^{-6} risk level. For the current evaluation, SWRCB staff calculated water quality objectives using risk levels of 10^{-5} (one excess cancer per 100,000 persons) and 10^{-6} (one excess cancer per million persons).

Bioconcentration Potential of the Pollutant

The bioconcentration factor (BCF) is used to relate pollutant residues in aquatic organisms to the ambient pollutant concentration where the organism resides. BCF is defined as the ratio of the pollutant concentrations in fish tissue versus the pollutant concentration in water. All BCFs used in the re-evaluated water quality objectives were obtained from the U.S. EPA Region VIII 304(a) criteria chart (U.S. EPA 1993a). This criteria chart is a convenient summary of the bioconcentration factors that were developed by U.S.EPA in the original chemical-specific Ambient Water Quality Criteria Documents. Of the twelve pollutants being revised, U.S.EPA established BCFs for six pollutants by direct measurements of edible fish tissue pollutant concentrations and ambient pollutant concentrations. Three BCFs were estimated, by U.S.EPA, from laboratory measurements of the water/octanol partition coefficient of the pollutant and using the structure-activity relationships described by Veith (1979). Three of the BCFs were estimated based on the measured BCF of a structurally similar pollutant.

Many of the compounds in Table 3 are volatile or semi-volatile. Because of this, a major fraction of the pollutant would be expected to volatilize into the atmosphere from the water surface before being absorbed by aquatic organisms. The magnitude of the BCF will account for the potential of the pollutant to be absorbed by aquatic organisms. In general, highly volatile compounds have low BCFs.

Formulae used to calculate water quality objectives

The equation for deriving water quality objectives for pollutants having **Non-Carcinogenic** effects is,

$$WQO = \frac{(RfD)(BWT)}{(FCR)(BCF)}$$

Where:

WQO = Water Quality Objective in mg of toxicant per liter of ambient water, (mg/L);

RfD = Reference Dose for a chronic oral exposure in mg toxicant per kg of human body weight per day, (mg/kg/day);

BWT = Body Weight in kg of an average adult human, (kg). A value of 70 kg was used in all calculations;

FCR = Fish and Shellfish Consumption Rate in kg fish and shellfish per day, (kg/day). A value of 0.023 kg/day was used in all calculations;

BCF = Bioconcentration Factor in mg toxicant per kg fish divided by mg toxicant per liter of ambient water, (L/kg).

The equation for deriving water quality objectives for pollutants having **Carcinogenic** effects is,

$$WQO = \frac{(RL)(BWT)}{(CPF)(FCR)(BCF)}$$

Where:

WQO = Water Quality Objective in mg of toxicant per liter of ambient water, (mg/L);

RL = Cancer Risk Level is the number of new cancers resulting from an increase in toxicant exposure within a population of specified size. WQOs were calculated using RLs of both 10^{-5} and 10^{-6};

BWT = Body Weight in kg of an average adult human, (kg). A value of 70 kg was used in all calculations;

CPF = Cancer Potency Factor in units of cancer development probability (a unitless number) per mg toxicant per kg body weight per day. Often expressed as $(mg/kg/day)^{-1}$;

FCR = Fish and Shellfish Consumption Rate in kg seafood consumed per day, (kg/d). A value of 0.023 kg/d was used in all calculations;

BCF = Bioconcentration Factor in mg toxicant per kg fish divided by mg toxicant per liter of ambient water, (L/kg).

Proposed Water Quality Objectives

SWRCB staff calculated new proposed water quality objectives using two cancer risk levels: 10^{-5} and 10^{-6} (Table 4). Of the 14 pollutants being re-evaluated, two pollutants (1,3-dichlorobenzene and 1,1,1-trichloroethane) lacked sufficient information needed to revise water quality objectives at this time. Therefore, we propose new water quality objectives for 12 pollutants.

All of the 12 proposed Ocean Plan objectives calculated at the 10^{-6} risk level are lower than the comparable NTR values except for isophorone. This is because the current CPF for isophorone in the IRIS database is higher than the CPF value used to develop the NTR criteria.

Table 4. Risk assessment information and the resulting proposed Ocean Plan objectives. Shaded boxes indicate risk assessment values that were used in the calculation of new Ocean Plan objectives. Proposed objectives for chemicals in Carcinogen Category "D" do not change with different risk levels. "n/a" indicates data not available.

Chemical Name	Carcinogen Category[1] IRIS 1997	Cancer Potency Factor, Oral (mg/kg/day)$^{-1}$ Cal/EPA 1994	Cancer Potency Factor, Oral (mg/kg/day)$^{-1}$ IRIS 1997	Reference Dose, Oral (mg/kg/day) IRIS 1997	Bioconcentration Factor (L/kg) U.S. EPA 1993	Proposed Ocean Plan Objective (ug/L) 10^{-6} Risk Level for Carcinogens	Proposed Ocean Plan Objective (ug/L) 10^{-5} Risk Level for Carcinogens
1. Chlorodibromomethane	C	0.094	0.084	0.02	3.75	8.6	86.
2. 1,3-dichlorobenzene	D	n/a	n/a	n/a	55.6	no change	no change
3. Dichlorobromomethane	B2	0.13	0.062	0.02	3.75	6.2	62.
4. 1,2-dichloroethane	B2	0.07 (inhalation)	0.091	n/a	1.2	28.	280.
5. 1,1-dichloroethylene	C	n/a	0.6	0.009	5.6	0.9	9.
6. Heptachlor	B2	5.7	4.5	0.0005	11200.	0.00005	0.0005
7. heptachlor epoxide	B2	13.	9.1	0.000013	11200.	0.00002	0.0002
8. Isophorone	C	n/a	0.00095	0.2	4.38	730.	7,300.
9. N- nitrosodi-N-propylamine	B2	7.0	7.0	n/a	1.13	0.38	3.8
10. 1,1,2,2-tetrachloroethane	C	0.27	0.20	n/a	5.0	2.3	23.
11. Tetrachloroethylene	n/a (formerly C)	0.051	n/a, (formerly 0.0398)	0.01	30.6	2.0	20.
12. Thallium[2]	D	n/a	n/a	0.00008	116.	2.	2.
13. 1,1,1-trichloroethane	D	n/a	n/a	n/a (withdrawn 8/91)	5.6	no change	no change
14. 1,1,2-trichloroethane	C	0.072	0.057	0.004	4.5	9.4	94.

[1] U.S. EPA Carcinogen Categories: A = human carcinogen, B1 & B2 = probable human carcinogen, C = possible human carcinogen, D = not classifiable as to human carcinogenicity. Chemicals classified by U.S. EPA as carcinogens for an oral exposure include category A, B1, B2, and C (U.S. EPA 1997).

[2] Carcinogen Category and Reference Dose are for Thallium (I) Sulfate, CAS # 7446-18-6

Peer Reviewer Comments

Peer reviewer Dr. David Sedlak commented that:

(1) dischargers who chlorinate their effluent may have difficulty in meeting the lowered water quality objectives for chlorodibromomethane and dichlorobromomethane, and

(2) failure to consider volatilization may overestimate the risks associated with the discharge of volatile compounds.

No changes to the document were made in response to (1) above because most ocean dischargers do not chlorinate their final effluent. For (2) a paragraph was added to explain that the magnitude of the bioconcentration factor will account for volatilization losses.

Public Comments and Board Staff Response

Comments on the Derivation of Water Quality Objectives

Comment 2.1: Do not revise objectives at this time because the methodology includes several conservative assumptions. Cannot support a conservative approach simply because the resulting objectives are more "protective." Overly stringent standards are not cost-free and do not necessarily achieve the well-intentioned goals they seek. (6, 21, 23)

Response: The SWRCB is interested in developing water quality objectives that are both reasonable and protective. SWRCB staff believe that the methodology is reasonable and meets the goals of the Clean Water Act.

The human health objective methodology used in the Draft FED was developed in the early 1980s by U.S. EPA scientists in consultation with non-U.S. EPA scientists. This effort was first described in the November 28, 1980 Federal Register 45 (231) 79318 - 79379, Notice of Water Quality Criteria Documents -- Appendix C -- *Guidelines and Methodology Used in the Preparation of Health Effects Assessment Chapters of the Consent Decree Water Quality Criteria Documents*.

The goal of this methodology is to estimate water concentrations of a pollutant that do not pose a significant risk to the public using scientifically-defensible procedures. This methodology was developed to provide protection of all surface waters on a national basis and was subject to public review and review by U.S. EPA's Science Advisory Board. In addition, U.S. EPA used this methodology to develop criteria in both the National Toxics Rule and in the California Toxics Rule.

Most of the variables used in this methodology are estimates of *central tendency* rather than conservative estimates from either tail of a frequency distribution. SWRCB staff calculated all of the proposed objectives using central tendency estimates for human body weight (average value 70 kg), California fish consumption rate (average value 23 g/day), and chemical-specific bioconcentration factors (geometric means or point estimates used). For non-carcinogens, the reference dose may or may not be conservative depending on the amount of toxicological data available. Reference doses become smaller, and thus more conservative, to account for uncertainties in data (e.g., extrapolation from animal data to humans, extrapolation from a minimum database to a complete data base). For carcinogens, the cancer potency factor, as described earlier, is a conservative, upper 95% estimate.

The overall methodology is not intended to be highly conservative. Conservative estimates for reference doses and cancer potency factors imply that uncertainties exist in the pollutant data base. However, the methodology requires a minimum database for establishing reference doses and cancer potency factors.

U.S. EPA does not calculate water quality criteria for pollutants having an inadequate toxicological data base.

SWRCB staff acknowledge that the existing 1980 human health criteria methodology is a simple way of modeling complex environmental systems. In 1998, U.S. EPA published a draft methodology revision for developing numeric water quality criteria for the protection of human health (63 FR 43756). This revision includes some refinements of the methodology for selecting a reference dose or cancer potency factor. Until this revision is made final, SWRCB staff believe that the 12 proposed objectives calculated under the 1980 guidelines are reasonable and protective, but not overly-stringent.

Comment 2.2: SWRCB failed to show that there is a presence of these toxic pollutants in the affected waters which could reasonably be expected to interfere with designated uses as required by Section 303 (c)(2)(B) of the Clean Water Act. The first step in setting water quality objectives should be to determine if the levels of compounds in ambient water or fish tissue indicate a need for concern, and thus if water quality objectives need to be established or revised. (6, 21)

Response: Section 303 (c)(2)(B) of the Clean Water Act is concerned with adopting new or revised standards. States are required, under this section, to adopt criteria for all toxic pollutants that have published criteria and for which the discharge or presence of in affected waters could reasonably be expected to interfere with designated uses. This section does not require States to show that there is a presence of toxic pollutants before criteria are developed. Neither does this section require States to show that the pollutants are exceeding "levels of concern" prior to establishing criteria. Water quality criteria will serve to define "levels of concern."

U.S. EPA responded to a similar comment in 1980 (45 FR 79369): "criteria can be developed for any compound on which sufficient information is available. By definition, criteria are independent of persistence or current levels of exposure." SWRCB staff agree.

In contrast to establishing statewide water quality objectives, the first step in setting *effluent limitations* may involve an examination of ambient water concentrations. State numeric water quality objectives are translated into discharge-specific NPDES permit limitations. In California, effluent limitations are set after the RWQCB makes a determination that the discharge has the "reasonable potential" to exceed the statewide objective. It is important to note the distinction between deriving water quality objectives and deriving effluent limitations. Establishing or revising water quality objectives does not necessarily mean that all dischargers will be given an effluent limitation for that objective.

Comment 2.3: Several U.S. EPA priority pollutants and pesticides are not included in the present Ocean Plan list. SWRCB should develop objectives for these compounds. (12)

Response: The list of priority pollutants referred to in the comment (40 CFR 423), containing 129 compounds, is an older list. The Draft FED used the list of 126 compounds in the 1993 National Toxics Rule (57 FR 60853) to identify pollutants needing new or revised objectives in the Ocean Plan. The current list of proposed objectives represents pollutants that have higher Ocean Plan objectives than National Toxics Rule criteria for human heath, organism consumption. If the current list of proposed objectives is adopted, the Ocean Plan will still lack objectives for three pollutants having numeric NTR criteria: endrin aldehyde, 1,2,4-trans-dichloroethylene, and 1,2,4-trichlorobenzene.

Note that there are nineteen pollutants listed in the NTR list that do not have numeric criteria. We did not propose Ocean Plan objectives for those pollutants that have no national numeric criteria. Similarly, we did not propose Ocean Plan objectives for non-priority pollutants, including the pesticides mirex, methoxychlor, parathion, malathion, guthion, and demeton.

The California Toxics Rule (65 FR 31682) contains numeric criteria for four pollutants not currently in the Ocean Plan Table B list of objectives: acenapthene, butylbenzyl phthalate, 2-chloronapthalene, and 1,2-dichloropropane.

The need for a continuing review of water quality objectives was identified in the current 1998 Ocean Plan Triennial Review Staff Report (Issue E3a).

Comment 2.4: SWRCB should define PAHs (polynuclear aromatic hydrocarbons) to include the 16 PAHs included in the U.S. EPA priority pollutant list. (12)

Response: The Ocean Plan regulates PAHs as a chemical group by defining 13 compounds which, when summed, should not exceed the PAH objective. This objective was based on the 1980 U.S.EPA Ambient Water Criteria for Polynuclear Aromatic Hydrocarbons document (EPA 440/5-80-069). This U.S.EPA document did not define a representative PAH mixture, but rather, derived the PAH criterion based on exposure estimates to benzo(a)pyrene. The Water Quality Standards Handbook (U.S.EPA 1994) lists 15 individual compounds under the heading "Polynuclear Aromatic Hydrocarbons" in the list of CWA Section 307(a) priority pollutants; napthalene is listed under "Other Organics." All 15 of these PAHs are included in the National Toxics Rule list, but no national criteria is given for four of the PAHs (acenapthene, acenapthylene, benzo(g,h,I)perylene, and phenanthrene). The California State Mussel Watch Program as well as the Southern California Bight Project monitor for 24 compounds collectively called PAHs. Of these, 16 are 307(a) priority pollutants. The World Health Organization has evaluated 33 PAHs of over 100 PAHs described in the scientific literature (WHO 1998).

SWRCB is exploring the possibility of regulating compounds individually rather than as closely-related chemical groups (1998 Triennial Review Staff Report -- Issue E3a). Alternatively, the Ocean Plan PAH definition could be expanded to include all of the priority pollutant PAHs; of the 15 PAHs listed in the Water Quality Standards Handbook, the Ocean Plan definition contains all but one, acenapthene.

Comment 2.5: Use of the default 10^{-6} risk level is not defensible. Other state and federal initiatives and propositions, such as U.S. EPA's Great Lakes Initiative and California's Proposition 65, use the 10^{-5} cancer risk level. (6, 10, 15, 17, 21, 23)

Response: U.S. EPA policy, as described in the 1980 National Guidelines, is that "there is no scientific basis for estimating 'safe' levels for carcinogens" (45 FR 79323); SWRCB staff agree with this concept. As described in the Draft FED, any statewide objective for carcinogenic pollutants should be zero to ensure the maximum protection of human health. However, the U.S. EPA surface water program has historically derived criteria for carcinogens that corresponded to lifetime excess cancer risk levels in the range of 10^{-7} to 10^{-5}. This range was presented in the 1980 Guidelines for information purposes and did not represent a U.S. EPA judgment on an "acceptable" risk level.

In August 1998, U.S. EPA published its proposed methodology revisions for calculating criteria for human health (63 FR 43756-43828). In this revision, U.S. EPA "recommends that risk levels in the range of 10^{-5} to 10^{-6} be used for the protection of the general population" when deriving criteria for carcinogens (p. 43762). U.S. EPA policy has been to "allow States and Tribes to select appropriate risk levels and [this policy] is consistent with the framework of the CWA that recognizes and supports State and Tribal primacy in making risk management decisions to protect its population provided that the goals of the Act are met" (63 FR 36774).

Thus, the SWRCB proposal to re-calculate objectives for carcinogens based on a 10^{-6} risk level is within U.S. EPA recommendations. Furthermore, the 10^{-6} risk level has historically formed the basis of human health protective numerical water quality objectives in California. Marshack provided several recent examples of water-related, health protective, regulatory decisions made in California (CVRWQCB 1998); among these are the following:

- Department of Health Services' *Statement of Reasons* set Primary Maximum Contaminant Levels (MCLs) and Action Levels for carcinogens in drinking water using the 10^{-6} risk level as the *de minimus* cancer risk value (unless technologic or economic factors prevent using this level).

- Office of Environmental Health Hazards Assessment based their Public Health Goals for drinking water on a 10^{-6} risk level for carcinogens, a level that has been considered negligible or *de minimus*.

- Department of Toxic Substances Control's *Preliminary Endangerment Guidance Manual* states that, in general, a risk estimation level greater then 10^{-6} indicates the presence of contamination which may pose a significant threat to humans.

- Recent actions by the Central Valley Regional Water Quality Control Board at Mather Air Force Base in Sacramento and at the Southern Pacific Transportation Company in Tracy both defined acceptable well water using the 10^{-6} lifetime cancer risk level.

- Department of Pesticide Regulation typically use a 10^{-6} risk level when developing risk characterization documents for pesticides (personal communication with Dr. R. Reed, DPR, by S. Saiz, 6/14/99).

Several commenters have referred to the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, CA Health and Safety Code § 25249 et seq.) as a basis for the SWRCB to use a 10^{-5} risk level in setting water quality objectives. However, the intent of Proposition 65 is to prohibit the intentional discharge of certain chemicals into a source of drinking water (§ 25249.5) and to require warnings to individuals prior to the intentional exposure to these chemicals (§ 25249.6). It was not the intent of Proposition 65 to establish levels of *involuntary* environmental exposure that are considered "safe."

California regulations related to Proposition 65 (Title 22, Division 21.5, Section 12000 et seq.) define levels of exposure that are deemed to pose "no significant risk" using the methods of quantitative risk assessment. As noted by Commenter #17, the regulations (§12703 (b)) define the risk level for carcinogens:

> *...the risk level which represents no significant risk shall be one which is calculated to result in one excess cancer in an exposed population of 100,000, assuming lifetime exposures at the level in question, except where sound considerations of public health support an alternative level...*

These regulations, however, explicitly discourage the application of the above risk level for other regulatory purposes. Section 12701 (d) reads:

> *This article establishes exposure levels posing no significant risk solely for the purposes of Health and Safety Code Section 25249.10(c). Nothing in this article shall be construed to establish exposure or risk levels for other regulatory purposes.*

Other commenters cited the 1995 Great Lakes Initiative (60 FR 15366) as a precedent for using a 10^{-5} carcinogen risk level in setting water quality objectives. U.S. EPA developed the Water Quality Guidance for the Great Lakes System to accommodate the unique conditions in the Great Lakes area. U.S. EPA modified several of their default assumptions (as previously developed in the 1980 National Guidance) in developing the Great Lakes Guidance. These modifications were based on Great Lakes-specific data which recognize the unique nature of the Great Lakes Basin ecosystem. For example, the default fish consumption rate was raised from 6.5 g/day to 15 g/day.

The U.S. EPA decision to use the 10^{-5} carcinogen risk level in the Great Lakes Guidance was made with a consideration of the documented presence of persistent, bioaccumulative pollutants in the Great Lakes. U.S. EPA estimated that "the cancer risk from ingestion of contaminated fish at current concentrations in the Great Lakes System are as high as 1.2×10^{-2} (1.2 in 100)" (60 FR 15374).

Consequently, SWRCB staff believe that neither Proposition 65 nor the Great Lakes Initiative have established a precedent to be followed in setting water quality objectives for the California Ocean Plan. The SWRCB decision to use the 10^{-6} risk level for carcinogens is consistent with the development of previous Ocean Plan water quality objectives and with the California Toxics Rule (65 FR 31682) water quality objectives.

Comment 2.6: Objectives for chemicals that are not listed by Proposition 65 as carcinogens should be promulgated as non-carcinogens. Two chemicals (1,1-dichloroethylene and isophorone) are not listed on the Proposition 65 list of carcinogens, yet are proposed in the FED to be regulated as carcinogens. (17)

Response: Table B of the Ocean Plan contains objectives for the protection of human health. Pollutants were placed in the Table B "carcinogen" section based on the recommendation of U.S. EPA in the original 1980 Ambient Water Quality Criteria documents. Subsequently, U.S. EPA developed a classification system for carcinogens. The 1986 U.S. EPA Guidelines for Carcinogen Risk Assessment (45 FR 79318) describes the methodology used to classify chemical carcinogens based on a weight-of-evidence approach into one of five categories: Group A (Human Carcinogens), Group B (Probable Human Carcinogens), Group C (Possible Human Carcinogens), Group D (Not Classifiable as to Human Carcinogenicity) and Group E (Evidence of Non-Carcinogenicity in Humans). The current U.S. EPA carcinogen classification for a specific pollutant can be found in the IRIS database along with the scientific basis for that classification.

Pollutants regulated as carcinogens in the National Toxics Rule were Group A through Group C carcinogens. Similarly, the Ocean Plan Draft FED is proposing to regulate pollutants in Group A, Group B, and Group C as carcinogens; pollutants in Group D and E are not considered to be human carcinogens.

In contrast, the Proposition 65 list of chemicals known to the state to cause cancer was developed specifically as a result of the Safe Drinking Water and Toxic Enforcement Act of 1986. Accordingly, the Proposition 65 list is to be used specifically for the purposes of the 1986 Act and not for developing water quality standards.

The Proposition 65 list of carcinogens was developed by the Carcinogen Identification Committee of the Office of Environmental Health Hazard Assessment's Science Advisory Board. Chemicals are added to the Proposition 65 list after consideration by the Carcinogen Identification Committee. If a chemical is **not** on the Proposition 65 list it does not imply that the chemical is non-carcinogenic. It simply means that the Committee has not yet made a determination to add the chemical to the Proposition 65 list.

SWRCB staff believe that a pollutant having a U.S. EPA carcinogen classification of *possible, probable, or known human carcinogen* is sufficient to regulate the pollutant as a carcinogen in the Ocean Plan for the purpose of developing a water quality objective.

Comment 2.7: Use of cancer potency factors is not defensible. IRIS data have not been externally peer reviewed. (6, 23)

Response: U.S. EPA's IRIS database represents the Agency's most current consensus on the toxicological assessment for a chemical. The 1992 National Toxics Rule (57 FR 60875) described the IRIS data review process. In brief, reference doses and cancer classifications are validated by two Agency work groups consisting of senior U.S. EPA scientists (internal peer review); the consensus opinion for reference doses and cancer potency factors are then used throughout U.S. EPA for consistent

regulation and guidance development. These data are available to the general public through the National Technical Information Service, the Internet, and other services. IRIS data used to develop criteria in the National Toxic Rule were subject to public review and comment. Additionally, some of the reference doses and cancer potency factors undergo public review during rulemaking for other U.S. EPA programs such as drinking water, pesticides, and Superfund. Thus, U.S. EPA believes that adequate notice about IRIS data and its use in U.S. EPA programs has been provided to the public.

Of the 12 objectives being proposed in the Ocean Plan FED, four objectives (1,2-dichloroethane, 1,1-dichloroethylene, isophorone, and thallium) were based on IRIS data. Of these four, only the isophorone cancer potency factor has changed since the 1992 National Toxics Rule promulgation. The IRIS cancer potency factor for isophorone was lowered from the previous value of 0.0041 to 0.00095 $(mg/kg/day)^{-1}$ based on a National Institute of Health (National Toxicology Program publication No. 84-254, NPT-83-168) study which found an increased incidence of gland tumors in male rats and mice.

In response to the increasing use and recognition of the IRIS database, U.S. EPA has embarked on an IRIS Pilot Program that will, among other things, improve the opportunity for public input including external peer review (Mills and Fourmen 1998).

Comment 2.8: No compelling reason is given as to why the Cal/EPA cancer potency factors were used instead of the IRIS cancer potency factors. (21)

Response: Cal/EPA assembled the Standards and Criteria Workgroup to review cancer potency factors which are used in California regulatory actions. These cancer potency factors were developed or approved by the Office of Environmental Health Hazard Assessment, the Department of Pesticide Regulation, and the Department of Toxic Substances Control. The Cal/EPA list of cancer potency factors has formed the basis of regulatory actions. The majority of these cancer potency factors have been peer reviewed and, in many cases, subject to rigorous regulatory review. This list provides a consistent tool to use in conducting risk assessments as required by California regulations. The following regulatory programs have provided cancer potency factors for the Cal/EPA list: the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), the Toxic Air Contaminant Program, the Air Toxics Hot Spots Information and Assessment Program, the Drinking Water Program of the Department of Health Services, and the Department of Pesticide Regulation's implementation of the Birth Defects Prevention Act (SB950), the Toxic Air Contaminant Program (AB1807), and the Food Safety Act (AB2161).

The magnitude of Cal/EPA cancer potency factors are very comparable to U.S. EPA IRIS cancer potency factors for the water quality objectives proposed in the Ocean Plan FED. The Cal/EPA factors tended to be slightly higher than the U.S. EPA factors, ranging from 1.0 to 2.1 times higher.

SWRCB chose to use Cal/EPA cancer potency factors when they were available to maintain consistency with other California regulatory programs that conduct carcinogen risk assessments. Furthermore, the use of the Cal/EPA cancer potency factors does not dramatically alter the proposed water quality objective.

Comment 2.9: Proposed changes to thallium are based on treating it as a carcinogen. (10, 15)

Response: The proposed change to the thallium objective is **not** based on thallium being a carcinogen. Table 4 of the FED identified thallium as a U.S. EPA Group D carcinogen, i.e., thallium is not classifiable as to human carcinogenicity. This means that there are inadequate or no human or animal data to suggest that thallium is a carcinogen.

The existing ocean plan thallium objective was established in 1990 using the older acceptable daily intake (ADI) approach which would correspond to a present-day reference dose of 0.0005 mg/kg/day. The recalculated thallium water quality objective was developed using the most current IRIS reference dose for thallium sulfate of 0.00008 mg/kg/day. This reference dose was developed by U.S. EPA based on the

results of a 90-day subchronic study in rats. Thallium exposure effects observed in this study included such non-carcinogenic effects as changes in blood chemistry parameters and hair loss.

Comment 2.10: Use of the bioconcentration factors (BCF) is not defensible. Monitoring indicates that the predicted bioconcentration factors do not occur in real receiving waters. We have concerns over the use of bioconcentration factors in calculating water quality objectives for solvents, and whether these solvents significantly bioconcentrate or bioaccumulate in edible fish tissues. Tetrachloroethylene was not detected in fish fillets collected near the Palos Verdes outfall. (6, 15)

Response: Although SWRCB staff did not directly develop the bioconcentration factors used in the FED, SWRCB staff believe that these bioconcentration factors are appropriate for establishing statewide water quality objectives. All of these bioconcentration factors were previously developed by U.S. EPA using scientifically-defensible procedures as described in the 1980 Human Health Criteria Guidelines (45 FR 79348 - 79349).

SWRCB staff referenced the 1993 U.S. EPA Region VIII criteria chart in the Ocean Plan FED because this chart efficiently summarized U.S. EPA's bioconcentration factors for all priority pollutants. However, to verify the scientific basis for any particular bioconcentration factor one must return to the original 1980 Water Quality Criteria Document for the pollutant of concern. The following table lists the 12 pollutants being evaluated in the FED and the U.S. EPA Criteria Document that provides the justification for the bioconcentation factor (Table 5).

For the majority of priority pollutants, U.S. EPA continues to rely on the bioconcentration factors originally developed in the 1980 Ambient Water Quality Criteria documents. In the 1992 National Toxics Rule, most human health criteria contained "footnote a" indicating that the criteria were revised based on new IRIS information, but the fish tissue bioconcentration factor from the 1980 criteria documents was retained in all cases (57 FR 60916). More recently, in May 2000, U.S. EPA developed an Administrative Record Matrix for the California Toxics Rule (65 FR 31694) which contains a summary of bioconcentration factors used in developing water quality criteria for the proposed CTR. Again, the fish tissue bioconcentration factors from the 1980 criteria documents were retained in most cases.

Although U.S. EPA gives States the option to develop more regional-specific bioconcentation factors, this has not been required when States use U.S. EPA-developed bioconcentration factors. U.S. EPA responded to a comment on bioconcentration factors in the National Toxics Rule (57 FR 60888): "EPA has suggested that States may select more appropriate fish species such as non-migratory and recreational species in developing bioconcentration factor values which would more appropriately reflect local conditions and aquatic species." SWRCB staff recognize that direct measurements of bioconcentration factors are preferable to bioconcentration factors estimated from physical properties of the pollutants such as water solubility or the water/octanol partition coefficient. Estimates of bioconcentration factors using physical properties of the chemical may not account for metabolism of the pollutant within the aquatic organism. However, the absence of a pollutant in fish muscle tissue collected locally does not necessarily negate the use of U.S. EPA's bioconcentration factors.

SWRCB staff agree that solvents, in general, are not expected to significantly bioconcentrate in aquatic organisms. Solvents may, however, have measured or estimated bioconcentration factors up to, approximately 50. The Handbook of Environmental Fate and Exposure Data for Organic Chemicals (Howard ed. 1989 and 1990) provides measured and estimated bioconcentration factors for chlorodibromomethane (6-30), dichlorobromomethane (5-23), 1, 2-dichloroethane (0.3 and 8), isophorone (7), 1,1,2,2-tetrachloroethylene (8-10), tetrachloroethylene (38.9, 49, 226), and 1,1,2-trichloroethane (<10). For all of these solvents, and for 1,1-dichloroethylene, the Handbook concludes that these compounds are not expected to significantly bioconcentrate into aquatic organisms. Note that the solvent bioconcentration factors listed in this Handbook are comparable to the U.S. EPA bioconcentration factors used in the FED.

Table 5. Bases and References for Bioconcentration Factors used in Table 4.

Chemical	BCF (L/kg)	Basis for U.S. EPA Bioconcentration Factor	U.S. EPA Ambient Water Quality Criteria Document and other References
1. Chlorodibromomethane	3.75	Measured *chloroform* BCF of 6 in bluegills adjusted to 3% lipids resulting in BCF of 3.75	Chloroform EPA 440/5-80-033
2. Dichlorobromomethane	3.75	Measured *chloroform* BCF of 6 in bluegills adjusted to 3% lipids resulting in BCF of 3.	Chloroform EPA 440/5-80-052
3. 1,2-dichloroethane	1.2	Measured BCF of 2 in bluegills adjusted to 3% lipids	Chlorinated Ethanes EPA 440/5-80-029
4. 1,1-dichloroethylene	5.6	estimated BCF derived from measured water/octanol partition coefficient (log P = 2.18)	Dichloroethylenes EPA 440/5-80-041; Veith 1979
5. Heptachlor	11,200.	Measured heptachlor BCFs adjusted to 3% lipids were 3750, 5680, 8680, 15700, 22600, 30800	Heptachlor EPA 440/5-80-052
6. Heptachlor epoxide	11,200.	BCF based on *heptachlor*	Heptachlor EPA 440/5-80-052
7. Isophorone	4.38	Measured BCF of 7 in bluegills adjusted to 3% lipids	Isophorone EPA 440/5-80-056
8. N- nitrosodi-N-propylamine	1.13	estimated BCF derived from measured water/octanol partition coefficient (log P = 1.36)	Nitrosamines EPA 440/5-80-064; Veith 1979; Hansch & Leo 1979
9. 1,1,2,2-tetrachloroethane	5.0	measured BCF of 8 in bluegills adjusted to 3% lipids	Chlorinated Ethanes EPA 440/5-80-029
10. Tetrachloroethylene	30.6	measured BCF of 49 in bluegills adjusted to 3% lipids	Tetrachloroethylene EPA 440/5-80-073
11. Thallium	116.	measured BCFs of 12, 18, 130 in clam, mussel and salmon	Thallium EPA 440/5-80-074
12. 1,1,2-trichloroethane	4.5	estimated BCF derived from estimated water/octanol partition coefficient (log P = 2.07)	Chlorinated Ethanes EPA 440/5-80-029; Veith 1979

Comment 2.11: U.S. EPA is considering restrictions on the use of mixing zones for bioaccumulative pollutants (63 FR 36794, question 7). This is especially disturbing since the Ocean Plan amendments and the FED do not indicate current problems of bioaccumulation in fish tissue or ambient water quality for the 12 proposed water quality objectives. The methodologies used to determine bioaccumulation for these chemicals may not be appropriate for ocean dischargers. (13)

Response: SWRCB staff do not believe that it would be appropriate to prohibit mixing zones for all bioaccumulative pollutants as implied in Question 7 of U.S. EPA's Advanced Notice of Proposed Rulemaking (ANPRM). This position and other comments related to changes in mixing zone regulations were provided to U.S. EPA during the ANPRM public comment period (letter from W. Pettit, SWRCB to R. Wood, U.S. EPA dated 5/14/99). Although the Great Lakes Initiative attempted to phase out mixing zones for 22 "bioaccumulative chemicals of concern," this provision was later vacated from the Final Rule. U.S.EPA, however, recently revised and reinstated these mixing zone procedures (Federal Register 64(1):53632-53648).

The commenter is referring to the *bioaccumulation* potential of the 12 proposed water quality objectives. In contrast, the previous comment and response referred to the *bioconcentration* potential of the 12 proposed water quality objectives. As a reminder, bioconcentration is the net accumulation of a pollutant by an aquatic organism as a result of uptake directly from the ambient water through gill membranes or other external body surfaces. Bioaccumulation, on the other hand, is the net accumulation of a pollutant by an organism as a result of uptake from all environmental sources (e.g., food, water, sediment) (see definitions in the Great Lakes Initiative Guidance, 60 FR 15401). In revising the 12 objectives, SWRCB staff followed the 1980 U.S. EPA methodology which specifically incorporates bioconcentration but does not consider the *bioaccumulation* potential of a pollutant. Thus, the comment (that the methodologies used to determine bioaccumulation for these chemicals may not be appropriate for ocean dischargers) is inappropriate.

U.S. EPA and SWRCB staff recognize that many scientific advances have been made since 1980. In the 1998 Draft Water Quality Criteria Methodology Revisions for the protection of Human Health (63 FR 43756 - 43828), U.S. EPA recommended that future human health criteria be developed based on the principles of bioaccumulation (63 FR 43806). The proposed methodology would establish a hierarchy of methods to be used to derive bioaccumulation factors. In this hierarchy, field-measured bioaccumulation factors are the most desirable and bioaccumulation factors based on actual or predicted bioconcentration factors are the least desirable.

Developing field-measured bioaccumulation factors using the proposed human health methodology, however, would be extremely resource intensive. Until U.S. EPA promulgates a final rule on the human health criteria methodology, SWRCB staff believe that water quality objectives derived using bioconcentration factors are adequate and fulfill the goals of the Clean Water Act.

Comment 2.12: The BCF for thallium should not be used. There is little reason to believe that the value of 119 for the thallium bioconcentration factor is realistic. The reference given is a U.S. EPA policy letter rather than from the technical literature. We have found no bioconcentration values for thallium. No evidence exists, to our knowledge, that supports that thallium bioaccumulates in marine tissues or follows an organometalic pathway such as is known for mercury. (6, 21)

Response: Thallium is an extremely toxic but little studied metal (Borgmann et al 1998). Soluble thallium is present in seawater in concentrations from 0.009 to 0.013 ug/L with 80% ocurring in the trivalent form (Chou and Moffat 1998). Thallium in coastal sea waters ranges from 0.9 to 1.1 ug/L (Chou and Moffat 1998).

The bioconcentration factor used by SWRCB staff in the recalculation of the thallium water quality objective was derived by U.S. EPA scientists in 1980 during the initial development of the national

thallium water quality criteria document (U.S. EPA 1980b). The thallium bioconcentration factor of 116 was based on two previously published investigations: Zitko et al. (1975) reported a bioconcentration factor of 130 for thallium in the muscle tissue of juvenile Atlantic salmon experimentally-exposed to a thallium water concentration of 17.9 ug/L for over 300 hours. Zitko and Carson (1975) reported bioconcentration factors of 18 and 12 for the edible portions of the soft shell clam and blue mussel, respectively. In calculating a weighted average bioconcentration factor for thallium, the U.S. EPA scientists weighed the fish muscle data more (87%) than the bivalve mollusc data (12%) based on U.S. EPA per capita seafood consumption estimates.

(Note: there is an apparent error in the bioconcentration factor used by U.S. EPA to derive the 1980 thallium criteria. On page C-40 of the guidance document, they used a bioconcentation factor of 119 rather than the correct value of 116 as calculated on page C-5. However, using either 116 or 119 will not affect the final water quality objective when only one significant figure is avalible for the thallium reference dose.)

U.S. EPA used the same thallium bioconcentration factor of 116 kg/L in promulgating the 1992 National Toxics Rule thallium criteria and in the California Toxics Rule thallium criteria--both of which have been subject to public comment.

Not much information exists in the literature regarding the bioaccumulation potential of thallium. The United States Department of Health and Human Services published a Toxicological Profile for Thallium (USHHS 1992). Page 59-60 of this document states:

> *There are no specific data on the bioaccumulation of thallium or its potential to be transferred from lower tropic levels to higher organisms. Because thallium can be bioconcentrated, it may be also that it can be accumulated in living tissues. We know that thallium may be bioconcentrated by aquatic plants, invertebrates, and fish (Barrows et al. 1978; Zitko and Carson 1975; Zitko et al. 1975). Information on biotransformation in aquatic biota would provide further insight into the extent of chemical speciation and forms of thallium to which humans could be exposed near hazardous waste sites.*

The World Health Organization's Environmental Health Criteria for Thallium (WHO 1996) indicates that organothallium derivates may originate from the biomethylation process of anaerobic bacteria in lake sediments, although there is no firm evidence of environmental methylation. The monovalent form of thallium seems to be simultaneously oxidized and methylated by specific anerobic microorganisms to methylthallium(III) moieties (Huber et al. 1978 in WHO 1996)

Smith and Carson (1975) conducted a literature review of the thallium content of aquatic animals (pp. 172-173) and provided a concentration factor based on nine sea organisms of >700. Borgmann et al. (1998) reported dry weight thallium bioconcentration factors from 5500 to 6800 in the amphipod *Hyalella*. SWRCB staff estimate that the corresponding wet weight bioconcetration factors from the *Hyalella* study would be approximately 1200 assuming a sample moisture content of 80%.

The paucity of scientific investigations of thallium pollution in the aqueous environment makes it difficult to establish an uncontestable bioconcentration factor that can be used to establish water quality standards. Lacking any new studies on thallium bioconcentration in the edible portions of seafood, SWRCB staff believe that the bioconcentation factor of 116 as established by U.S. EPA in 1980 remains adequate for use in setting the California Ocean Plan objective for thallium.

Comment 2.13: We recommend using the proposed objectives as "action levels." It makes sense to base compliance determinations and to require corrective measures only when the contaminant is elevated in fish tissue and the discharge is determined to be a significant source. Using this stepwise approach allows the permit program to move away from speculative assumptions of risk toward compliance based

on real problems and will ensure that public monies for pollution control are directed to real problems. (13, 15, 21)

Response: For highly bioaccumulative pollutants, the water quality objective concentration may be below the limit for detecting the pollutant in ambient water. Therefore, water quality objectives expressed as fish tissue concentrations may be more practical. The 1998 U.S. EPA Draft Human Health Methodology Revisions allow water quality objectives to be expressed as fish tissue concentrations (63 FR 43767). Issue 3 of this Ocean Plan FED also addresses the problem of limitations set below analytical detection levels.

SWRCB staff believe that the action level approach does not comply with the Clean Water Act or with U.S. EPA's implementing regulations. Numeric water quality objectives are a required component of water quality standards. Numeric water quality objectives provide a threshold beyond which unacceptable impacts may occur to beneficial uses. Similarly, NPDES limitations, when derived from numeric objectives, provide a measurable threshold beyond which unacceptable impacts may occur to beneficial uses of a water body.

SWRCB staff believe that the existing permitting process adequately safeguards against imposing pollutant controls where they are not needed (e.g., discharges not posing a threat to water quality standards are not given effluent limitations). The existing process for establishing permit limitations includes a charaterization of the proposed discharge. If, after assessing the discharge charateristics, the Regional Board determines that the proposed discharge causes (or has the reasonable potential to cause), or contributes to an excursion of the water quality objective for a pollutant, then federal NPDES regulations (40 CFR 122.44 (d)(1)(iii)) require that the permit must contain effluent limits for that pollutant. These effluent limitations must be enforceable. Moreover, compliance with an NPDES permit constitutes compliance with section 301, 302, 306, 307, 308, 318, 403, and 405 of the Clean Water Act.

Water quality objectives for the protection of human health represent the SWRCB staff's best estimate of the maximum chemical concentration in ambient water that will allow the lifetime consumption of seafood by humans. Staff recognize that such statewide water quality objectives may not always be applicable to all receiving waters of the state. The Ocean Plan and federal regulations provide other options which dischargers may pursue if they believe that the state water quality objecitve is not applicable to their situation (e.g., site-specifice objectives, variances).

Comment 2.14: What is SWRCBs rationale for retaining the existing Ocean Plan objective for dichlorobenzenes when U.S. EPA currently has criteria available for the individual dichlorobenzene compounds? (22)

Response: The Draft FED describes the criteria used to develop the list of compounds for recalulation of objectives. We excluded 1,2-dichlorobenzene from this round of re-calculations because the NTR criteria of 17,000 ug/L was higher than the existing Ocean Plan objective for dichlorobenzenes of 5,100 ug/L.

If we were to calculate an objective for 1,2-dichorobenzene using the California fish consumption rate of 23 g/day, the resulting proposed objective (4,700 ug/L) would be very close the the existing Ocean Plan objective for dichlorobenzenes (5,100 ug/L):

$$WQO = \frac{(RfD)(BWT)}{(FCR)(BCF)} = \frac{(0.9 \text{ mg/kg/day})}{(0.023 \text{ kg/day})} \frac{(70 \text{ kg})}{(55.6 \text{ L/Kg})} = 4.7 \text{ mg/L}$$

Therefore, no change to the Ocean Plan objective for dichlorbenzenes was deemed necessary.

Comment 2.15: We recommend a value of 23 g/day fish consumption as the basis for these objectives. (23)

Response: All the proposed water quality objectives in the Draft FED are based on a California fish consumption estimate of 23 g/day.

Comment 2.16: Commenters support the calculation of the proposed water quality objectives and support the incorporation of these chemicals into Table B of the Ocean Plan. (12, 22)

Response: Comment noted.

Comments on the Economic Analysis

Comment 2.17: An additional economic analysis consisting of a larger group of facilities should be conducted to evaluate the potential economic impact of the proposed objectives (17). The economic analysis is not based on a representative sample (6). We recommend that the economic analysis be based on every major POTW (15).

Response: For the economic analysis, the SWRCB consultant drew a sample from the full set of potentially affected facilities since analyzing every facility would be cost prohibitive. To ensure that facilities of various types and characteristics were represented, the SWRCB consultant first stratified the 92 California ocean dischargers and then randomly selected a sample. The 92 ocean dischargers represent 50 major facilities and 42 minor facilities. The SWRCB consultant tried alternate ways of sorting the major facilities based on various characteristics [SIC code, type (industrial, municipal, other) discharge type, and flow] to determine the best way to stratify the sample. Examining the subsets formed by sorting showed that the logical way to group the major facilities and subdivide the data in order to select a random sample was by using flow as the primary characteristic. The SWRCB consultant sorted major facilities into three flow strata and randomly selected five facilities for the sample (three from the largest flow category and one each from the middle and lowest flow categories). The facilities selected include two POTWs, two power plants, and one industrial facility. For minor facilities, flows are relatively similar and there are a similar number of municipal and industrial facilities (and few other facilities). The SWRCB consultant stratified minor facilities, therefore, by facility type and selected one municipal and one industrial facility for the sample. The SWRCB believes that the sample size (8%) and makeup is sufficient for analyzing the potential economic impact of the 12 revised objectives.

The SWRCB does not believe that the economic analysis needs to be based on every major POTW and believes that major POTWs are adequately represented in its sample set (two of the five sample major facilities are POTWs). The same commenter (15) notes elsewhere in its comments that, the list of toxicants to be modified in these proposed amendments is limited and most POTWs are unlikely to be affected. See also response to 2.18.

Comment 2.18: Major facilities were under-represented in the economic analysis sample and the POTW sample was not stratified appropriately. For the 1990 Ocean Plan, attainability was predicated on the examination of data from 32 dischargers or 35% of the population. No information was provided to show that the sample size is sufficient for extrapolation of costs to the general population. (21)

Response: See response to **2.17**. Further, of the 92 facilities that are ocean dischargers, 50 are classified as major facilities. Thus, major facilities are 54% of all California ocean dischargers. Five of the seven sample facilities (71%) selected for the economic analysis are classified as major facilities, so major facilities are well-represented in the sample. Sample sizes for the 1990 Ocean Plan analysis and this analysis cannot be compared since the 1990 analysis was a different type of analysis done at a screening level only. The 1990 analysis was only a basic attainability analysis to evaluate whether dischargers would have difficulty meeting the 58 new water quality objectives that were added at that time.

Comment 2.19: It is not justifiable to assume no apparent economic impact because dischargers cannot detect at the low levels recommended for the new objectives (6, 21). We do not agree with the economic analysis assumption that when monitoring results were reported as 'not detected,' dischargers would be able to comply with effluent limits resulting from the proposed objectives (17).

Response: As stated in the FED, since the ultimate goal of effluent limits is to protect water quality, EPA recommends that permit limits be set without regard to existing analytical detection levels. Therefore the water quality objectives in the Ocean Plan and the subsequent projected effluent limits for dischargers are set without regard to ability to measure at those levels. To address pollutants present at low levels when compliance with effluent limits is uncertain, the SWRCB has added an estimate of the cost of pollutant minimization programs (PMPs) to comply with the reporting levels provision of the Ocean Plan to account for costs incurred when projected effluent limits are below MLs. If more sophisticated sampling and analysis methods become available, the approach for applying the reporting levels provision may be adjusted later. For determining compliance with projected effluent limits, the SWRCB consultant used the lowest of the detection levels when all data were below detection. If this value was greater than the projected effluent limit, the SWRCB consultant estimated costs associated with implementation of a PMP: the SWRCB consultant does not believe that a facility will implement treatment when all monitoring results are below detection. In cases where the projected effluent limit was below the ML, the SWRCB consultant also estimated the costs of a PMP because of the reporting levels provision.

Comment 2.20: We do not agree with the economic analysis assumption that in the absence of monitoring data, the facility would be in compliance with the effluent limit (17, 21). The economic analysis assumes that the absence of monitoring for a pollutant is adequate evidence that the pollutant is not present in the discharge. We request that the economic analysis be based on comprehensive effluent monitoring including, as necessary, specialized analytical techniques capable of detecting the constituents of concern at or near the proposed regulatory levels. (15)

Response: The SWRCB attempted to gather effluent monitoring data for all of the randomly-selected sample facilities in the economic analysis. When discharge monitoring data were not available from the RWQCBs, SWRCB staff contacted the appropriate RWQCB to obtain data from the facility's NPDES permit application package. Since the RWQCBs do not have to require a discharger to monitor for a pollutant if the facility is confident that it is in compliance with current limits, monitoring data are not available for some pollutants for many of the facilities. In its revised analysis, the SWRCB consultant also estimated PMP costs associated with the reporting levels provision even if the facility had no data for a pollutant. The reporting levels provision addresses situations where a determination of compliance is uncertain due to low effluent limits and the unquantifiable monitoring results that can occur at low levels.

Comment 2.21: The use of median values in Table 10 of the draft FED (page 54) to compare monitoring data to proposed effluent limits is misleading and contradictory to the economic analysis. The SWRCB should use the maximum sample concentration or, when a compound is not detected, the highest detection level. (21)

Response: The table referred to in the comment is now Table 11 in the FED. Table 11 has been revised to show columns for sample size, median value, and maximum values (as used in the economic analysis). Many of the chemical-specific data sets used in the economic analysis were small, consisting of only one or two values. For this reason, the sample median was only presented in Table 11 when the data set consisted of three or more values. Presenting the sample median is not misleading because it provides an estimate of the central tendency of the monitoring data. While it is true that the economic analysis used the sample maximum to assess compliance, this was done to be conservative and is not necessarily the only way to characterize effluent data. Use of the sample maximum gave higher concentration estimates, when compared to the sample median, for five chemical data sets from the Hyperion facility and one data set from the Santa Barbara facility. Most of the other data sets consisted entirely of several non-detect

values. The economic analysis used the minimum detection level when all data values were below detection. The minimum, not the maximum, of the detection limits was used to avoid using results from monitoring performed in the past using higher detection levels.

Comment 2.22: A mistake was made in evaluating compliance when using the minimum levels (MLs) that are a function of concentrating a sample. The ML should be divided by the concentration factor listed in Table 11 of the FED when assessing compliance. (21)

Response: The MLs used for compliance evaluation have been revised to incorporate the appropriate concentration factors. MLs were divided by their concentration factors for the four pollutants affected by concentration factors: heptachlor and heptachlor epoxide (factor of 100), and isophorone and n-nitrosodi-N-propylamine (factor of 1000).

Comment 2.23: The draft FED only reported the low-end cost scenario and not the high-end scenario or potential errors of the analysis. The high-end scenario is not accurate because predicted non-compliance resulted in waste minimization or pollution prevention but not end-of-pipe treatment. (21)

Response: The high scenario was not reported because it is a bounding estimate and SWRCB staff believe that this scenario is unlikely to occur. The SWRCB consultant has dropped the high scenario from its analysis. The SWRCB consultant has revised the economic analysis to include a table listing potential biases or uncertainties in the analysis.

Comment 2.24: The economic analysis failed to consider the use or non-use of the action level approach. This consideration is important because, as currently structured, additional controls may be triggered in the absence of demonstrable impacts on beneficial uses or other identifiable environmental effects. (15)

Response: In future evaluations of its water quality objectives, the SWRCB will consider available data on bioaccumulation of pollutants in fish tissue. Note that, under the proposed Ocean Plan amendments in Issue 3, dischargers are out of compliance with an effluent limit if a monitoring sample is greater than the effluent limit and greater than or equal to the applicable minimum level (ML). If sample results are reported as detected, not quantified (DNQ) and the effluent limit is less than the ML, or if sample results are reported as not detected (ND) and the effluent limit is below the method detection limit (MDL), the discharger will be required to develop and conduct a pollutant minimization program (PMP) only when there is evidence that the pollutant is present in the effluent above effluent limits. This evidence may include health advisories for fish consumption, results of benthic or aquatic organism tissue sampling, sample results from more sensitive analytical methods, presence of whole effluent toxicity, or DNQ results when the effluent limitation is less than the MDL.

In conducting the economic analysis, the SWRCB consultant assumed that a facility would be required to implement a PMP and conduct influent monitoring for a pollutant under the reporting levels provision *every* time the projected effluent limit was below the ML. This assumption may result in an overestimate of the cost of implementing the Ocean Plan amendments because it assumes that there is evidence that a pollutant is present in the effluent above the projected effluent limit even though this will not likely be the case for many facilities.

Comment 2.25: The economic analysis did not include environmental benefits from the wastewater controls. (15)

Response: The environmental benefits of maintaining ocean discharges at or below the Ocean Plan water quality objectives include protecting the beneficial uses described in Chapter 1 of the Ocean Plan. The SWRCB is confident that wastewater controls required by a discharger through the issuance of an NPDES permit are necessary to protect benefical uses and to avoid exceedances of chemical effluent limitations.

SWRCB does not intend dischargers to incorporate wastewater controls beyond what is necessary to achieve compliance with NPDES permit conditions. The economic analysis conducted by SAIC describes in general language, the environmental benefits of maintaining water quality objectives. It was not possible to attach a monetary estimate of benefits because we did not believe that the estimated pollutant load reductions were realistic, and we need pollutant load reductions, at a minimum, to establish benefits.

Comment 2.26: The economic analysis did not adequately address the implementation of pollutant minimization programs as would be required under FED Issue 3 (10, 21). The FED did not consider whether the development of one PMP addressing all pollutants of concern would be more cost effective for dischargers to implement instead of an individual program for each pollutant (14).

Response: The SWRCB has revised the economic analysis to include costs associated with PMPs required under Issue 3 for affected dischargers. In cases where the SWRCB believes that one PMP can reasonably address more than one pollutant (e.g., the pollutants are in the same class and are likely to come from similar sources), the SWRCB assumed that one PMP would be adequate.

Comment 2.27: The economic analysis is inaccurate given the lack of data for several facilities, the omission by SWRCB of the high-end cost scenario, and the lack of consideration of the cost for compliance with the pollutant minimization program requirements. (6)

Response: See responses to **2.20, 2.23,** and **2.26**.

Comments related to Water Code Issues

Comment 2.28: SWRCB has not adequately considered the beneficial uses and environmental characteristics of individual hydrographic units for the proposed water quality objectives as required by the Porter-Cologne Act. (6, 21) The Draft FED provides no analysis of what objectives are necessary and appropriate to reasonably protect the beneficial uses as required by the Porter-Cologne Act Sec 13241. (21) We recommend that the beneficial uses be specified by hydrographic units, rather than as a blanket use designation in Chapter 1 of the Ocean Plan. (21)

Response: The revised water quality objectives proposed in Issue 2 as well as the remaining Table B objectives are applicable to all California Ocean waters. The Ocean Plan, in Chapter 2, states that water quality objectives are set forth to ensure the reasonable protection of beneficial uses. The Ocean Plan does not break down specific ocean waters into hydrological units. This is consistent with the U.S. Department of Interior--Geological Survey's 1978 Hydrologic Unit Map for the State of California. Absent from this map are hydrological units for ocean waters. In addressing this Water Code section, the FED discussed the fact that each NPDES discharge will be specific to a hydrogeographic area. In addition, each NPDES permit will incorporate the specific Ocean Plan beneficial uses for the hydrogeographic area where the permitted discharge will occur. The generality of the Ocean Plan in regard to beneficial uses and hydrographic units, therefore, is augmented by the specificity of each ocean discharge permit.

Comment 2.29: The FED does not adequately address "all the factors which affect water quality in the area" as required under CWC sec 13241 (c). (21)

Response: SWRCB staff have expanded this section of the FED.

Comment 2.30: It is impossible to conclude without further analysis and a Program of Implementation, as required by CWC sec.13242, that the proposed water quality objectives will better protect the environment. (21)

Response: Chapter IV of the Ocean Plan contains an Implementation Provisions section for existing Table B water quality objectives. This section has served in the past to provide guidance on how the Ocean Plan water quality objectives will be implemented, and this section will also be applicable to the proposed water quality objectives once they are added to Table B. The Ocean Plan Implementation section describes how effluent limitations are to be calculated and Issue 3 of this FED will add new compliance determination language to this Implementation section.

Summary of Changes Resulting From Comments

The following sections of this issue were expanded based on public comment: bioconcentration potential and compliance with Section 13241 of the Water Code.

Alternatives for Board Action and Staff Recommendation

1. Do not revise Table B water quality objectives for the protection of human health.
The Clean Water Act requires the U.S. EPA to promulgate water quality standards for states having inadequate standards for priority pollutants. Since the U.S. EPA specifically recommended that certain water quality objectives be re-evaluated, failure to do so may result in U.S. EPA promulgation of water quality criteria for California ocean waters.

2. Adopt Table B water quality objectives for the protection of human health using U.S. EPAs CWA Section 304(a) water quality criteria guidance.
This option would directly adopt the Section 304(a) criteria as listed in Table 3 (above) for NTR pollutants. This option would facilitate U.S. EPA approval of the revised Table B objectives while allowing the SWRCB flexibility to decide which risk level for carcinogens to adopt. This option, however, would not allow the SWRCB to use Cal/EPA-recommended cancer potency factors or the California-specific seafood consumption rate.

3. Adopt Table B objectives calculated using the California-specific fish consumption rate. For carcinogenic pollutants, use Cal/EPA-recommended cancer potency factors at the 10^{-6} risk level.
Objectives calculated under this alternative would maintain the methodology used in the 1990 Ocean Plan when objectives for the protection of human health were first established. This option would establish 12 water quality objectives for the protection of human health from the consumption of contaminated seafood using exposure assessment information specific to California. Objectives calculated under this option would use the California seafood consumption rate of 23 g/day and a cancer risk level of 10^{-6}. For carcinogenic pollutants, the Cal/EPA-recommended cancer potency factors will be used, if present. This option results in revised objectives lower than current criteria in the NTR--except for isophorone (Table 6). We believe the proposed isophorone objective is more appropriate than the NTR isophorone criteria since we used the most up-to-date cancer potency factor available from IRIS. The proposed objective for isophorone (730 ug/L) is lower than the U.S. EPA Region VIII Section 304(a) criteria for isophorone (2600 ug/L).

4. Adopt Table B objectives calculated using the California-specific fish consumption rate. For carcinogenic pollutants, use Cal/EPA-recommended cancer potency factors at the 10^{-5} risk level. This alternative is similar to Alternative 3 except that objectives for carcinogens would be adopted at the 10^{-5} risk level. Using this risk level would be inconsistent with the risk level used to derive the 58 existing Ocean Plan objectives for the protection of human health. Moreover, using this risk level will result in the objective being ten times higher than those resulting from Alternative 3. Under this alternative, 11 of the 12 proposed objectives would be higher than current 304 (a) criteria in the NTR (Table 7), and three proposed objectives (1,2-dichloroethane, heptachlor, and heptachlor epoxide) would be higher than their existing Ocean plan objectives.

Table 6. Alternative 3. Comparison of National Toxics Rule criteria with existing and proposed Ocean Plan objectives calculated using a 10^{-6} risk level.

Chemical Name	Human Health Criteria (ug/L)		
	Nat. Toxics Rule Criteria (U.S. EPA 1992)	**Existing CA Ocean Plan Objective**	**Proposed CA Ocean Plan Objective (10^{-6} risk for carcinogens)**
1. Chlorodibromomethane	34.	130.	8.6
2. Dichlorobromomethane	22.	130.	6.2
3. 1,2-dichloroethane	99.	130.	28.
4. 1,1-dichloroethylene	3.2	7,100.	0.9
5. heptachlor	0.00021	0.00072	0.00005
6. heptachlor epoxide	0.00011	0.00072	0.00002
7. Isophorone	600.	150,000.	730.
8. N- nitrosodi-N-propylamine	1.4	none	0.38
9. 1,1,2,2-tetrachloroethane	11.	1,200.	2.3
10. Tetrachloroethylene	8.85	99.	2.0
11. Thallium	6.3	14.	2.
12. 1,1,2-trichloroethane	42.	43,000.	9.4

Table 7. Alternative 4. Comparison of National Toxics Rule criteria with existing and proposed Ocean Plan objectives calculated using a 10^{-5} risk level.

Chemical Name	Human Health Criteria & Objectives (ug/L)		
	Nat. Toxics Rule Criteria (U.S. EPA 1992)	**Existing CA Ocean Plan Objective**	**Proposed CA Ocean Plan Objective (10^{-5} risk for carcinogens)**
1. Chlorodibromomethane	34.	130.	86.
2. Dichlorobromomethane	22.	130.	62.
3. 1,2-dichloroethane	99.	130.	280.
4. 1,1-dichloroethylene	3.2	7,100	9.
5. heptachlor	0.00021	0.00072	0.0005
6. heptachlor epoxide	0.00011	0.00072	0.0002
7. Isophorone	600.	150,000.	7,300.
8. N- nitrosodi-N-propylamine	1.4	none	3.8
9. 1,1,2,2-tetrachloroethane	11.	1,200.	23.
10. Tetrachloroethylene	8.85	99.	20.
11. Thallium	6.3	14.	2.
12. 1,1,2-trichloroethane	42.	43,000.	94.

Staff Recommendation: Adopt Alternative 3.

Adopt Table B objectives calculated using the California-specific fish consumption rate. For carcinogenic pollutants, use Cal/EPA-recommended cancer potency factors at the 10^{-6} risk level.

Environmental Impact Analysis

The proposed objectives are more protective than the existing Ocean Plan objectives. Because of this, we do not expect any adverse environmental impacts as a result of the lowered objectives. On the contrary, we believe that these proposed water quality objectives will better protect the marine environment, or at a minimum, maintain existing water quality of near coastal waters.

We expect that NPDES dischargers will be able to comply with permit effluent limitations that are derived using the proposed objectives. Generally, we do not expect that dischargers will need to modify their existing treatment technologies in order to comply. For potential cases of non-compliance, we believe that process optimization or implementing a pollutant minimization program would be a reasonable means of compliance. These compliance measures are not expected to adversely impact the environment. Therefore, adoption of the proposed objectives should not have an adverse impact on the environment.

Compliance with Section 13241 of the California Water Code.

Section 13241 of the CWC requires that the following factors be considered when new or revised water quality objectives are proposed:

Past, present, and probable future beneficial uses of water.

The proposed water quality objectives are lower than the current values in Table B. Therefore, these revised values would be more protective of all beneficial used listed in Chapter I of the Ocean Plan.

Environmental characteristics of the hydrographic unit under consideration, including the quality of water thereto.

The proposed objectives, if adopted, will be used to develop numeric effluent limits in NPDES permits that discharge to the Pacific Ocean. Each permit is issued with consideration to the specifics of the hydrogeographic area where the discharge is to be. These objectives are expected to maintain or enhance the water quality of the coastal ocean waters.

Water quality conditions that could reasonably be achieved through the coordinated control of all the factors which affect water quality in the area;

Permitted discharges are a part of the overall control strategy for maintaining water quality in the coastal environment. Each NPDES permit granted by the RWQCBs will independently consider the multitude of factors that affect the water quality in the discharge area. For example, discharges are prohibited in Areas of Special Biological Significance. Ocean dischargers having NPDES permits with effluent limits that were derived using the proposed Ocean Plan objectives will help to maintain or improve existing water quality. The Table B water quality objectives provide a uniform water quality goal for use statewide in controlling water quality. We do not expect that additional end-of-pipe controls will be necessary for permitted dischargers who must comply with effluent limitations derived from the proposed water quality objectives

Economic Considerations.

In order to assess the economic impacts of the proposed objective, DWQ staff consulted with Scientific Applications International Corporation (SAIC). More details of the economic considerations given here may be found in the SAIC report "Potential Costs Associated with compliance with the California Ocean Plan" (SAIC 1999)

In February 1998, we obtained a list of the active NPDES permittees that discharge to the Pacific Ocean from the State Board's Waste Discharger System. This list identified 93 ocean dischargers and provided general information such as RWQCB, Waste Discharger Identification Number, NPDES Number, Address, Facility Type, Waste Type, Standard Industrial Classification (SIC) Code, Major/Minor Status, and Baseline Flow Rate in millions of gallons per day (MGD). The total baseline flow to the Pacific Ocean for these discharges is 11.8 billion gallons per day.

Staff determined that assessing the impact of the proposed objectives to all 93 dischargers by the direct examination of monitoring data would be time-consuming and costly. To overcome these constraints, a stratified random sample of the dischargers was conducted. Examination of the list revealed that one baseline flow rate was zero; this facility was eliminated. Of the 92 facilities that remained, 50 (54%) were designated as Major discharges and 42 (46%) were designated as Minor discharges. A stratified random sampling scheme was used to select a total of seven facilities from the list of 92 ocean dischargers: five Majors facilities (representing 10% of the "universe" of Major facilities) and two Minor facilities (representing 5% of the "universe" of Minor facilities).

Sorting the list of Major facilities on baseline flow rate revealed three natural subgroupings of the facilities: 20 facilities discharge in the range of 0.05 - 8.5 MGD, 14 facilities discharge in the range of 8.8 - 23 MGD, and 16 facilities discharge in the range of 219 - 2541 MGD. We randomly selected one

facility from the first subgroup, one facility from the second subgroup, and three facilities from the third subgroup for a total of five Major dischargers.

A similar sorting for the Minor facilities did not reveal any natural subgroups since all Minor discharges are less than 1 MGD. Sorting by facility type, however, revealed 23 industrial dischargers and 19 "other" dischargers (including municipal and agricultural). We randomly selected one industrial facility and one "other" facility for a total of two Minor dischargers.

General information for the seven randomly selected facilities is listed in Table 8. Existing permit limitations for the selected facilities are listed in Table 9. In May 1998, RWQCBs from Regions 1, 3, and 4 were asked to assemble three to five years of discharge monitoring data from the randomly-selected facilities for the twelve pollutants undergoing evaluation. These monitoring data along with the NPDES permits were sent to SAIC for analysis. Using the minimum initial dilution specific to the selected facilities, we predicted new effluent limitations based on the proposed lowered objectives (Table 10).

In examining the discharge monitoring data for the seven facilities, we discovered that some permits contain effluent limitations for pollutants, yet the monitoring portion of the permit does not require actual monitoring for that pollutant. Of the seven facilities selected, only three (the wastewater treatment plants) are required by the permit to monitor for the pollutants being reevaluated. The monitoring programs in the other four facilities have a clause that allows for the relaxation of monitoring when the pollutant is not expected to be present in the effluent in significant amounts. Authority for the relaxation of monitoring requirements is granted in Chapter V of the Ocean Plan:

> *Where the Regional Board is satisfied that any substance(s) of Table B will not significantly occur in a discharger's effluent, the Regional Board may elect not to require monitoring for such substance(s), provided the discharger submits periodic certification that such substance(s) are not added to the waste* stream, and that no change has occurred in activities that could cause such substance(s) to be present in the waste* stream. Such election does not relieve the discharger from the requirement to meet the objectives of Table B.*

SWRCB staff believe that this Ocean Plan section should be eliminated during the next Triennial Review. The relaxation of monitoring for pollutants that have NPDES effluent limitations provides insufficient monitoring data to assess future attainability and costs of changes to water quality objectives. As a result of this practice, we assumed that the absence of monitoring data reflects the RWQCB's belief that the pollutant was not in the discharge in significant amounts.

Because of the initial lack of data for these four facilities, we subsequently requested that the RWQCBs send any effluent monitoring data contained in the original NPDES application (U.S. EPA Form 2C -- Application for Permit to Discharge Wastewater) for use in the economic analysis. Monitoring data was found in three of the four NPDES applications examined.

None of the monitoring data indicated that the facilities would be out of compliance. However, in examining the data for the 12 pollutants at the 7 facilities, a limited number of instances (10) occurred where the pollutant monitoring data was a nondetect value greater than the effluent limitation and greater than the pollutant minimum level (see Issue 3). In these cases, SAIC followed a worst case scenario by assuming that the pollutant was actually present at the detection limit. Under this worst case scenario, SAIC estimated that two facilities would use process optimization as a reasonable means of making the small reductions necessary to achieve compliance. For the other facilities, SAIC estimated that no additional treatment would be necessary to achieve compliance.

Additionally, SAIC assumed a worst case scenario when estimating costs associated with the proposed pollutant minimization program (PMP) requirements of the Ocean Plan (see Issue 3). SAIC assumed that PMP costs would be incurred *every* time an effluent limit is below the minimum level. This assumption

overstates costs because the proposed Ocean Plan language requires PMPs only in those limited situations where there is evidence that the facility is discharging a pollutant above the effluent limitation and the effluent limitation is below the minimum level. SAIC estimated that all seven facilities might incur PMP costs.

The conclusion observed for the randomly-selected facilities was extrapolated to the entire universe of California ocean dischargers; SAIC estimate that the total annual costs for ocean dischargers in California to be 4.1 million dollars. Of this amount, 82% would be for PMPs, 5% would be for process optimization, and 13% would be for monitoring.

Again, these overall costs may be overstated because of the necessary assumptions made to address data limitations. SAIC generally used conservative assumptions resulting in greater predicted costs than may ultimately be incurred under the Ocean Plan.

Table 8. Facilities discharging to the Pacific Ocean that were randomly selected for estimation of economic impacts of revised Ocean Plan water quality objectives

RWQCB	WDID # NPDES #	Agency Name & Address	Facility Name & Address	Agency Type	Facility Type	Waste Type	SIC Code	Base line Flow (MGD)	Major/ Minor Desig-nation
1	1B84089OMEN CA0005304	GEORGIA PACIFIC CORPORATION 90 WEST REDWOOD AVENUE FORT BRAGG, CA, 95437	GP-FORT BRAGG 90 REDWOOD AVENUE FORT BRAGG, CA, 95437 Mendocino County	Private	Industrial	Hazardous Process Waste	2421 4013	5.7	MIN
1	1B83129OMEN CA0022870	MENDOCINO CITY CSD P.O. BOX 1029 MENDOCINO, CA, 95460	MENDOCINO CITY CSD 10500 KELLY STREET MENDOCINO, CA, 95460 Mendocino County	Special District	Municipal/ Domestic	Designated Domestic Sewage	4952	0.142	MIN
3	3 272006001 CA0007005	NATIONAL REFRACTORIES P. O. BOX 30 MOSS LANDING, CA, 95039	NAT. REFRACTORIES HIGHWAY ONE MOSS LANDING, CA, 95039 Monterey County	Private	Industrial	Designated Process Waste	1450	10.	MAJ
3	3 402003002 CA0003743	PACIFIC GAS & ELECTRIC COMPANY P. O. BOX 1617 MORRO BAY, CA, 934431617	PG&E MORRO BAY POWER PLANT 1290 EMBARCADERO ROAD MORRO BAY, CA, 93442 San Luis Obispo County	Private	Industrial	Designated Non-Contact Cooling Water	4911	725.	MAJ
3	3 272011001 CA0006254	PACIFIC GAS & ELECTRIC COMPANY P.O. BOX 27 MOSS LANDING, CA, 950390027	PG&E MOSS LANDING POWER PLANT HIGHWAY 1 AND DOLAN ROAD MOSS LANDING, CA, 95039 Monterey County	Private	Industrial	Designated Non-Contact Cooling Water	4911	983.	MAJ
3	3 420108001 CA0048143	SANTA BARBARA CITY DPW P.O. BOX 1990 SANTA BARBARA, CA, 931021990	EL ESTERO WWTP NPDES 520 E. YANONALI SANTA BARBARA, CA, 93103 Santa Barbara County	City	Municipal/ Domestic	Designated Domestic Sewage & Industrial Waste	4952	8.5	MAJ
4	CA0109991	LOS ANGELES CITY OF DPW 200 N. MAIN ST. ROOM 1400 LOS ANGELES, CA, 90012	HYPERION WWRP, NPDES 12000 VISTA DEL MAR PLAYA DEL REY, CA, 90293 Los Angeles County	City	Municipal/ Domestic	Designated Domestic Sewage & Industrial Waste	4952	330.	MAJ

Table 9. Existing permit effluent limitations for the randomly-selected facilities.

Chemical Name	1990 CA Ocean Plan Objective (ug/L)	Existing Permit[c] Effluent Limitations (ug/L)						
		Permit 1 No Dilution	Permit 2 D_m = 100	Permit 3 D_m = 33	Permit 4 D_m = 10.4	Permit 5 D_m = 10.8 site 002	Permit 6 D_m = 120	Permit 7 D_m = 84 site 002
Chlorodibromomethane	130.[a]	130.	130.	4,400.	1,500.	1,560.	15,730.	none
Dichlorobromomethane	130.[a]	130.	130.	4,400.	1,500.	1,560.	15,730.	none
1,2-dichloroethane	130.	130.	130.	4,400.	1,500.	1,560.	15,730.	none
1,1-dichloroethylene	7,100.	7,100.	7,100.	240,000.	81,000.	90,000.	860,000.	none
heptachlor	0.00072[b]	0.00072	0.00072	0.024	none	none	0.08	0.061
heptachlor epoxide	0.00072[b]	0.00072	0.00072	0.024	none	none	0.08	0.061
Isophorone	150,000.	150,000.	150,000.	5,100,000.	1,700,000.	1,800,000.	18,150,000.	none
N- nitrosodi-N-propylamine	none	none	none	none	none	none	none	none
1,1,2,2-tetrachloroethane	1,200.	1,200.	1,200.	41,000.	490,000.	10,000.	150,000.	none
Tetrachloroethylene	99.	99,000.	99.	3400.	1,100.	1,190.	11,980.	none
Thallium	14.	14,000.	14.	480.	160.	170.	1,690.	1,190.
1,1,2-trichloroethane	43,000.	43,000.	43,000.	1,500,000.	490,000.	520,000.	5,200,000.	none

Footnotes:

a) The objective is applicable to the sum of "halomethanes" defined in the Ocean Plan as bromoform, methyl bromide, methyl chloride, chlorodibromomethane, and dichlorodibromomethane.

b) The objective is applicable to the sum of "heptachlor" defined in the Ocean Plan as heptachlor and heptachlor epoxide.

c) Permit 1 = CA0005304 (Georgia Pacific Corporation); Permit 2 = CA0022870 (Mendocino City CSD); Permit 3 = CA0007005 (National Refractories); Permit 4 = CA0003743 (PG&E Morro Bay); Permit 5 = CA0006254 (PG&E Moss Landing); Permit 6 = CA0048143 (Santa Barbara City DPW); Permit 7 = CA0109991(Los Angeles City of DPW Hyperion WWTP)

Table 10. Predicted Effluent Limitations based on the proposed Ocean Plan objectives

Chemical Name	Proposed CA Ocean Plan Objective (ug/L)	Predicted Permit Effluent Limitations based on Proposed Ocean Plan Objectives[a] (ug/L)						
		Permit 1 No Dilution	Permit 2 D_m = 100	Permit 3 D_m = 33	Permit 4 D_m = 10.4	Permit 5 D_m = 10.8 site 002	Permit 6 D_m = 120	Permit 7 D_m = 84 site 002
Chlorodibromomethane	8.6	8.6	870.	290.	98.	100.	1,040.	730.
Dichlorobromomethane	6.2	6.2	630.	210.	71.	73.	750.	530.
1,2-dichloroethane	28.	28.	2,800.	950.	320.	330.	3,400.	2,400.
1,1-dichloroethylene	0.9	0.9	90.	30.	10.	11.	110.	80.
heptachlor	0.000050	0.00005	0.0051	0.0017	0.00057	0.00059	0.0061	0.0043
heptachlor epoxide	0.000020	0.00002	0.0020	0.00068	0.00023	0.00024	0.0024	0.0017
Isophorone	730.	730.	74,000.	25,000.	8,300.	8,600.	88,000.	62,000.
N- nitrosodi-N-propylamine	0.38	0.38	38.	13.	4.3	4.5	46.	32.
1,1,2,2-tetrachloroethane	2.3	2.3	230.	78.	26.	27.	280.	200.
Tetrachloroethylene	2.0	2.0	200.	68.	23.	24.	240.	170.
Thallium	2.	2.	200.	70.	20.	20.	200.	200.
1,1,2-trichloroethane	9.4	9.4	950.	320.	110.	110.	1,100.	800.

Footnotes:

a) Predicted effluent limits were calculated using the Ocean Plan equation, $C_e = C_o + D_m (C_o - C_s)$, where C_e is the effluent limit in ug/L, C_o is the water quality objective in ug/L, D_m is the minimum initial dilution seawater to wastewater ratio, and C_s is the background seawater concentration in ug/L. For the proposed objectives, Cs = 0, and the equation takes the form $C_e = C_o (D_m + 1)$.

Table 11. Predicted permit effluent limitations (Limit) and Discharge Monitoring Data (DMR) from the randomly-selected facilities. (ug/L)

Chemical Name	ML	Permit 1		Permit 2		Permit 3		Permit 4		Permit 5		Permit 6		Permit 7	
		Limit	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	DMR	Limit	DMR
Chlorodibromo-methane	0.5, 2	8.6	(a)	870.	5.2	290.	(a)	98.	<10, <2 (a)(c)	100.	<0.5 (a)(c)	1040.	<0.5	730.	0.69 (36) max=2.3
Dichlorobromo-methane	0.5, 2	6.2	(a)	630.	10	210.	(a)	71.	<10, <2 (a)(c)	73.	<0.5 (a)(c)	750.	<0.5	530.	<1.34 (32) max=2.17
1,2-dichloroethane	0.5, 2	28.	(a)	2,800.	<5.0	950.	(a)	320.	<500,<2 (a) (c)	330.	<0.5 (a)(c)	3,400.	<0.5 (3)	2,400.	<0.58 (32) max=7.24
1,1-dichloroethylene	0.5, 2	0.9	(a)	90.	<5.0	30.	(a)	10.	<5, <2 (a)(c)	11.	<0.5 (a)(c)	110.	<0.5 (4)	80.	<5.4 (32) max=3
heptachlor	0.01	0.00005	(a)	0.0051	<0.05, <0.05	0.0017	<0.05 (4)(a)(c)	0.00057	<0.05 (b)(c)	0.00059	(b)	0.0061	<0.03 (4) max= <0.01	0.0043	<0.006 (31)
heptachlor epoxide	0.01	0.00002	(a)	0.0020	<0.05, <0.05	0.00068	<0.05 (4)(a)(c)	0.00023	<0.05 (b)(c)	0.00024	(b)	0.0024	<0.03	0.0017	<0.003 (31)
Isophorone	1, 10	730.	(a)	74,000.	<10	25,000.	(a)	8,300.	<10, <2 (a)(c)	8,600.	<10 (a)(c)	88,000.	<5 (4)	62,000.	<5.5 (40) max=<2
N- nitrosodi-N-propylamine	5, 10	0.38	(b)	38.	<10	13.	(b)	4.3	<2 (c)	4.5	<10 (b)(c)	46.	<10	32.	<2.0 (40)
1,1,2,2-tetrachloroethane	0.5, 1	2.3	(a)	230.	<5.0	78.	(a)	26.	<5, <2 (a)(c)	27.	<0.5 (a)(c)	280.	<0.5 (4)	200.	<0.26 (32) max= <0.14
Tetrachloroethylene	0.5, 2	2.0	(a)	200.	<5.0	68.	(a)	23.	<5, <2 (a)(c)	24.	<0.5 (a)(c)	240.	<0.5 (4)	170.	6.6 (32) max=63.7
Thallium	1 – 1000	2.	<10 (a)(c)	200.	(a)	70.	(a)	20.	<4 (a)(c)	20.	<50 (a)(c)	200.	<5 (4)	200.	<5 (44)
1,1,2-trichloroethane	0.5, 2	9.4	(a)	950.	<5.0	320.	(a)	110.	<5, <2 (a)(c)	110.	<0.5 (a)(c)	1,100.	<0.5 (3)	800.	<0.24 (32) max=<0.11

Footnotes: (a) No data available. The facility has a permit effluent limitation but is not required to monitor for the pollutant.

(b) No data available. The facility does not have an effluent limitation for the pollutant.

(c) Data obtained from the NPDES permit application.

Other Notes: "ML" indicates the Minimum Level . The Median value of data is shown when there are three or more observations; the number of observations is shown in parentheses. Monitoring data with a less than sign, "<", indicates the Method Detection Limit for an analytical result reported as "not detected The sample maximum used in the economic analysis is listed if different from the median. When all data is non-detect the lowest detection limit was used in the economic analysis.

The need for developing housing within the region.

No change in current end-of-pipe waste water treatment is needed to meet the proposed objectives. Therefore, adoption of the proposed objectives should not have either a direct or indirect impact on the development of new housing

The need to develop and use recycled water.

Since the proposed objectives will be attainable using current waste water treatment technology, the proposed objectives will not limit expanded use of recycled water.

Proposed Ocean Plan Amendment

Presented below are the proposed changes to the 1997 Ocean plan that will result if *only* the changes proposed in Issue 2 are approved. Presented in Appendix B are the *combined* changes to the 1997 Ocean Plan that will occur if this amendment and the five other proposed amendments are also approved. The organization of the text presented below differs significantly from that presented in Appendix B due to the format change associated with Issue 4 and the addition of several sections and corresponding text from the other proposed amendments. For example, within the 1997 Ocean Plan, Tables A and B are presented in Chapter IV, Quality Requirements for Waste Discharges. Within Appendix B of this Document, Table A is located in Chapter III, Program of Implementation and Table B, is located in Chapter II, Water Quality Objectives.

1. Revise water quality objectives in Table B for the following chemicals:

TABLE B
WATER QUALITY OBJECTIVES

	30-day Average (ug/l)	
Chemical	Decimal Notation	Scientific Notation
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH -- NONCARCINOGENS		
~~1,1-dichloroethylene~~	~~7,100~~	~~7.1×10^{3}~~
~~isophorone~~	~~150,000~~	~~1.5×10^{5}~~
thallium	~~14~~2	2×10^{0}
~~1,1,2,2-tetrachloroethane~~	~~1,200~~	~~1.2×10^{3}~~
~~1,1,2 trichloroethane~~	~~43,000~~	~~4.3×10^{4}~~
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH -- CARCINOGENS		
chlorodibromomethane	8.6	8.6×10^{0}
1,2-dichloroethane	~~130~~28	2.8×10^{1}
1,1-dichloroethylene	0.9	9×10^{-1}
dichlorobromomethane	6.2	6.2×10^{0}
~~heptachlor*~~	~~0.00072~~	~~7.2×10^{-4}~~
heptachlor	0.00005	5×10^{-5}
heptachlor epoxide	0.00002	2×10^{-5}
isophorone	730	7.3×10^{2}
N-nitrosodi-N-propylamine	0.38	3.8×10^{-1}
1,1,2,2-tetrachloroethane	2.3	2.3×10^{0}
tetrachloroethylene	~~99~~2.0	2.0×10^{0}
1,1,2-trichlorethane	9.4	9.4×10^{0}

2. Modify the Ocean Plan Appendix I Definitions for pollutants formerly regulated by chemical groupings:

APPENDIX I

DEFINITION OF TERMS

HALOMETHANES shall mean the sum of bromoform, bromomethane (methyl bromide), and chloromethane (methyl chloride~~), chlorodibromomethane, and dichlorobromomethane~~.

~~HEPTACHLOR shall mean the sum of heptachlor and heptachlor epoxide.~~

ISSUE 3: COMPLIANCE DETERMINATION FOR CHEMICAL OBJECTIVES

Present Ocean Plan

Table B of the California Ocean Plan (Ocean Plan) contains numeric water quality objectives for the protection of beneficial uses in receiving waters. These water quality objectives are used to derive effluent limitations in National Pollutant Discharge Elimination System (NPDES) permits. Most NPDES permits contain monitoring requirements to ensure that pollutant concentrations in effluent discharges do not exceed permit effluent limitations. The present Ocean Plan contains provisions for determining compliance with effluent limitations that are below a "Practical Quantification Level (PQL)." The Ocean Plan describes *when* compliance should be determined by comparing the results of single or multiple monitoring samples with published PQLs and the calculated effluent limitation.

In addition, provisions are made for the statistical analysis of multiple samples when monitoring shows recurrent analytical responses between the PQL and the effluent limitation.

Issue Description

Effluent limitations for pollutants are occasionally set at levels that are too low to be detected by routine analytical chemistry methods. This often occurs when the pollutant is highly toxic or has a tendency to bioaccumulate in the environment. Since the ultimate goal of the effluent limitation is to protect water quality, the U.S. EPA recommends that permit limitations are set without regard to the existing analytical detection levels (U.S. EPA 1991, p. 111). Although this may create a difficult situation for determining compliance with permit limitations, a numeric effluent limit establishes a clear standard of conduct for the permitted discharger. Additionally, it is reasonable to expect that analytical detection levels will become more sensitive over time.

As an initial attempt to resolve the problem of effluent limitations set lower than analytical detection limits, a Compliance Determination section was added to the Ocean Plan in 1990. Method Detection Limits (MDL) and the Practical Quantification Level (PQL) were defined in the Plan, and a procedure was established to assist RWQCB staff in assessing when to determine compliance with permit limitations. The MDL, as defined in the Ocean Plan is as follows:

> *Method Detection Limit is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as defined in 40 CFR 136 Appendix B.*

The procedure described in 40 CFR 136, Appendix B establishes MDLs statistically by requiring analysis of seven or more samples of a laboratory standard solution.

The PQL, as defined in the Ocean Plan, is as follows:

> *Practical Quantification Level is the lowest concentration of a substance which can be consistently determined within +/- 20% of the true concentration by 75% of the labs tested in a performance evaluation study. Alternatively, if performance data are not available, the PQL for carcinogens is the MDL x 5, and for noncarcinogens is the MDL x 10.*

The existing Ocean Plan language, however, does not adequately describe whether a monitoring sample is in compliance with the calculated effluent limitations. The existing language focuses on when compliance

determinations should be made, not if compliance is achieved. For example, when the calculated effluent limitation is below the PQL and a single monitoring sample exceeds the PQL, the present language states that compliance determination shall be undertaken. In fact, such a sample is out of compliance since it is greater than both the effluent limit and the PQL.

In approving the 1990 Ocean Plan, the U.S. EPA Regional Administrator identified certain ambiguities in the Compliance Determination section that could compromise enforcement actions (U.S. EPA 1990). The Administrator recommended that the SWRCB improve this section and "maintain a current list of published values for PQLs." Unfortunately, the SWRCB has not assembled such a list of PQLs for use in compliance determination.

The lack of published PQLs has led to several different policies among the RWQCBs. For example, the Santa Ana Regional Board has independently developed its own list of PQLs for 44 priority pollutants, while the other RWQCBs have no policy regarding detection limits. Some RWQCBs assume compliance with permit effluent limitations if monitoring results are "not detected" regardless of the Method Detection Limit. At least one RWQCB only evaluates situations of non-compliance that are identified by the discharger in their self-monitoring reports.

U.S. EPA is actively reevaluating the use of PQLs. Since approving the 1990 Ocean Plan, the U.S. EPA has de-emphasized the use of PQLs (and other analytical measurements derived from the MDL) for the purpose of compliance determination. The U.S. EPA Technical Support Document (U.S. EPA 1991, p. 112) states: "Because the PQL has no one definition, EPA is not recommending its use in NPDES permitting."

Minimum Levels

For most NPDES permitting situations, U.S. EPA now recommends that the compliance level be defined in the permit as the Minimum Level (ML). A 1991 U.S.EPA definition of the Minimum Level was (U.S. EPA 1991, p. 111):

> *the level at which the entire analytical system gives recognizable mass spectra and acceptable calibration points when analyzing for pollutants of concern. This level corresponds to the lowest point at which the calibration curve is determined.*

The ML concept provides a reliable and reproducible lower limit to analytical determinations by using the lowest standard in the laboratory calibration curve for a particular analytical method.
During the scientific peer review of this issue, the reviewer suggested that the above ML definition should be expanded to include a wide range of analytical techniques, rather than only mass spectral analyses (SWRCB 1998b).

U.S.EPA subsequently modified their original 1991 ML definition when publishing the 1995 Water Quality Guidance for the Great Lakes System in the Federal Register 60(56):153366-15425. Page 15389 of this Rule reads:

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

The U.S. EPA's Water Quality Guidance for the Great Lakes requires the use of MLs when water-quality based effluent limitations are below the quantification level (U.S. EPA 1995a). SWRCB staff believe that this ML definition is the most suitable version for inclusion into the Ocean Plan.

Derivation of Statewide Minimum Levels

Analytical laboratories in California that measure pollutant levels in wastewater for regulatory purposes generally use the approved U.S. EPA methods described in the Code of Federal Regulations (40 CFR 136). In some cases the analytical method appearing in 40 CFR 136 is modified by the laboratory to enhance the analytical performance of the method; all modifications to the analytical methods are made with Regional Water Quality Control Board approval. These methods require each laboratory to establish their own calibration curves. As a result, each laboratory develops their own, unique, ML for each pollutant/method combination.

A single ML value for statewide use can be derived for each pollutant/method combination. The statewide ML for each pollutant could be derived from the individual MLs obtained from the large group of California laboratories that are certified to conduct analyses for NPDES compliance; this would approximate the "entire analytical system" of California-certified laboratories. These statewide MLs could then be used to determine compliance with permit limitations.

Staff in the Division of Water Quality's Quality Assurance Unit requested chemistry results in 1997 and 1998 from 160 state certified laboratories to derive suitable statewide MLs. The laboratories were asked to provide the concentration of the lowest calibration standard routinely used in calibration curves for the determination of the 126 priority pollutants. The laboratories were also asked to provide the method reference and any appropriate concentration or dilution ratios applicable to the calibration standards. Fifty-nine laboratories voluntarily responded to the ML data request. Because some laboratories provided more than one calibration concentration, some chemical/technique combinations contained more than 59 data points.

Staff then derived pollutant-specific ML values by finding the 20th percentile of the laboratory ML data for each pollutant. The computed MLs thus obtained were rounded to the closest multiples of 1, 2, 5, or 10. These multiples represent common ratios used in analytical chemistry, and laboratories commonly choose calibration standards having these multiples. For example, the responding laboratories submitted 67 cyanide calibration concentrations developed using the Colorimetric Method. The 20th percentile of this group of cyanide data was 5.4 ug/L (Figure 1). The 20th percentile value was adjusted to the closest multiple for a final derived ML value of 5 ug/L.

Although the peer reviewer commented that rounding the ML to the closest multiple will introduce bias into the final ML (SWRCB 1998b), the overall effect of rounding towards a lower number will tend to cancel the effect of rounding towards a higher number. The practical basis for rounding the ML to these multiples is to simplify instrument calibrations and to reduce errors when preparing volumetric calibration solutions.

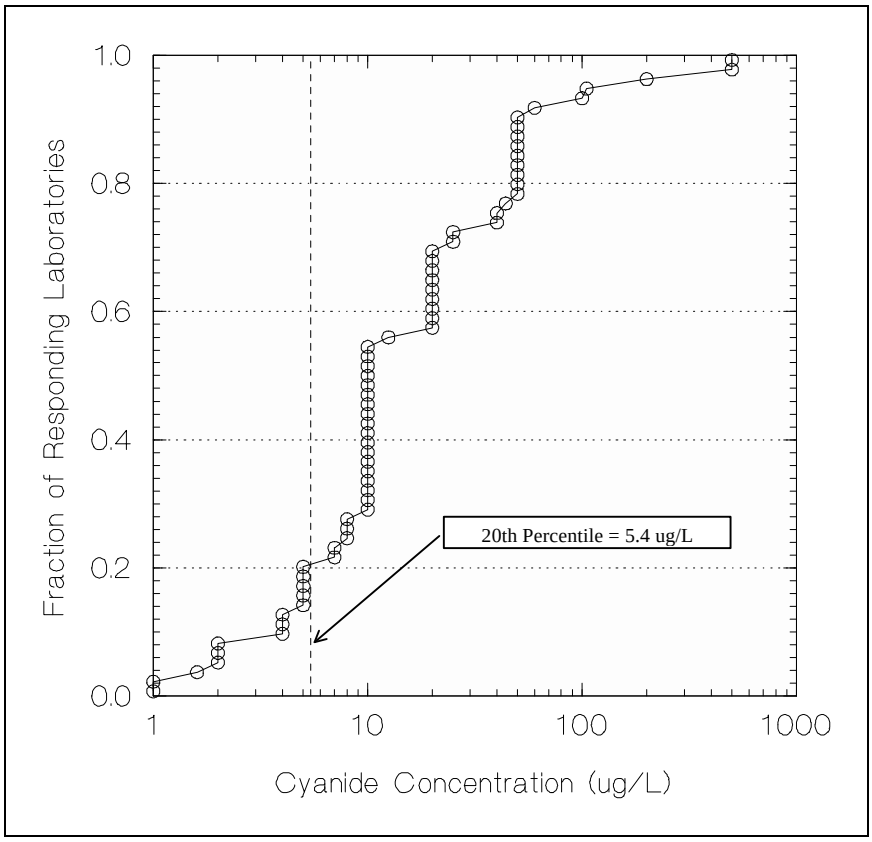


Figure 1. Cumulative frequency distribution for 67 cyanide calibration standards obtained from responding laboratories using the Colorimetric method.

Staff selected the 20th percentile for MLs as an acceptable compromise point. Selecting the ML from the lowest percentiles would give increased analytical sensitivity, whereas selecting the ML from the highest percentiles would guarantee that most laboratories could measure the pollutant at the required level without changes to their current practices. Setting the statewide ML at the 20th percentile means that 20% of the responding laboratories can detect the pollutant at the Minimum Level using their current equipment and practices.

Once the statewide MLs were derived, the SWRCB Quality Assurance Officer performed on-site verification interviews with 14 randomly-selected laboratories. During these verification interviews, laboratory personnel were asked to confirm the accuracy of the original calibration standard data they provided the SWRCB. In addition, laboratory personnel were allowed to examine the proposed statewide MLs and to determine if they would be able to calibrate their equipment using the statewide MLs. All of the laboratory personnel interviewed indicated that they could readily calibrate using the statewide MLs. Some laboratory personnel indicated that their lowest calibration point is often set based on personal preference, client or regulatory demands, or historical needs.

The results of the verification interviews indicate that many laboratories could set their lowest calibration point toward a lower chemical concentration without a major change in analytical equipment. State Board staff acknowledge that the subjectivity involved in a laboratory's selection of the lowest calibration standard

could lead to unintended biases in the derived statewide ML. However, we believe that the statewide 20th percentile MLs are currently achievable by the majority of laboratories performing analyses for NPDES regulatory work in California. Furthermore, the MLs are expected to be adjusted to smaller magnitudes as laboratories having the highest calibration standards begin using lower calibration standards. Presumably, even lower MLs could be obtained by laboratories intent on lowering their calibration standard concentrations or through a controlled inter-laboratory study of pre-defined calibration standards.

Statewide Minimum Levels

Tables 12A through 12D present results derived from the SWRCB Minimum Level Survey for all compounds regulated by Table B of the Ocean Plan except for ammonia, total residual chlorine, chromium (III) , tributyltin, the 2,4'isomers of DDT, DDD, and DDE, and dioxin congeners. The present list of MLs represents the lowest concentration of a pollutant that can be quantitatively measured given the current state of performance in analytical chemistry methods in California. SWRCB staff intend to update this list as existing methods are improved and as new methods are promulgated.

Note that the MLs presented in these tables were based on the actual lowest analytical standards used by laboratories. The ML concentrations in these tables represent pollutant concentrations in water samples after the method-specified sample weights, volumes and processing steps have been followed. Often, a water sample is concentrated or diluted prior to detection by the analytical instrument. Analytical calibration standards, in contrast, are not usually concentrated or diluted before detection by the instrument, but mixed directly from a reference solution and detected by the instrument.

Samples analyzed for semi-volatiles in the statewide survey were most commonly concentrated 1,000 times prior to detection; samples analyzed for pesticides were most commonly concentrated 100 times prior to detection. For this reason, laboratory analysts wishing to calibrate their instruments will need to multiply the statewide ML by an appropriate multiplier in order to determine the calibration standard concentration. Footnotes in Tables 12B and 12D indicate the most common multiplier to use in order to convert the ML concentration into a calibration standard concentration.

Tables 12A — 12D. Minimum Levels for use in reporting and compliance determination. These Minimum Levels represent the lowest concentration of a pollutant that can be quantitatively measured in a sample given the current state of performance in analytical chemistry methods in California. These Minimum Levels were derived from data provided by state-certified analytical laboratories in 1997 and 1998 for pollutants regulated by the California Ocean Plan and shall be used until new values are adopted by the SWRCB. There are four major chemical groupings: volatile chemicals, semi-volatile chemicals, inorganics, pesticides & PCB's. "No Data" is indicated by "--".

Table 12A Volatile Chemicals	CAS Number	Minimum Level* (ug/L)	
		GC Method [a]	GCMS Method [b]
Acrolein	107028	2	5
Acrylonitrile	107131	2	2
Benzene	71432	0.5	2
Bromoform	75252	0.5	2
Carbon Tetrachloride	56235	0.5	2
Chlorobenzene	108907	0.5	2
Chlorodibromomethane	124481	0.5	2
Chloroform	67663	0.5	2
1,2-Dichlorobenzene (volatile)	95501	0.5	2
1,3-Dichlorobenzene (volatile)	541731	0.5	2
1,4-Dichlorobenzene (volatile)	106467	0.5	2
Dichlorobromomethane	75274	0.5	2
1,1-Dichloroethane	75343	0.5	1
1,2-Dichloroethane	107062	0.5	2
1,1-Dichloroethylene	75354	0.5	2
Dichloromethane	75092	0.5	2
1,3-Dichloropropene (volatile)	542756	0.5	2
Ethyl benzene	100414	0.5	2
Methyl Bromide	74839	1	2
Methyl Chloride	74873	0.5	2
1,1,2,2-Tetrachloroethane	79345	0.5	2
Tetrachloroethylene	127184	0.5	2
Toluene	108883	0.5	2
1,1,1-Trichloroethane	71556	0.5	2
1,1,2-Trichloroethane	79005	0.5	2
Trichloroethylene	79016	0.5	2
Vinyl Chloride	75014	0.5	2

a) GC Method

b) GCMS Method

* To determine the lowest standard concentration in an instrument calibration curve for these techniques, use the given ML (see Chapter IV, "Use of Minimum Levels").

Table 12B Semi-Volatile Chemicals	CAS Number	Minimum Level (ug/L)			
		GC Method [a, *]	GCMS Method [b, *]	HPLC Method [c,*]	COLOR Method [d]
Acenapthylene	208968	--	10	0.2	--
Anthracene	120127	--	10	2	--
Benzidine	92875	--	5	--	--
Benzo(a)anthracene	56553	--	10	2	--
Benzo(a)pyrene	50328	--	10	2	--
Benzo(b)fluoranthene	205992	--	10	10	--
Benzo(g,h,i)perylene	191242	--	5	0.1	--
Benzo(k)floranthene	207089	--	10	2	--
Bis 2-(1-Chloroethoxy) methane	111911	--	5	--	--
Bis(2-Chloroethyl)ether	111444	10	1	--	--
Bis(2-Chloroisopropyl)ether	39638329	10	2	--	--
Bis(2-Ethylhexyl) phthalate	117817	10	5	--	--
2-Chlorophenol	95578	2	5	--	--
Chrysene	218019	--	10	5	--
Di-n-butyl phthalate	84742	--	10	--	--
Dibenzo(a,h)anthracene	53703	--	10	0.1	--
1,2-Dichlorobenzene (semivolatile)	95504	2	2	--	--
1,3-Dichlorobenzene (semivolatile)	541731	2	1	--	--
1,4-Dichlorobenzene (semivolatile)	106467	2	1	--	--
3,3-Dichlorobenzidine	91941	--	5	--	--
2,4-Dichlorophenol	120832	1	5	--	--
1,3-Dichloropropene	542756	--	5	--	
Diethyl phthalate	84662	10	2	--	--
Dimethyl phthalate	131113	10	2	--	--
2,4-Dimethylphenol	105679	1	2	--	--
2,4-Dinitrophenol	51285	5	5	--	--
2,4-Dinitrotoluene	121142	10	5	--	--
1,2-Diphenylhydrazine	122667	--	1	--	--
Fluoranthene	206440	10	1	0.05	--
Fluorene	86737	--	10	0.1	--
Hexachlorobenzene	118741	5	1	--	--
Hexachlorobutadiene	87683	5	1	--	--
Hexachlorocyclopentadiene	77474	5	5	--	--
Hexachloroethane	67721	5	1	--	--
Indeno(1,2,3-cd)pyrene	193395	--	10	0.05	--
Isophorone	78591	10	1	--	--
2-methyl-4,6-dinitrophenol	534521	10	5	--	--
3-methyl-4-chlorophenol	59507	5	1	--	--
N-nitrosodi-n-propylamine	621647	10	5	--	--
N-nitrosodimethylamine	62759	10	5	--	--
N-nitrosodiphenylamine	86306	10	1	--	--
Nitrobenzene	98953	10	1	--	--
2-Nitrophenol	88755	--	10	--	--
4-Nitrophenol	100027	5	10	--	--
Pentachlorophenol	87865	1	5	--	--
Phenanthrene	85018	--	5	0.05	--
Phenol	108952	1	1	--	50
Pyrene	129000	--	10	0.05	--
2,4,6-Trichlorophenol	88062	10	10	--	--

a) GC Method = Gas Chromatography
b) GCMS Method = Gas Chromatography / Mass Spectrometry
c) HPLC Method = High Pressure Liquid Chromatography
d) COLOR Method = Colorimetric

* To determine the lowest standard concentration in an instrument calibration curve for this technique, multiply the given ML by 1000 (see Chapter IV, "Use of Minimum Levels").

Table 12C Inorganic Substances	CAS Number	Minimum Level* (ug/L)								
		COLOR Method[a]	DCP Method[b]	FAA Method[c]	GFAA Method[d]	HYDRIDE Method[e]	ICP Method[f]	ICPMS Method[g]	SPGFAA Method[h]	CVAA Method[i]
Antimony	7440360	--	1000	10	5	0.5	50	0.5	5	--
Arsenic	7440382	20	1000	--	2	1	10	2	2	--
Beryllium	7440417	--	1000	20	0.5	--	2	0.5	1	--
Cadmium	7440439	--	1000	10	0.5	--	10	0.2	0.5	--
Chromium (total)	--	--	1000	50	2	--	10	0.5	1	--
Chromium (VI)	18540299	10	--	5	--	--	--	--	--	--
Copper	7440508	--	1000	20	5	--	10	0.5	2	--
Cyanide	57125	5	--	--	--	--	--	--	--	--
Lead	7439921	--	10000	20	5	--	5	0.5	2	--
Mercury	7439976	--	--	--	--	--	--	0.5	--	0.2
Nickel	7440020	--	1000	50	5	--	20	1	5	--
Selenium	7782492	--	1000	--	5	1	10	2	5	--
Silver	7440224	--	1000	10	1	--	10	0.2	2	--
Thallium	7440280	--	1000	10	2	--	10	1	5	--
Zinc	7440666	--	1000	20	--	--	20	1	10	--

a) COLOR Method = Colorimetric
b) DCP Method = Direct Current Plasma
c) FAA Method = Flame Atomic Absorption
d) GFAA Method = Graphite Furnace Atomic Absorption
e) HYDRIDE Method = Gaseous Hydride Atomic Absorption
f) ICP Method = Inductively Coupled Plasma
g) ICPMS Method = Inductively Coupled Plasma / Mass Spectrometry
h) SPGFAA Method = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., U.S. EPA 200.9)
i) CVAA Method = Cold Vapor Atomic Absorption

- To determine the lowest standard concentration in an instrument calibration curve for these techniques, use the given ML (see Chapter IV, “Use of Minimum Levels”).

Table 12D Pesticides - PCB's	CAS Number	Minimum Level (ug/L) GC Method[a],*
Aldrin	309002	0.005
Chlordane	57749	0.1
4,4'-DDD	72548	0.05
4,4'-DDE	72559	0.05
4,4'-DDT	50293	0.01
Dieldrin	60571	0.01
a-Endosulfan	959988	0.02
b-Endosulfan	33213659	0.01
Endosulfan Sulfate	1031078	0.05
Endrin	72208	0.01
Heptachlor	76448	0.01
Heptachlor Epoxide	1024573	0.01
a-Hexachlorocyclohexane	319846	0.01
b-Hexachlorocyclohexane	319857	0.005
d-Hexachlorocyclohexane	319868	0.005
g-Hexachlorocyclohexane (Lindane)	58899	0.02
PCB 1016	--	0.5
PCB 1221	--	0.5
PCB 1232	--	0.5
PCB 1242	--	0.5
PCB 1248	--	0.5
PCB 1254	--	0.5
PCB 1260	--	0.5
Toxaphene	8001352	0.5

a) GC Method = Gas Chromatography

* To determine the lowest standard concentration in an instrument calibration curve for this technique, multiply the given ML by 100 (see Chapter IV, "Use of Minimum Levels").

Permit Compliance using Minimum Levels

The certainty associated with accurately quantifying a sample's pollutant concentration decreases as the pollutant concentration decreases towards the MDL. Conversely, there is a high degree of certainty in concluding that a monitoring sample is out of compliance when the pollutant concentration is greater than the effluent limitation and greater than or equal to the statewide ML.

Compliance should be based on the situation having the higher degree of certainty. Using this concept, a discharger would be deemed out of compliance when the pollutant concentration in the sample exceeds the effluent limitation and is greater than or equal to the ML. Although this strategy will give the benefit of the doubt to the discharger, this will eliminate out of compliance determinations based on unreliable or poorly quantified analytical data (e.g., some pollutant concentration lower than the statewide ML). Additionally, this strategy will provide certainty whenever a sample is found to be out of compliance.

To reiterate, compliance with single-constituent effluent limits using MLs can be determined by considering this general rule:

> Dischargers shall be out of compliance with the calculated effluent limitation if the concentration of the constituent of concern in the monitoring sample is greater than the calculated effluent limitation and greater than or equal to the statewide Minimum Level.

Reporting Levels for Compliance Monitoring

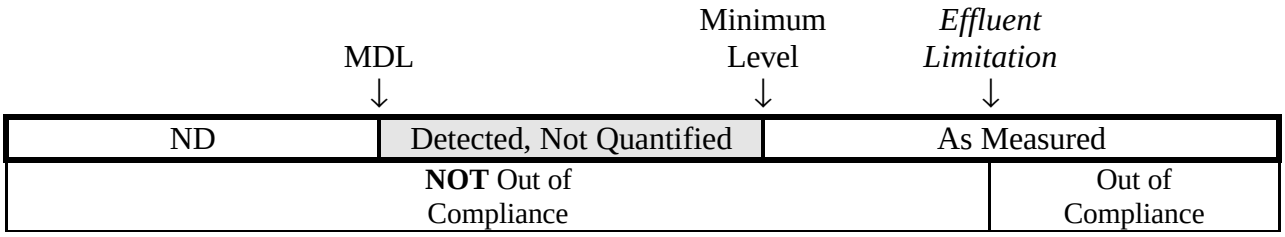
Results of compliance monitoring can be reported based on where the sample concentration is relative to the statewide ML and the laboratory's Method Detection Limit. Three reporting levels are possible:

1 Sample results greater than or equal to the ML could be reported as measured by the laboratory (i.e., the measured pollutant concentration in the sample),
2 Sample results less than the ML but greater than or equal to the laboratory's MDL (as defined in the Ocean Plan) could be reported as Detected, But Not Quantified, or DNQ. The Method Detection Limit should still be reported. This designation readily emphasizes that a sample detected within this range of concentrations, although detectable, is unreliable for compliance determination.
3 Sample results less than the laboratory MDL could be reported as Not Detected, or ND. The Method Detection Limit would continue to be reported.

The following figure (Fig. 2) displays the compliance determination rule and reporting level categories for the three possible regulatory situations:

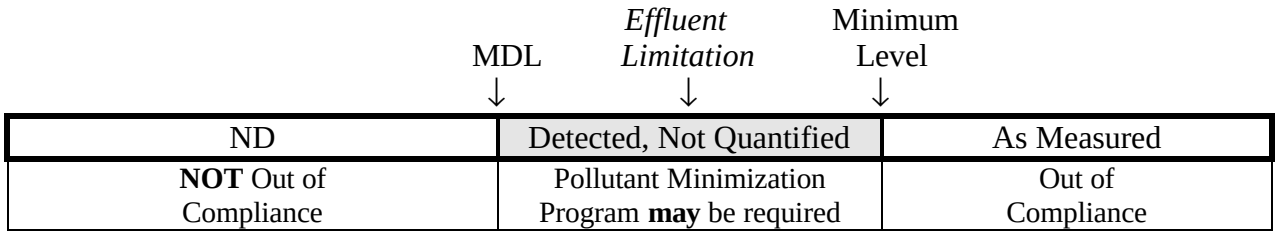
Situation 1: Effluent Limitation set at or above the Minimum Level

Increasing Chemical Concentration →



Situation 2: Effluent Limitation set between the Method Detection Limit and the Minimum Level

Increasing Chemical Concentration →



Situation 3: Effluent Limitation set below the Method Detection Limit

Increasing Chemical Concentration →

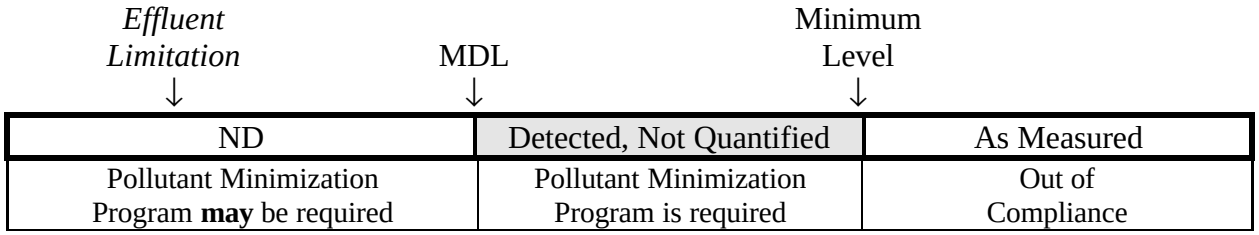


Figure 2. Reporting Levels (dark borders) and Compliance Determination (dashed borders) for three compliance situations based on the magnitude of the Effluent Limitation, the Method Detection Limit (MDL), and the Minimum Level.

Pollutant Minimization Programs

Section 5.73 of the U.S. EPA Technical Support Document for Water Quality-Based Toxics Control (1991) reads:

> *Where water quality-based limits below analytical detection levels are placed in permits, EPA recommends that special conditions also be included in the permit to help ensure that the limits are being met and that excursions above water quality standards are not occurring.*

These special permit conditions were expressed as Pollutant Minimization Programs (PMP) in the Water Quality Guidance for the Great Lakes (U.S. EPA 1995a). The Great Lakes Final Rule requires discharger to "develop and conduct a Pollutant Minimization Program (PMP) for each pollutant with a WQBEL [water quality-based effluent limitation] below the quantification level" (i.e., the Minimum Level). U.S. EPA maintains that such a program is necessary because monitoring data may not always be sufficient to ensure that effluent limitations set below the ML are being attained.

A PMP, however, does not necessarily need to be incorporated into the permit, by default, when the effluent limit is set below the ML. A more prudent policy would require a PMP only when evidence exists that the pollutant is present in the effluent above the calculated effluent limitation and the effluent limitation is lower than the ML. Evidence may include fish consumption advisories for the receiving waters, sample results from more sensitive methods, the presence of whole effluent toxicity, benthic and aquatic organism tissue sampling results, or DNQ results when the effluent limitation is less than the MDL.

The fundamental problem is that MDL and the statewide MLs are, for some pollutants, high in magnitude relative to water quality objectives for some pollutants, especially carcinogens. Federal Regulations at 40 CFR 122.44(d)(1)(iii), however, require that any discharge that has the "reasonable potential" to exceed the State water quality objective must contain an effluent limitation for that pollutant. The Clean Water Act makes no exception to this, even when technological limits prevent the quantification of the pollutant.

ML-based Compliance Determination using Multiple Samples

Ocean discharge monitoring programs often collect and measure a single sample during the compliance monitoring period. This is the least costly monitoring strategy. However, effluent discharges are inherently variable in their pollutant concentrations over time. Multiple samples may provide a better understanding of this variability. Some permits require an increased sampling frequency when a single sample shows an Out of Compliance condition.

Multiple samples collected during an allowable averaging period (e.g., a 30-day average limitation) may include sample results reported as ND or DNQ. These unquantified reporting levels are not easily incorporated into an overall average value since the left side of the true distribution is "censored"; it is usually "not appropriate" to calculate the arithmetic mean for such "ordinal" data (Zar 1984). Data on an ordinal scale of measurement may be ordered or ranked using relative, rather than quantitative, differences.

Many methods have been developed to estimate the mean of data that includes results reported as ND (Clark 1998). A commonly used method is to substitute zero, or the MDL, or one-half the MDL whenever the sample result is ND. These substitution methods attempt to assign a real number to the ND result in order to allow the mean to be calculated. The substituted number, however, may be arbitrarily chosen and could unduly influence the determination of compliance.

A different approach is possible. Since the three reporting levels can objectively be ranked from lowest to highest concentration (ND, DNQ, and "as measured,") a more appropriate measure of central tendency for

this type of data is the median. The median is the middle measurement in a set of data (Zar 1984) and can be used for data on the ordinal measurement scale. Therefore, the median could be used to estimate the central tendency of the constituent of concern if a set of multiple samples contain results reported as ND or DNQ. This approach would avoid the need to substitute a numeric value for the censored datum.

Finding the median value for a set of samples is straightforward when there is an odd number of samples. For example, if three measurements are reported as {DNQ, 12.5, 25} the median would be the second result of 12.5 ug/L. Finding the median with an even number of samples that could include ordinal data requires an averaging of the two middle values. For example, if one additional sample was collected and found to be 20 ug/L, the median of {DNQ, 12.5, 20, 25} would be ½(12.5 + 20) or 16.3. However, if the additional sample was ND, the median of {ND, DNQ, 12.5, 25} is not readily apparent. We must, in this case, set up a logic rule as follows: If, in an even number of samples, one or both of the middle values is ND or DNQ, the median concentration shall be considered to be the lower of the two middle values. In this example, the central tendency of the entire data set is represented by the actual sample result of DNQ. For compliance determination purposes, the primary concern is to determine when compliance with the effluent limitations is achieved rather than to estimate the true mean value of the data set (i.e., the numerical concentration).

If all of the samples are reported in the quantifiable range (i.e., greater than or equal to the Minimum Level), other appropriate measures of central tendency (arithmetic mean, geometric mean, etc.) may be compared to the effluent limitation to assess compliance.

Compliance determination of pollutants regulated as chemical groups

The Ocean Plan contains water quality objectives for chemical groups as well as individual chemical compounds. Chemical groups in Table B are noted with an asterisk, and the individual compounds of the group are defined in Appendix I. An objective that regulates a group of closely-related compounds applies to the sum of the individual concentrations. For example, the six-month median objective for the endosulfan group is 0.009 ug/L. This means that the individual concentrations of alpha-endosulfan, beta endosulfan, and endosulfan sulfate cannot be more than 0.009 ug/L. The following chemical groups are regulated by the Ocean Plan, with the actual number of individual compounds within the group in parenthesis: endosulfans (3), hexachlorocyclohexanes (4), chlorinated phenolics (4), non-chlorinated phenolics (although not defined in Appendix I, there are 4 in the list of priority pollutants), dichlorobenzenes (2), dioxins/furans (17), DDT-related compounds (6), heptachlors (2), PCBs (7), polyaromatic hydrocarbons (13), halomethanes (5), and chlordane (7).

In contrast, the U.S. EPA individually regulates the 126 priority pollutants in the 1992 National Toxics Rule. The use of chemical groupings makes determinations of compliance more difficult. Problems arise when one or more of the individual chemicals are reported as ND. Because the water quality objective applies to the sum of the individual concentrations, it is again necessary to convert the ND result to a real number that can be summed. The above method of using the median does not apply to estimating a sum. The situation is further complicated by the newly-proposed reporting level of DNQ. We must convert all NDs and DNQs to real numbers in order to make the summation. Consequently, we are forced to provide a substitution number that will not artificially influence the determination of compliance.

Presently, the Ocean Plan allows the concentration of individual compounds of a group to be zero if the analytical result is ND. An interim solution for DNQ results would be to also substitute DNQ results with zero. In this way, a numeric sum could be calculated from the individual chemical analyses. Dischargers would be out of compliance with effluent limitations expressed as a sum if the numeric sum, after any zero substitutions, exceeds the limitation. Assessing compliance in this manner will result in “all or nothing” determinations of compliance, and, therefore, are not amenable to the PMP provisions as required for

independently-regulated chemicals. SWRCB staff will consider the long-term solution to this problem -- namely, regulating each chemical constituent individually -- at a later Triennial Review.

Peer Reviewer Comments

The peer reviewer Dr. David Sedlak commented that:
(1) the derivation of MLs based on survey data may lead to unintended biases,
(2) the ML definition may need modifications,
(3) the SWRCB should conduct more detailed evaluations of MLs,
(4) rounding the calculated MLs to multiples of 1, 2, or 5 will introduce bias into the resulting ML,
(5) substituting zero for ND results is inappropriate,
(6) the tables show the ML for the entire method rather than the analytical standard concentrations.

Of these, text was added or revised in the FED in response to peer review comments 1,2,4,5, and 6. Comment 3 was already explored as Alternative 4 in this Issue.

Public Comment and Board Staff Response

General Comments

Comment 3.1: We generally support the use of statewide MLs as proposed by SWRCB. (13, 23) The proposed language for "Reporting Levels" is good. (22)

Response: Comments noted.

Comment 3.2: We are in agreement with the comments made by Ms. Nellor on behalf of Tri-TAC, CASA, and SCAP, Commenter #21. (2, 6, 10, 13)

Response: Comments noted.

Comments in Support of Alternative 4 -- Interlaboratory Study

Comments 3.3: MLs presented are arbitrary and do not readily indicate the level of detection that is actually achievable. We would support an interlaboratory study (Alternative 4) to determine what sensitivity could be realized by a majority of facilities within an acceptable level of accuracy and precision. (1, 15) The proposed MLs based on the 20th percentile of an informal survey of laboratories should be viewed as an interim step in establishing MLs. The next step should be to develop MLs justified by an interlaboratory calibration study. Such a study would provide a technical basis for delineating that portion of the ML definition that addresses an "acceptable level of precision." (6, 21) The ML study methodology is unacceptable given its intended use in establishing a compliance program. The State must undertake a controlled, in-depth, and scientifically valid interlaboratory study that begins to identify and quantify the inter-laboratory variability (per method and matrix). Until such a study is conducted, the present method of compliance determination used at the various Regional Boards should be maintained. (11)

Response: The option to establish MLs through the use of a statewide, controlled, interlaboratory variability study was considered in the Draft FED (Alternative 4). This option was rejected because of the extensive resources (in time and money) that would be required. SWRCB staff agree that results of such a study would provide the most precision and accuracy in defining statewide analytical reporting levels. However, this alternative would require a staggering cost to the SWRCB since laboratory standards for 126 priority pollutants would have to be created and dispersed, in replicate, to approximately 160 certified laboratories statewide. In turn, the laboratories would need to analyze these standards using every applicable analytical

method at their disposal. Finally, from the results of these analyses, the SWRCB would need to statistically determine the appropriate quantification level for use statewide.

The SWRCB believes that it has followed the next best choice by selecting an ML from existing calibration standards. Publication of these MLs in the Ocean Plan could be considered an interim measure. The SWRCB intends to continue gathering California laboratory data and examining the results of published interlaboratory studies to refine the proposed MLs. The California Ocean Plan is required by the California Water Code §13170.2 to be reviewed by the SWRCB at least every three years.

As described in the FED, the reason for now establishing MLs, and thus not continuing the "present method of compliance determination used at the various Regional Boards", is to establish a uniform statewide policy on compliance determination when effluent limitations are below the level of analytical detection. The present Ocean Plan language does not sufficiently describe when compliance is achieved. Furthermore, no statewide list of PQLs has ever been assembled which has led to non-uniform compliance determination policies within the RWQCBs.

Comments Supporting PQLs

Comments 3.4: An ML should be set by individual laboratories based on an approved multiple of the MDL. (4) MLs should be determined through actual Practicable Quantitation Limit studies in real world samples on a statewide basis. An example is the study described in the AWWA Journal 86(2) by Dr. Eaton. (5)

Response: The PQL definition in the Ocean Plan relies on performance evaluation test data that currently does not exist. Alternatively, the Ocean Plan PQL definition allows the use of fixed multipliers of the MDL. SWRCB staff intends to eliminate compliance based on PQLs and to eliminate the PQL definition from the Ocean Plan. This action is consistent with official USEPA guidance in the Technical Support Document (U.S.EPA 1991), "Because the PQL has no one definition, EPA is not recommending its use in NPDES permitting." This viewpoint was again made clear in the *Water Quality Guidance for the Great Lakes System—Supplementary Information Document*, p.343, "EPA does not endorse the use of the PQL for the NPDES program" and "Since the EPA is actively reevaluating its use of the traditional PQL values, EPA does not endorse them for evaluating compliance with WQBELs below the minimum quantification level" (U.S.EPA 1995b)

Whether to use PQLs and multiples of the MDL remains controversial within the U.S.EPA. Although the *Draft National Guidance for the Permitting, Monitoring, and Enforcement of Water Quality-Based Effluent Limitations set below Analytical Detection/Quantitation Levels* defines "interim MLs" as "3.18 times the method-specified MDL rounded to the nearest multiple of 1,2, 5, 10, 20, 50, etc." (U.S.EPA 1994), the U.S.EPA has not published a final version of this document.

Comments on Discharger Reporting

Comments 3.5: Dischargers should report all chemical measurements that exceed the MDL, and qualify those data that are between the MDL and ML as follows: These data are detected, but not quantified values, which lack adequate precision and accuracy for the purposes of compliance determination. While data below the ML are considered not to be of enforcement quality, these values have been reported as the best estimates possible using good laboratory practices and the most sensitive EPA approved methods for the determinations. (1) All analytical data should include the MDLs and the PQLs for the tests conducted. (12)

Response: The proposed Ocean Plan language requires dischargers to report the MDL and ML with each sample result. At the request of U.S.EPA Region 9, the SWRCB staff added the requirement that all DNQ results must also include the *estimated* chemical concentration. We agree that estimated chemical

concentrations submitted with a DNQ result lack the necessary precision and accuracy to prove non-compliance. Additional language is not necessary because the proposed compliance rule explicitly states that the analytical result must be greater than or equal to the ML and greater than the effluent limitation to show non-compliance. Using this compliance rule, therefore, a DNQ result cannot prove non-compliance.

Comment 3.6: We recommend that reporting agencies be required to clearly provide the following information in their compliance reports in a context that can be easily comprehended by the public in a timely and periodic manner:
1. Those specific constituents that do and do not meet Ocean Plan effluent pollutant concentration limits
2. Those specific constituents that are "indeterminate" (ND or DNQ) with respect to Ocean Plan effluent pollutant concentration limits.
3. The numeric value of the Dilution Factor, (D_m) used, and the scientific basis for the value selected for the Dilution Factor.
4. The numeric value for the ML for each effluent limit.
5. The specific method used by the discharger to calculate the numeric value for the ML for each effluent limit (20).

Response: In regard to Item 1 above, SWRCB staff agrees that discharge monitoring reports should clearly identify all cases of reportable non-compliance with effluent limitations. Accordingly, the SWRCB Water Quality Enforcement Policy (Resolution 96-030) states that "It is desirable to encourage self-auditing, self-policing, and voluntary disclosure of environmental violations by dischargers." Each NPDES permit contains Standard Provisions and Reporting Requirements which require that the monitoring data be presented in a tabular format and that the discharger attach a transmittal letter along with the data which discusses any permit violations. SWRCB believes that the information in Item 1 is already being provided by dischargers and that it is not necessary to add such language to the Ocean Plan. Furthermore, the SWRCB submits a Quarterly Report of Non-Compliance to U.S. EPA, Region 9, as required by Federal Regulations at 40 CFR 123.45. In regard to Items 2 and 4, the information identified will be required by the proposed Ocean Plan language. In regard to Item 3, the permittee's dilution factor, D_m, is a "finding" in the permit, and the basis for this finding is often discussed in the permit. The general public may comment on the appropriateness of the dilution factor during the Public Hearing specific to the permit. In regard to Item 5, the draft Ocean Plan FED describes the methodology used by the SWRCB to calculate the numeric value of each ML; the proposed Ocean Plan language provides direction to the RWQCB for selecting the appropriate statewide ML to use in the permit.

<u>Comments on the ML Definition</u>

Comments 3.7: The working definition on p. 63 of the Draft FED is not the same definition in the amended Ocean Plan (Appendix 1, p. 28). (21) The ML concept may be workable but only if the language is tightened up and the laboratory responses validated. Of particular importance are the definitions of "acceptable level of precision" and "acceptable calibration points." (4) The ML proposal does not account for difficulties encountered in "real world" samples. Standards used for calibration curves do not go through the sample preparation as required by the full method. (5) The footnote in the ML tables describing actual sample concentrations renders the MLs as guidance and not regulatory. (5) It may be useful to change the term "minimum level" to "minimum acceptable calibration level" to avoid confusion with state water quality objectives, permit limits, or some minimally acceptable permit limit. (12) We recommend that the ML effort be coordinated with other Cal-EPA agencies to reduce the risk of dischargers having to use different laboratories. (14)

Response: SWRCB staff has decided to adopt the Minimum Level definition as defined in the 1995 Water Quality Guidance for the Great Lakes (USEPA 1995, p. 15389):

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

This definition will be added to Appendix I of the Ocean Plan, Definition of Terms. We believe that this definition is sufficient in conceptually describing the ML as a concentration derived from the lowest calibration standard without being overly prescriptive. The definition no longer includes the phrase "acceptable level of precision." Nor do we wish to coin the new term "minimum acceptable calibration level." Our methodology to establish MLs interprets the phrase "acceptable calibration point" as the 20th percentile of the existing laboratory calibration standards. While it is true that calibration standards do not always go through the same sample preparation steps as "real world" samples, it is precisely this reason that makes calibration standards appealing for establishing statewide MLs. Laboratories, in selecting the lowest concentration for their calibration curves are driven to select consistently accurate and reproducible levels in order to avoid continually revising their analytical procedures. The SWRCB simply selected a single ML value from a collection of already proven calibration standards.

As noted by the commenter, a problem with this methodology becomes apparent when a sample is significantly concentrated or diluted in comparison to the calibration standard. Footnotes were added in the original ML tables to give the reader an idea of the approximate sample concentration obtained when using the given ML. The commenter suggested that these approximate concentrations are thus guidance, not regulatory. To ensure clarity that we intend these concentration to be regulatory, all MLs are now expressed as the lowest concentration that can be measured in a sample. The footnotes in Appendix III now provide instruction to laboratory personnel who will need to determine an acceptable calibration standard concentration. This is consistent with the Great Lakes ML definition, which assumes that all method-specified processing steps are followed.

Within Cal/EPA, the SWRCB and RWQCBs have primary authority to issue NPDES permits. Coordination of the ML effort within Cal/EPA and other concerned agencies occurs during the public review period and through the Cal/EPA review of the proposed modifications to the Ocean Plan. In particular, we will coordinate the use of these MLs with the Department of Health Services Environmental Laboratory Accreditation Program.

<u>Comments on SWRCBs Minimum Level Methodology--20th percentile</u>

Comments 3.8: The selection of the 20th percentile to derive MLs seems rather arbitrary (4,10). Perhaps DHS's Environmental Laboratory Accreditation Program (ELAP) would be able to assist in developing a more extensive database of method limits. (10) The State should not rely on survey data in establishing MLs. The report "A Study to Determine the Practical Quantitation Levels (PQL) for Selected Water Chemistry Parameters Analyzed by Commercial Laboratories Operating in the Santa Ana River Watershed" demonstrates that laboratories seem to be estimating or biasing their responses on data of a higher quality than is achieved in normal practice. (4) No consideration seems to be given to other factors that might affect the sensitivity of the analysis such as age of the equipment or the manner in which a method is performed. (4) We are concerned that by setting the MLs at these low levels the quality of the data may suffer. If the State must set an acceptable level, it should be based on values used by the vast majority of labs in the State, or more appropriately through performance audits of samples with concentrations at or near the proposed ML. (4) Although, the ML concept of establishing a "Statewide Minimum Level" would assist in standardized reporting, the ML concept proposed in the Draft Ocean Plan is not appropriate. Only 59 labs, or 37% of the accredited labs, responded. Laboratories did not respond to all Methods, which leads to small data sets. (5) The proposed policy is onerous and may lead to violations based on data that, by definition, is unreliable. (5)

Proposed MLs are not based on a statistically representative cross section of labs. Not all responding labs responded to each method. (9) The laboratory study used to derive MLs was purely voluntary and resulted in a small sample set, which produces a high margin of error. No technical weight can be scientifically attributed to the data. No description of the certified labs or chemist experience is given. The FED does not indicate whether these certified labs were required to provide statements of quality and precision about their lowest calibration point. (11) Failing to adequately validate the method used to derive statewide MLs provides little confidence that the data produced can be used for regulatory purposes. (11) Little justification is provided for the selection of the 20th percentile of the lowest calibration standards to set MLs. Why not consider the 50th percentile? (15) We would like the SWRCB to consider using the 50th percentile or higher ranking as an interim measure for this program. (2) The methodology used to establish the proposed MLs is inadequate and arbitrary. Selection of the lowest calibration standard as a gauge of quantification is inappropriate as it could set the quantitation level at a point that would include unacceptable variability. (17) We are generally concerned with the selection of the 20^{th} percentile since this translates into only 12 labs in the state that can meet any given ML at the proposed levels. This decision needs clarification, and other options, namely the 50^{th} percentile, should be considered with the understanding that lower MLs would be phased in over time. (21) Care must be taken to ensure that ML values are not arbitrarily or erroneously assigned. (21) DNQ values are not scientifically defensible results and, therefore, should not trigger additional requirements. (5)

Response: It is important to reiterate a fundamental concept related to NPDES water quality-based effluent limitations. U.S.EPA recommends, and SWRCB staff agrees, that NPDES permits should contain the calculated effluent limitation derived from a water quality objective, regardless of the analytical detection level (U.S.EPA 1991 p.111). An NPDES permittee is, ultimately, responsible for maintaining compliance with the requirements of their permit. In turn, the SWRCB and RWQCBs are responsible for tracking compliance with NPDES permit requirements, and thereby enforcing the Clean Water Act. From a practical standpoint, however, it is not possible to correctly assess compliance when the effluent limit is below the laboratory MDL and the sample result is ND. The purpose of establishing statewide MLs is to assist in the uniform assessment of compliance when effluent limitations are set below the analytical detection level. Although a particular ML may be greater than a given effluent limitation, this does not relieve the discharger from the obligation to meet the permit effluent limitation. Moreover, all discharges of wastes into waters of the state are privileges, not rights (CA Water Code §13263(g)).

The SWRCB has derived MLs in a good-faith effort to uniformly define a pollutant concentration that, if exceeded, would be considered non-compliant when the effluent limitation is set below detection levels. In essence, when the ML is greater than the effluent limitation, the ML grants a certain amount of "grace" to dischargers, so that dischargers will not be found out of compliance with the permit conditions. Commenters who question the appropriateness of the SWRCB methodology to derive MLs are, in effect, critiquing the amount of "grace" we are allowing dischargers when assessing compliance. Regardless of how the MLs are derived it is important to remember that the MLs will not replace the discharger's responsibility to comply with their calculated effluent limitations.

The SWRCB staff does, however, believe that the proposed MLs are appropriate and defensible. The statewide MLs were selected from calibration standards currently used at existing California laboratories using standard analytical practices. Other considerations, such as age of laboratory equipment, chemist experience, or the manner in which the method is performed, were automatically factored into the ML because the calibration standard data originated from existing laboratories. All certified laboratories were given an opportunity to contribute to this effort, and we stressed the vital importance of laboratory cooperation in deriving a reasonable ML. We believe that the laboratory personnel who responded to the survey represented a sufficient cross section of California laboratories, understood the survey request, and earnestly provided their calibration standard data.

SWRCB staff acknowledged in the Draft FED that establishing statewide MLs from higher percentiles of the survey data (e.g., the 50th percentile) rather than the 20th percentile would require fewer laboratories to reduce their lowest calibration standard. If we *had* used the 50th percentile, the magnitude of the resulting MLs would not have dramatically increased from the proposed MLs. For example, the 50th percentile of the cyanide data in Figure 1 would be 10 ug/L after rounding, whereas the proposed ML for cyanide is 5 ug/L. In addition, we are confident that most laboratories can perform their calibrations using the proposed, 20th percentile MLs. The SWRCB staff conducted on-site verification interviews with the responding laboratory personnel. All of the laboratories randomly-selected for this post-survey verification interview confirmed their original calibration data and also confirmed that they could readily calibrate using the proposed MLs.

Comments on Minimum Level Attainability

Comments 3.9: Many labs can meet the ML values at the concentrations shown, i.e., these concentrations can be put into calibration curves. However, if the intent is that all labs must meet a value two to three orders of magnitude lower, then several compounds are problematic (chlordane, heptachlor, dieldrin, PCB mixtures, and toxaphene). (6, 21) We are reasonably close to achieving most of the MLs. However, we have significant discrepancies with the semi-volatile organic chemicals. We cannot calibrate to achieve the lower GC/MS values for most of the semi-volatile pollutants. (9, 21) We have concerns over the attainability of some of the ML values present in the Ocean Plan. For example we were able to meet only 8 of the 27 volatile organic compounds listed in Table 11A. (2) For AA in general, some of the metals would give an unrealistic absorbance of < 0.001 abs units at the 20th percentile ML in the tables. (6, 21) We doubt that an ML of 0.2 ug/L will be routinely achieved in practice using the CVAA method for mercury analysis. (23) We take exception to the FED language which generalized that the labs surveyed all indicated that they could "easily" attain lower calibration ranges and ML values if they were all simply intent on doing so. Attainment of the statewide ML list by 80% of the State's labs will not be trivial for all compounds. (21) ML values should be reviewed on an annual basis. The ML tables should be reviewed once the USEPA 1600 series protocols are approved. (7)

Response: The SWRCB is committed to reviewing the ML values as new science, skills, and federal requirements come into play. Modification to the Ocean Plan ML list will be subject to the regular triennial review process. We realize that some laboratories may have difficulty in calibrating at some of the ML concentrations presented in the Ocean Plan. However, we do not expect that all laboratories will need to use all the proposed MLs using all of the analytical techniques presented, especially given the typically large effluent dilution of ocean dischargers. Furthermore, the Ocean Plan language provides dischargers with the opportunity to demonstrate to the RWQCB what an appropriate ML should be for their particular waste discharge characteristics.

Comments on Specific ML values

Comment 3.10: There is an apparent anomaly in the MLs for organic constituents that are analyzed in the same method. For example, in Table 11B some of the PAHs show an ML of 10000 and some PAHs show an ML of 5000 or 1000. Generally, when calibration curves are developed for a method, method analytes are prepared in the same concentration. (5)

Response: Differing MLs for the various PAH compounds are a result of the methodology used to derive the individual MLs (i.e., using the 20th percentile of data, rounding to multiples of 1,2, or 5). Laboratories desiring to prepare calibration standards at one consistent ML concentration may discuss this request with the RWQCB, as allowed in the Ocean Plan.

Comment 3.11: Some metals are concentrated rather than diluted. For example, although mercury can be calibrated at 0.25 ppb with standards, the preparation method results in a reporting level of 0.5 for the CVAA. (6, 21)

Response: SWRCB staff believe that samples analyzed for mercury are generally processed in the same manner as mercury calibration standards. Again, the Ocean Plan provides options for deviations from the statewide MLs.

Comment 3.12: Laboratories must obtain a variance to use the ICP/MS method since it is not yet approved under 40 CFR 136. Laboratories must be allowed to use an ML that is deemed appropriate by that laboratory and not driven by tables. The laboratory should be allowed to use a method with a higher ML as long as effluent limits are considered. (5)

Response: U.S.EPA Region 9 will grant a waiver to laboratories wishing to use the ICP/MS technique. The Ocean Plan language allows the RWQCB to select the appropriate ML. If an effluent limitation is lower than all MLs for a pollutant, the analytical technique using the lowest ML must generally be used.

Comments on the Validation of SWRCB Minimum Levels

Comments 3.13: The proposed MLs should be validated through performance evaluations that demonstrate these MLs on real world samples. (5) SWRCB did not ensure that laboratories actually could produce a reliable calibration curve using their reportedly lowest calibration standard. (17) We question whether most labs can meet these MLs. SWRCB provides no data or support for the statement that most labs can now meet the proposed MLs. (23) We request a review of some of the ML values to ensure that labs who reported startling, low values did not in fact report the MDL or the Instrument Detection Level (IDL) by mistake, or that the labs can otherwise justify their reported values. It is important that the SWRCB ask the dozen or so labs who stated that they can currently meet the 20th percentile ML to verify (with data) that the reported ML values are correct. (21)

Response: As discussed above, SWRCB staff conducted several on-site verification interviews with the responding laboratories. All of these randomly-selected laboratories confirmed their original calibration data and also confirmed that they could readily calibrate using the proposed MLs.

Comments on ML Matrix Issues

Comments 3.14: If interferences prevent the achievement of the MLs in effluent samples, are the dischargers in non-compliance? (5) The proposed plan would require a lab to use the most sensitive method possible if the permit limit is below the ML. However, more sensitive methods are often less specific, meaning that they are the subject of interferences. This part of the plan needs to be modified. (6, 21) We suggest the following revision to the Ocean Plan language (p.87) referring to a matrix-specific ML: Matrix-specific ML = (3.18) x (Matrix-specific MDL). This revision would provide specific guidance on how to determine a matrix-specific ML, commensurate with EPA's definition of "interim ML" in the 1994 Draft National Guidance for the Permitting, Monitoring, and Enforcement of Water Quality-based Effluent Limitations set below Analytical Detection. (6, 21) We question whether the SWRCB has adequately considered matrix impacts in setting MLs. Ocean dischargers are likely to have high levels of dissolved solids, which will create difficulty in achieving the proposed MLs. (23) Derivation of statewide MLs must be developed using matrices of concern (including seawater). We are particularly concerned with the metals listed in Table 11c and the ability to meet those MLs in a saltwater matrix. We believe that few labs can conduct the ICPMS procedures at the MLs proposed. (11) Failure to develop matrix-specific MLs may mean that we may generate DNQ results above the state-established ML. This situation is addressed in the figure on p. 74. Is this a non-compliance situation or would it require a PMP? (11) We urge the SWRCB to adopt an alternative amendment that uses

the existing Ocean Plan quantitation definition until matrix-specific ASTM Interlab Detection Estimates and matrix-specific ASTM Interlab Quantitation Estimates can be developed. (17) We recommend that the compliance determination on p. 85 be changed to the following: "Dischargers shall be out of compliance…and greater than ~~or equal to~~ the Minimum Levels* listed in Appendix III or in 40 CFR 136 unless a matrix-specific Minimum Level applies." (23) The FED proposes only one ML for each analyte and method. This suggests that the data that was submitted was for only one matrix, such as reagent water, or that data from different matrices were combined to calculate the MLs. A quantitation level established based on reagent water is usually an unrealistic level [too low] to use for seawater or effluent monitoring. (17) The economic considerations did not consider the costs of dischargers being forced to contract with laboratories who are able to achieve the proposed MLs or can conduct the analyses in a specified matrix. Also consider costs associated with the following: to establish clean room sampling and analytical techniques, to maintain equipment at superior analytical techniques, to purchase and maintain premium grade raw materials, to fine tune existing equipment, to purchase premium grade regents, to train personnel. (11)

Response: Matrix effects cannot affect the ML unless calibration standards are prepared in the matrix of concern. Almost all laboratories, however, prepare calibration standards from pure compounds in *reagent grade water*. Accordingly, the Ocean Plan MLs were derived from this most widely used calibration practice. It would require much effort to derive statewide MLs for each matrix of concern because there are an enormous, indeed infinite, number of matrices. The Ocean Plan language provides dischargers with the opportunity to demonstrate to the RWQCB what an appropriate ML should be for their particular matrix. This matrix-specific ML would be incorporated into a permit for the purposes of compliance determination.

Costs related to establishing sampling and analytical techniques, maintaining equipment, purchasing materials, etc. are expenses that are normally incurred by working analytical laboratories. Incorporation of MLs in compliance determination should not significantly alter these normal laboratory costs.

Comments on ML Rounding

Comment 3.15: We do not agree the effect of rounding the ML to the closest multiple of 1, 2, or 5 will tend to cancel out bias. (4)

Response: There is a practical basis for rounding the raw MLs. Rounding to these multiples can simplify instrument calibrations and reduce errors when preparing volumetric calibration solutions. Staff agree that rounding the raw MLs will introduce bias into the results, but the net effects of this bias will tend to cancel out. The amount and direction of bias resulting from rounding to these multiples depends on whether the raw ML number is adjusted upwards or downwards.

We can theoretically evaluate the net effect of this bias by selecting a random number, R, from a uniform distribution between 1 and 10 and adjusting R to the nearest multiple of 1, 2, 5, or 10. There are three intervals where the random number would be adjusted downwards ($\{1 \leq R < 1.5\}$, $\{2 \leq R < 3.5\}$, and $\{5 \leq R < 7.5\}$), and the average percent reductions from these intervals would be 20%, 27.3%, and 20%, respectively. Similarly, there are three intervals where R would be adjusted upwards ($\{1.5 \leq R < 2\}$, $\{3.5 \leq R < 5\}$, and $\{7.5 \leq R < 10\}$) and the average percent increase from these intervals would be 14.3%, 17.6%, and 14.3%.

The net effect of adjusting R downwards is about 11%:

Net % Reduction = Sum [average % reduction x probability that R is in the interval]
= (20% x 1/18) + (27.3% x 3/18) + (20% x 5/18) = 11.2%

In contrast, the net effect of adjusting R upwards is about 8%:

Net % Increase = Sum [average % increase x probability that R is in the interval]
= (14.3% x 1/18) + (17.6% x 3/18) + (14.3% x 5/18) = 7.7%

SWRCB staff confirmed this result by simulating one million random numbers between 1 and 10 and adjusting the random numbers to the given multiples. The average reduction was 10.5% and the average increase was 8.2%.

This means that an ML resulting from the rounding process will, on average, be slightly smaller than if the raw ML was used. The magnitude of these changes, however, are comparable; thus, as stated in the FED, the overall effect of rounding to multiple of 1,2, and 5 tends to cancel out bias.

Comments on Environmentally Protective MLs

Comment 3.16: The proposed MLs may not be sufficiently sensitive to determine compliance and would not be fully protective of fish and wildlife resources. (7)

Response: Water quality objectives and effluent limitations derived from them are designed to protect beneficial uses, including fish and wildlife resources. Dischargers are ultimately responsible for complying with the permit effluent limitation. SWRCB staff is not proposing MLs to protect fish and wildlife or to replace human health standards. These MLs represent the pollutant concentrations that, when exceeded, provide definitive evidence that effluent concentrations have exceeded the permit limitations. The proposed MLs are based on current analytical practices in California.

Comment 3.17: We recommend that the following detection levels are incorporated into the Ocean Plan ML tables (7):

Pollutant	Water Concentration
metals (general)	0.05 ug/L
mercury	1.0 ng/L
zinc	0.2 ug/L
selenium	0.005 ug/L
tributyltin	0.001 ug/L
PAHs	50 ug/L
PCBs	10 ng/L
DDT and analytes	10 ng/L
chlorinated pesticides	1.0 ng/L

Response: We believe that the MLs proposed in the Ocean Plan FED are more appropriate than the MLs suggested above. The suggested MLs are generally much lower than the SWRCB-proposed MLs. Based on our survey of current laboratory practices, we do not believe that very many laboratories in California would be able to incorporate these lower MLs.

Comments on ML-based Permit Compliance

Comment 3.18: What will occur when the laboratory routinely meets the MLs for the method yet is significantly higher than the effluent limitation? Will certain methodologies not be acceptable for compliance monitoring? (9)

Response: SWRCB staff expect that the most appropriate ML will be applied to a given permit situation. When the effluent limit is lower than all the given Ocean Plan MLs, the RWQCB must select the lowest ML and its associated analytical technique.

Comment 3.19: Figure 3 on p. 74 should be revised to state "In Compliance" in Situation 2 for DNQ results, and in Situation 3 for ND and DNQ results. This will assure to all readers that these situations result in compliance. (17) It is unclear what effect using the MLs will have on compliance. Many of the proposed MLs are higher than water quality objectives in Table B of the Ocean Plan. (12)

Response: We have explicitly defined *non-compliance* by the use of the compliance rule. However, because of concerns expressed by USEPA Region 9, we have not explicitly defined *compliance* (i.e., the converse of non-compliance). Because an enforcement agency has the burden of proving non-compliance, the intent of the Ocean Plan compliance determination language is to base non-compliance on accurately measured samples, thereby reducing the rate of unwarranted violations. Sampling results of ND or DNQ do not have the certainty required to prove non-compliance. This is consistent with the U.S.EPA Great Lakes Initiative Supplementary Information Document, (U.S.EPA 1995b, p. 340):

> *In addition, a discharger will be in compliance with the permit, as discussed below, if samples analyzed in accordance with the analytical method specified in the permit, and other applicable procedures, are found to be below the quantification level [i.e., ML]*

Unfortunately, a decision of compliance using a sample result of ND or DNQ sometimes carries a risk of adverse impacts to the environment from a missed violation; the PMP requirement was added to safeguard against this potential environmental risk.

Comment 3.20: The situation described on p. 86, first paragraph (1998 Draft FED), is too inclusive as written; it would apply to situations where the result is reported as DNQ and the calculated effluent limit is less than the MDL. This is too lenient, for if three replicates are analyzed and all of the results are DNQ there is a 95% probability that the true value is above the MDL. This is sufficient to determine non-compliance. The first sentence of this paragraph should be changed to read "…less than the Minimum Level* and greater than the MDL*, the discharger…" A new paragraph should be added immediately after the first paragraph, and should read "If sample results are DNQ and the calculated effluent limit is below the MDL*, the discharger shall re-analyze the sample in duplicate. All three values (original plus two repeats) shall be reported. If all three values are DNQ, the discharger shall be out of compliance with the calculated effluent limitation. (22)

Response: SWRCB staff does not believe that the first paragraph on p. 86 is too lenient. This paragraph applies to situations 2 and 3 as shown in Figure 2 (i.e., DNQ results when the effluent limitation is below the ML). These situations would require a PMP whenever evidence shows that the pollutant concentration is above the effluent limitation. Three DNQ results would not be sufficient to determine non-compliance using the Ocean Plan compliance rule and would be inconsistent with the U.S.EPA Great Lakes compliance determination rule cited above.

<u>Comments on DNQ Issues</u>

Comment 3.21: We would like to see additional wording clarifying that "estimated chemical concentrations" reported with a DNQ result should not be used for determining compliance. (9) The Ocean Plan language requiring that the estimated concentration be provided with DNQ results should contain the caveat that the calculated values in the DNQ range are not provided for compliance purposes. The FED should discuss the reporting of actual values in the DNQ range. (21)

Response: Providing the estimated chemical concentration along with a DNQ result was requested by U.S.EPA Region 9. The Ocean Plan compliance rule clearly states that decisions of non-compliance will only by made using sample results greater than the ML.

Comment 3.22: The reporting levels ND, DNQ, and "as measured" are confusing because ND and DNQ overlap. The actual value of a DNQ could be less than the MDL, thus causing an overlap with ND. (17)

Response: A laboratory that uses the statewide ML as their lowest calibration standard must, by design, obtain an MDL lower than the ML. Therefore, a laboratory result of ND will always include the interval from zero to the MDL, and a DNQ result will always be from the MDL to the ML.

Comment 3.23: It should be made clear to dischargers that they are in full compliance with Ocean Plan effluent limits only if the pollutant concentration in the monitoring sample is less than the effluent limitation. "Indeterminate" is the most appropriate designation to use for compliance reporting purposes when the effluent limitation is less than the ML and results are DNQ. (20)

Response: All NPDES permittees are, ultimately, responsible for maintaining compliance with the requirements of their permit. Any person who knowingly or negligently violates a permit condition shall be subject to enforcement actions (CWA § 309). SWRCB staff agree that when an effluent limitation is less than the ML and a sample is reported as DNQ the compliance decision is "indeterminate." The Ocean Plan includes the PMP language to safeguard against possible environmental impacts from DNQ results. Dischargers conducting a PMP, under the Ocean Plan requirement, shall not be deemed out of compliance.

Comments on Multiple Samples and Data Censoring

Comment 3.24: The procedure for compliance determination based on multiple samples may have merit, but USEPA must buy off on the State procedure. (4)

Response: Once approved by the SWRCB, all proposed changes to the Ocean Plan are reviewed and, ultimately, must be approved by U.S.EPA Region 9.

Comment 3.25: A value of zero should be the default value of anything below the ML. (4) We recommend that the Ocean Plan state that, for purposes of measuring compliance with average limitations, all measurements below the ML should be considered zero in calculating the average discharge levels. (17) The situation described on p. 87, first full paragraph, is too lenient for calculated effluent limitations expressed as averages or means, and should be changed to apply to situations with median limits only. Use of a median calculation is not appropriate when determining compliance with arithmetic or geometric means. (22)

Response: Estimation of the central tendency of a data set and, ultimately, assessing compliance is complicated by the presence of censored data. The Ocean Plan addition of DNQ data, along with the traditional ND data, create the potential for *doubly-censored* data distributions—one point of censorship being the MDL and the other point of censorship being the ML. This means that a data set could contain any combination of NDs, DNQs, or measured values. Estimating a mean from censored data distributions requires arbitrary assumptions or complex statistical analysis techniques. Substitution of zero for results less than the ML, in our view, is just as arbitrary as substitution with any other number within the interval from zero to the ML. Arithmetic means based on substituted data tend to deviate from the true distribution mean with increased censoring. This is true even of the delta-lognormal distribution procedures described in the U.S.EPA Technical Support Document (Hinton 1993).

The SWRCB staff chose the sample median in order to avoid using arbitrary data substitution schemes when the data set is composed of NDs or DNQs, or both, while maintaining a computationally simple procedure. The Ocean Plan language only requires the use of the sample median for censored data sets. In samples drawn from lognormal distributions with coefficients of variation up to 0.6, the sample median is a fair estimator of the mean. A sample mean can be expected to be, on average, 15% higher than a sample median when the sample contains ten or less values (SWRCB 1999c).

Comments on Compliance Error Rates

Comments 3.26: Given that any legal action carries the potential for fines and imprisonment, it is extremely important that we have the highest possible level of assurance that these values [self-monitoring data] are correct or at least not overstated. The ML method, as proposed, does not meet that requirement. It is, in fact, impossible to tell what the error rate of the proposed method would be. Put simply, what percentage of the time will we be certifying that we have violated a permit condition, when in fact we have not? (4): The use of MLs as the basic foundation of compliance determinations seems reasonable. However, a description of the statistical false positive error rate at the ML is recommended to assist in evaluating appropriate enforcement responses. (22)

Response: A regulator's decision of compliance or non-compliance may either be correct or incorrect. Incorrect decisions, or errors, can be made in two, mutually exclusive ways. A false positive error is made when a discharger is concluded to be out of compliance when, in fact, they are not. Conversely, a false negative error is made when a discharger is concluded to be in compliance when, in fact, they are not. MLs were added to the Ocean Plan to reduce the chance of making a false positive error.

In order to quantify this reduced false error rate, SWRCB staff conducted simulations of various compliance situations where the effluent limit was defined at the 5, 10, 40, 60, 90 and 95th percentile of a true pollutant distribution (SWRCB 1999d). Assessing compliance using the Ocean Plan compliance rule resulted in an overall reduction in the probability of false positive errors (from 0.071 to 0.042) when using uncensored data. False positive errors were reduced further still when censored data is used in assessing compliance: Substitution of zero for all data below the ML resulted in a false positive error rate of 0.026; Substitution of zero for NDs and the MDL for DNQs resulted in a false positive error rate of 0.029; Use of the Ocean Plan median procedure resulted in a false positive error rate of 0.034.

Unfortunately, these reduced false positive error rates *increase* the probability of making a false negative error. The Ocean Plan compliance rule resulted in an overall increase in the false negative error rate (from 0.14 to 0.67) using uncensored data. False negative errors were increased further still when censored data is used in assessing compliance: Substitution of zero for all data below ML resulted in a false negative error rate of 0.77; Substitution of zero for NDs and the MDL for DNQs also resulted in a false negative error rate of 0.77; The Ocean Plan median procedure resulted in a false positive error rate of 0.75. These higher false negative error rates are tolerable because of the additional PMP requirements.

Comments on Chemical Groups

Comments 3.27: We do not agree with the proposal to determine compliance with pollutants regulated as chemical groups by substituting the MDL for samples reported as DNQ. (4) We recommend that all measurements below the ML should be considered zero in calculating the sum of chemical groups for compliance determination. (17) For situations in which compliance must be determined regarding a group of chemicals (e.g., PCBs), the proposal is to use the MDL as the default value when the reported value is DNQ may be too stringent and could result in false determinations of non-compliance. One alternative approach would be to set all values of ND and DNQ to zero. Where DNQ values were obtained it might be appropriate to require a PMP. (22)

Response: We have changed the Ocean Plan language to require substitution with zero for individual sample results reported as ND or DNQ when the effluent limitation applies to the sum of a group of chemicals.

Comment 3.28: Guidance should be given to determine compliance for chemical groups when individual pollutants have specific MLs that are both above and below the chemical group's effluent limits. For example, our PAH limit is 1.47 ug/L and the individual pollutant ML values range from 0.2 to 10 ug/L. (21)

Response: SWRCB staff have added specific compliance determination language for effluent limitations that are expressed as a sum of individual compounds. Prior to summing the individual concentrations, any results reported as ND or DNQ are to be changed to zero. Dischargers will be out of compliance with an effluent limitation which applies to the sum of a group of chemicals if the sum of the individual constituent concentrations is greater than the effluent limit.

Comments on Chemicals without Statewide MLs

Comment 3.29: The FED provides no information as to how compliance will be determined for compounds not on the list of MLs (ammonia, total residual chlorine, chromium III, tributyltin, the 2,4- isomers of DDT, DDE, and DDD). (21)

Response: The proposed FED states that the RWQCB, in consultation with the SWRCB Quality Assurance Program, will determine the appropriate ML for chemicals not listed in the Ocean Plan list of MLs. Note that we have also eliminated MLs for dioxin congeners because the low level dioxin techniques use isotope ratios rather than the typical calibration standard.

Comments on PMP Definitions

Comment 3.30: We believe that revisions are necessary to clarify what constitutes a PMP. More flexibility is needed. We recommend that "The PMP shall include,..." on p. 86 (1998 Draft FED) be changed to "The PMP may include,..." (6, 21)

Response: The elements making up a PMP in the Ocean Plan language are intended to be the minimum required. We believe that these elements, in most cases, are already incorporated into the Standard Provisions, General Monitoring and Reporting Requirements of NPDES permits (e.g., a statement of actions necessary to bring the discharge into full compliance, annual reports of monitoring data).

Comment 3.31: The PMP proposal is troubling because it does not address ambient pollutants found in cooling water intake supplies, as required in [CA Water Code] Section 13242. (17)

Response: CA Water Code § 13234 reads: "The program of implementation for achieving water quality objectives shall include, but not be limited to: (a) A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private. (b) A time schedule for the actions to be taken. (c) A description of surveillance to be undertaken to determine compliance with objectives." We do not interpret this Water Code section to require assessment of cooling water intake supplies when implementing water quality objectives.

Comments on PMP & the Great Lakes Initiative

Comments 3.32: Other than a reference to the Great Lakes Initiative, there is no rationale or statutory authority cited for adopting the PMP strategy. (23) The proposed policy seems to reflect the draft federal minimum level policy that was recently withdrawn. (5) The requirement to conduct PMPs should be deleted. The Great Lakes PMP requirement has been challenged and in a recent Court of Appeals decision has been rejected as a requirement which can be imposed on point source dischargers. (11) The SWRCB lacks the authority to require PMPs as described in the FED. There is no authority in the CWA to require PMPs, as recently confirmed by the Court of Appeals for the District of Columbia Circuit in challenges to the Great

Lakes Water Quality Rule. The Court concluded that that EPA could not impose a "point-source Water Quality-Based Effluent Limitation upon a facility's internal waste streams;" therefore, it vacated the PMP requirements. (American Iron and Steel Institute v. U.S.EPA, 1997). SWRCB should delete all PMP and source control requirements from the proposed amendments. (17)

Response. The SWRCB is designated as the state water pollution control agency for all purposes stated in the Federal Clean Water Act (CA Water Code §13160 and §13370). Such designation includes authority for RWQCBs to prescribe waste discharge requirements needed to implement water quality objectives (CA Water Code §13263). Since PMPs are only required when there is evidence that the permittee is discharging a pollutant at concentrations greater than the effluent limitation, this requirement is consistent with the need to implement water quality objectives.

Contrary to the commenter's assertion, the District of Columbia Circuit Court did not "vacate" the PMP requirements from the 1995 Great Lakes Initiative. The Court said only that EPA could not impose effluent limitations on internal waste streams. Specifically, the Court vacated the Great Lakes Procedure 8.D. "insofar as it would impose the point-source WQBEL upon a facility's internal waste streams." The Court was interpreting language in the Great Lakes Initiative that, when read broadly, could have authorized this. U.S. EPA's response to the decision was to say that they never intended to impose limitations on internal waste streams and did not interpret the regulations to allow this. Moreover, the Court issued a decision to uphold virtually all of the provisions in the 1995 Great Lakes Initiative, except the provision for mixing zones for bioaccumulative pollutants. U.S.EPA recently revised and reinstated the formerly vacated mixing zone procedures (Fed. Reg. 64 (191): 53632-53648).

The PMP language in the Ocean Plan FED is clear that the purpose of the PMP is to ensure that concentrations of the pollutant in the effluent are below the calculated effluent limitation.

Comments on PMP Triggers

Comment 3.33: The Plan does not adequately describe the number or frequency of DNQ measures that would trigger a pollutant minimization program. Would one *grey area* DNQ measurement trigger a PMP? (1, 15)

Response: A DNQ result, in isolation, will not require a PMP. What will trigger a PMP is a DNQ result when the effluent limit is less than the ML *and* there is evidence that the pollutant concentration exceeds the effluent limitation. The RWQCBs will determine when a discharger has met the requirements necessary to develop and conduct a PMP.

Comment 3.34: It does not make sense to require PMPs when the effluent measurements are reported as not-detected (ND). This could result in PMPs being triggered for pollutants not even present or at environmentally insignificant concentrations. (1, 15, 21) Why is a discharger being held responsible to develop and implement a PMP for pollutants that are ND when the permit's designated ML has not been exceeded? (14, 21)

Response: As above, an ND result, in isolation, will not require a PMP. This comment specifically refers to ND results in Situation 3 in Figure 2 (i.e., effluent limit < MDL < ML). In this situation, an ND does not provide definitive evidence to assess compliance. Using the Ocean Plan compliance rule the discharger will not be out of compliance. However, the pollutant concentration could, in fact, be greater than the effluent limit. The PMP requirement is necessary to address this possibility.

Comment 3.35: We would like to see language that describes the trigger mechanisms for conducting a PMP clarified. As currently written, it could be interpreted by Regional Board that a PMP is mandatory whenever

an effluent limitation is below the ML and samples are reported as ND or DNQ. (11, 21) We object to the proposed requirement that appears to automatically trigger PMP regardless of need. (15)

Response: See previous two responses. Do not overlook the PMP evidence requirement.

Comment 3.36: If converse logic is applied to the PMP requirements (i.e., the analyte is detected, but there is no evidence of analyte effects in tissue samples or WET tests) will the calculated limit be revised? (5)

Response: No. Any detection of the pollutant in concentrations above the effluent limitation and above the ML is defined to be out of compliance using the Ocean Plan compliance rule.

Comment 3.37: We believe that revisions are necessary to clarify what triggers a PMP. We recommend that "evidence" be replaced with "weight of evidence" on p. 86. This change would imply that there had to be some logical connection with other types of evidence, rather than allowing a simple interpretation that the existence of some other type of data was sufficient to trigger a PMP. (6, 21)

Response: SWRCB staff prefers "evidence" rather than "weight of evidence." Dischargers can contest Regional Board actions through the petition process.

Comments 3.38: We are concerned with the "evidence" requirement which justifies or supports the need to perform a PMP. Elevated contaminant levels can be attributed to numerous unrelated sources which point sources cannot be held accountable for. Point sources cannot control the presence of contaminants that are ubiquitous in the environment. (11) It is quite possible that sources triggering a PMP will not be found. Also, it is likely that a PMP will never be able to track down an occasional transient disposal of wastes into the sewer. Many substances are not amenable to traditional regulatory "source control." (21) PMPs should be discretionary for the local Regional Boards. Our concern is that a single event from a pollutant not normally detected in the effluent may trigger an overly-burdensome and fruitless process to locate and control the source. (13)

Response: The RWQCBs will determine when a discharger has met the requirements necessary to develop and conduct a PMP. If a "single event" exceeds the effluent limitation then the discharger is not in compliance with permit conditions. Contaminants that are ubiquitous in the environment should not be considered evidence for the purposes of triggering a PMP.

Comment 3.39: Initiation of a PMP may be difficult if the State or Regional Boards have to determine whether a pollutant is present in the effluent above the effluent limit in Situations 2 and 3 in Figure 2 (12)

Response: The Ocean Plan provides examples of evidence that could show that the pollutant concentration is above the effluent limitation. The RWQCB will have discretion to interpret this evidence when deciding whether to require a PMP.

Comment 3.40: We recommend that dischargers using a "clean lab" and ultra low detection limits be exempt from the PMP when ND results are reported. (14)

Response: Although the SWRCB applauds the use of sensitive analytical techniques, it is still possible that compliance situations as depicted in Figure 2, Situation 3 (i.e., effluent limit < MDL < ML) will occur. Exempting discharges from PMPs in this situation could lead to environmental damage and missed violations.

Comment 3.41: For substances not detected [ND] we recommend that the RWQCB not set effluent limits nor require PMPs unless evidence conclusively demonstrates that the existing discharge has caused bioaccumulation or another form of impairment of existing uses. (21)

Response: As discussed previously in the FED, NPDES permits should contain the calculated effluent limitation derived from a water quality objective regardless of the analytical detection level. The PMP requirement is necessary to address the possibility that an ND result could contain the pollutant at a concentration above the effluent limitation. The PMP requirements require evidence that the discharge is greater than the effluent limitation, and this is considered a threat to existing uses.

Comments 3.42: With the exception of more sensitive analytical methods, the proposal's suggested "evidence" is too vague, too circumstantial, too non-specific and generally not acceptable as a basis for triggering a PMP. We recommend that the SWRCB seek public comment on a revised proposal that includes specific clarification on what constitutes relevant and acceptable evidence to trigger a PMP. (23): More detail is need on when a pollution prevention programs would be required. POTWs should be required to implement pollution prevention programs when (15)

1. The toxicant in question appears at elevated levels in one or more environmental compartments (water column, sediments, or fish tissue)
2. The discharger class is a significant (>33%) source of the toxicant, and
3. There is a reasonable expectation that a pollution prevention program can achieve non-trivial improvements in effluent quality.

Response: SWRCB staff believes that the Ocean Plan examples of evidence will, in most cases, provide the RWQCBs with enough justification to require PMPs. In regard to Item 1, elevated pollutant concentrations in environmental compartments is already cited in the Ocean Plan language as adequate evidence. In regard to Item 2, it may be impossible to determine the relative sources of a toxicant in the near-coastal environment. In regard to Item 3, the goal of a PMP is not to achieve general improvements in effluent quality, but to reduce a specific discharger's potential sources of a pollutant to levels at or below the effluent limitation.

Comments on PMP & Watershed Approach

Comments 3.43: We do not agree that where there is clear evidence of impairment by toxics not otherwise detectable in a waste stream that a pollutant minimization program would be prudent; however it [PMP] should be done on a watershed basis. (4) We support the PMPs to reduce and eliminate contaminants from entering waters of the United States. However, would the development of one PMP addressing all pollutants of concern be more cost effective for dischargers instead of an individual program for each pollutant? (14) We suggest that the SWRCB prepare toxicant-specific, Pollution Prevention Handbooks rather than having each wastewater agency trying to develop pollution prevention programs on their own. For POTWs, most, if not all, "grey area" toxicants will be from legacy pesticides such as endrin, aldrin, PCBs, and the dioxins; development of pollution prevention programs for these toxicants will be very difficult if not impossible. We propose the SWRCB work cooperatively with other agencies such as the ARB and AQMDs in source prevention. (15) Alternatives for source reduction, especially of dioxins, should be part of the FED. (15) Where evidence of bioaccumulation exists, a watershed approach should be used to address all potential sources and develop control strategies, conduct site-specific studies, investigate pollutant trading options, etc. Prescriptive PMPs should not be mandated in the Ocean Plan since many of the substances of interest will not be readily amenable to the approach proposed. (21) For some pollutants, such as dioxin, it may be more cost effective to conduct a comprehensive statewide source identification program and develop a multi-media/multi-entity pollution prevention strategy rather than relying on local efforts. The Ocean Plan should provide the flexibility for these alternative approaches in lieu of the local POTW conducting a traditional industrial source control-based PMP. (21) The PMP proposal creates the potential for the imposition of an unwarranted and/or unnecessary and expensive on-going program. Circumstances described in the FED, which would trigger a PMP, may arise due to point or non-point sources other than those of any particular discharger and are more appropriately addressed through CWA 303(d) programs. (17)

Response: The SWRCB certainly encourages a watershed approach to solving water quality problems. Dischargers who must develop and conduct a PMP under the Ocean Plan provisions are encouraged to communicate with other dischargers in the same waterbody. The need for a PMP will be determined by the RWQCB based on each discharger's unique compliance situation; cost effectiveness can be incorporated into the PMP. Because of this, any watershed-based procedures or source reduction alternatives conducted by a group of dischargers must *be in addition to* the individual discharger's PMP requirements. In addition, a single PMP for all pollutants requiring a PMP may be adequate if all of the Ocean Plan PMP requirements are met. Preparation of a toxicant-specific pollution prevention handbooks or generic pollution prevention strategies by the SWRCB is not feasible because of the unlimited range of compliance situations possible.

Comments on Ending a PMP

Comment 3.44: The Ocean Plan should provide some type of PMP "off ramp" provision so that a PMP has defined milestones or decision points, and does not become a never-ending task. (21)

Response: The RWQCB will have discretion to determine when a PMP is no longer necessary. Presumably, once evidence is provided to show that the pollutant concentration is not exceeding the effluent limitation a PMP will not be required.

Comments on PMP Costs

Comment 3.45: We recommend that the language "may consider cost effectiveness" on p. 86 be changed to "shall consider cost effectiveness" when RWQCBs establish the requirement of a PMP. (6, 21)

Response: SWRCB staff prefer "may consider cost effectiveness" because the PMP, when required, will address the possibility that the pollutant concentration could, in fact, be greater than the effluent limit.

Comments 3.46: The Draft FED does not include an economic evaluation of the cost of performing PMPs. We do not believe that this evaluation can be adequately performed using the stratified sampling methodology undertaken for Issue 2 because of the many problems inherent with the analysis (e.g., not representative, use of median data, etc.). (6, 21) The costs (and benefits) of the PMP requirement need to be assessed in the FED. (15) The cost of conducting a PMP is not addressed in the economic analysis. (17)

Response: SWRCB staff have revised the economic analysis to include costs associated with PMPs required under Issue 3 for affected dischargers. In cases where the SWRCB believes that one PMP can reasonably address more than one pollutant (e.g., the pollutants are in the same class and are likely to come from similar sources), the SWRCB assumed that one PMP would be adequate. Eighty-two percent of the estimated annual statewide compliance costs of 4.17 million dollars are due to conducting PMPs.

Comment 3.47: We evaluated the impact of the proposed amendment to our facility based on five years of monitoring data. It appears that we may have to develop and implement PMPs for 10 pollutants or pollutant groups (aldrin, dieldrin, toxaphene, benzidine, 3,3-dichlorobenzidine, hexachlorobenzine, chlordane, total DDT, PAHs, and PCBs). We believe this work would cost $3.5 million per year. (6, 21)

Response: SWRCB are grateful to commenter for voluntarily submitting monitoring data. The commenter's analysis, however, was incorrect because they assumed that each effluent limit below the statewide ML would absolutely result in a PMP, thereby ignoring the evidence requirement. This discharger could be required to conduct PMPs for up to 10 pollutants, or, alternatively, this discharger would not be required to conduct any PMPs. The discharger's cost estimate for PMPs is excessive.

The PMP requirements were adopted in lieu of concluding that a discharger is out of compliance when effluent limits are set below the ML and sampling results are DNQ. The costs associated with PMPs should be considered in contrast to the of costs associated with enforcement actions due to non-compliance, especially in light of mandatory fines required under the Clean Water Enforcement and Pollution Prevention Act of 1997 (SB 709).

Comments on Due Process, Presenting Evidence & MLs

Comments 3.48: To hold the regulated community accountable to MLs based on flawed data and a faulty approach is to violate due process. (11) The proposed 20th percentile MLs are arbitrary (small sample, no validation) and violate due process of law. A fundamental requirement of due process is that the regulated community will have fair warning of what conduct will violate the law (US Constitution, CA Constitution). The proposal is arbitrary and capricious under California Administrative Law. (17) The proposal deprives dischargers of the right to present evidence. Adoption of an unreasonable ML in the Ocean Plan would deprive permittees of the ability to argue, using the basic evidentiary rules, that measurement at these proposed MLs are inadmissible. (17)

Response: SWRCB staff disagrees that compliance based on effluent limits and MLs will violate due process and deprive the discharger of the ability to argue. Numeric effluent limits establish a clear standard of conduct for the permitted discharger. The addition of statewide MLs further define this standard of conduct for effluent limitations set below detection limits and apply this standard of conduct among all ocean dischargers. SWRCB staff believes that dischargers have, in most cases, the ability to avoid non-compliance by keeping pollutant concentrations below the ML. Furthermore, the U.S.EPA, in responding to due process concerns related to the Great Lakes Initiative, stated: "in no case can civil or criminal penalties be imposed against a permittee without a hearing to ensure that the permittee is accorded due process" (U.S.EPA 1995b, p.344). A hearing would also allow a discharger to argue and present evidence.

Comments on Governmental Objectives & MLs

Comment 3.49: The proposal bears no reasonable relation to a legitimate governmental objective. A proposal that merely sets an arbitrary level above which measurements are presumed to be reliable is simply not a rational way to achieve the objective of ensuring that dischargers comply with permit limits. (17)

Response: The Ocean Plan compliance determination rule is a rational way to determine non-compliance with numeric effluent limits. SWRCB staff believes that the proposed MLs are appropriate and defensible (see responses in Methodology Comments section). Use of these MLs, in conjunction with the effluent limitation, comprise a legitimate governmental objective.

Summary of Changes Resulting from Comments

1) Changed the proposed compliance determination language to require substitution with zero for individual sample results of a group that are reported as ND or DNQ.
2) Added specific section for assessing compliance with effluent limits that are expressed as the sum of several constituents.

Alternatives for Board Actions and Staff Recommendations

1. Do not change the existing method of determining compliance with effluent limitations. This alternative would maintain the present compliance determination language in the Ocean Plan. This alternative would maintain continuity in existing NPDES permits that include the PQL concept for determining compliance.

Since there currently is no statewide list of PQLs, each RWQCB would continue to independently develop their own PQLs until developed by U.S. EPA or the SWRCB.

2. Revise the Compliance Determination section using the Minimum Level concept and adopt statewide Minimum Levels. This alternative would eliminate the use of PQLs in determining compliance with effluent limitations. Rather, the statewide MLs assembled by SWRCB staff would be used for compliance determinations. Compliance would be made by comparing monitoring data with effluent limitations and MLs. The list of MLs would be added to Appendix III of the Ocean Plan and would not change until modified by a subsequent amendment to the Plan. Using the list of MLs, compliance with single-constituent effluent limitations will be determined by the general rule: The discharger shall be out of compliance with the permit limitation if the pollutant concentration in the monitoring sample is greater than the calculated effluent limitation and greater than or equal to the reported ML. If the calculated effluent limitation is less than the ML and sample results are reported as DNQ (or ND, in Situation 3, Fig. 2), the discharger shall be required to conduct a Pollutant Minimization Program to characterize the effluent *when there is evidence that the constituent is present in the effluent above the calculated effluent limitation.*

Additionally, the procedures discussed above for determining compliance using multiple samples would be incorporated under this alternative.

3. Revise the Compliance Determination section using the Minimum Level concept and adopt U.S. EPA Minimum Levels. Minimum Levels for two highly sensitive methods (1624 and 1625) are currently listed in the Code of Federal Regulations (40 CFR 136). For other analytical methods, U.S. EPA has tentatively recommended the use of "interim MLs." The Draft National Guidance for the Permitting, Monitoring, and Enforcement of Water Quality-based Effluent Limitations set below Analytical Detection Limits (U.S. EPA 1994b) defines interim MLs as: "The interim ML is calculated when a method specified ML does not exist. It is equal to 3.18 times the method-specified MDL rounded to the nearest multiple of 1, 2, 5, 10, 20, 50, etc. The interim ML should be used until an analytically developed ML can be established." Staff in the Division of Water Quality have determined that the methods for which MLs are published in the Federal Regulations are not being used by most laboratories in California for wastewater analysis. Thus, in adopting the MLs for these methods, laboratories would need to invest a great amount of time and expenses. In contrast, the statewide MLs derived by DWQ staff are representative of the conditions and methods currently used in California for wastewater analysis.

4. Revise the Compliance Determination section using the Minimum Level concept and develop Minimum Levels based on a controlled interlaboratory study. This alternative involves conducting an in-depth performance study of laboratories in California. The objective of such a study would be to develop an interlaboratory quantification level. SWRCB staff would need to provide laboratory standards for 126 priority pollutants to approximately 160 laboratories qualified for wastewater analysis using many different analytical methods. Staff in the DWQ believe that the time and financial costs of such a study would be large. A study of this magnitude would be best conducted by a joint effort of other concerned groups such as the American Chemical Society, American Society for Testing and Materials, and the U.S. EPA.

Staff Recommendation: Adopt Alternative 2.
Revise the Compliance Determination section using the Minimum Level concept and adopt statewide Minimum Levels in Appendix III

Environmental Impact Analyses

The use of MLs is not expected to have any adverse environmental impacts. Effluent limitations are incorporated into waste discharge permits in order to protect aquatic life and human health. The proposed alternative will provide a framework to determine when a discharger is out of compliance with the effluent

limitations in the waste discharge permit, thereby protecting aquatic life or human health. When technological factors do not allow a definitive determination of compliance, the proposed changes to the Ocean Plan will require that a PMP be started if there is evidence that the discharge is exceeding of the effluent limitation. These procedures will safeguard against adverse environmental impacts due to missed violations of permit conditions.

The use of MLs in compliance determination is not expected to economically affect most ocean dischargers. Approximately half of the proposed MLs are lower than the corresponding water quality objectives in Table B. In calculating effluent limitations based on Table B objectives, ocean dischargers usually receive high seawater-to-effluent dilution ratios of approximately 100. SWRCB staff estimate that only about 20% of the proposed MLs will be higher than ocean discharger effluent limitations. In other words, about 80% percent of the proposed MLs will not directly influence the determination of compliance because the actual effluent limitation will be the more limiting concentration.

In contrast, about 20% of the proposed MLs are likely to be greater than ocean discharger effluent limitations. In these cases, the proposed Ocean Plan compliance rule will reduce the amount of unwarranted violations (i.e., false positives) by defining non-compliance as an exceedance of the ML. Dischargers in this compliance situation who find evidence that their discharge is exceeding the effluent limitation would need to conduct a pollutant minimization program, but these procedures are already a part of most permit Standard Monitoring Provisions. We do not expect that dischargers will be found out of compliance more often by implementing the ML concept.

Proposed Ocean Plan Amendment

Presented below are the proposed changes to the 1997 Ocean plan that will result if *only* the changes proposed in Issue 3 are approved. Presented in Appendix B are the *combined* changes to the 1997 Ocean Plan that will occur if this amendment and the five other proposed amendments are also approved. The organization of the text presented below differs significantly from that presented in Appendix B due to the format change associated with Issue 4 and the addition of several sections and corresponding text from the other proposed amendments. For example, within the 1997 Ocean Plan, Tables A and B are presented in Chapter IV, Quality Requirements for Waste Discharges. Within Appendix B of this Document, Table A is located in Chapter III, Program of Implementation and Table B, is located in Chapter II, Water Quality Objectives.

1. Modify Chapter IV as follows:

~~B. Compliance Determination~~

~~All analytical data shall be reported uncensored with detection limits and quantitation limits identified. For any effluent limitation, compliance shall be determined using appropriate statistical methods to evaluate multiple samples. Compliance based on a single sample analysis should be determined where appropriate as described below.~~

~~When a calculated effluent limitation is greater than or equal to the PQL*, compliance shall be determined based on the calculated effluent limitation and either single or multiple sample analyses.~~

~~When the calculated effluent limitation is below the PQL*, compliance determinations based on analysis of a single sample shall only be undertaken if the concentration of the constituent of concern in the sample is greater than or equal to the PQL*.~~

~~When the calculated effluent limitation is below the PQL*, and recurrent analytical responses between the PQL* and the calculated limit occur, compliance shall be determined by statistical~~

~~analysis of multiple samples. Sufficient sampling and analysis shall be required to determine compliance.~~

~~Published values for MDL*s and PQL*s should be used except where revised MDL*s and PQL*s are available from recent laboratory performance evaluations, in which case the revised MDL*s and PQL*s should be used. Where published values are not available the Regional Boards should determine appropriate values based on available information.~~

~~If a discharger believes the sample matrix under consideration in the waste discharge requirements is sufficiently different from that used for an established MDL* value, the discharger may demonstrate to the satisfaction of the Regional Board what the appropriate MDL* should be for the discharger's matrix. In this case the PQL* shall be established at the limit of quantitation (equal to 10 standard deviations above the average measured blank used for development of the MDL* in the discharger's matrix).~~

~~When determining compliance based on a single sample, with a single effluent limitation which applies to a group of chemicals (e.g., PCBs) concentrations of individual members of the group may be considered to be zero if the analytical response for individuals chemicals falls below the MDL* for that parameter.~~

Minimum Levels*

For each numeric effluent limitation, the Regional Board must select one or more Minimum Levels* (and their associated analytical methods) for inclusion in the permit. The "reported" Minimum Level* is the Minimum Level* (and its associated analytical method) chosen by the discharger for reporting and compliance determination from the Minimum Levels* included in their permit.

1. Selection of Minimum Levels* from Appendix III

The Regional Board must select all Minimum Levels* from Appendix III that are below the effluent limitation. If the effluent limitation is lower than all the Minimum Levels* in Appendix III, the Regional Board must select the lowest Minimum Level* from Appendix III.

2. Deviations from Minimum Levels* in Appendix III

The Regional Board, in consultation with the State Water Board's Quality Assurance Program, must establish a Minimum Level* to be included in the permit in any of the following situations:

a) A pollutant is not listed in Appendix III.
b) The discharger agrees to use a test method that is more sensitive than those described in 40 CFR 136 (revised May 14, 1999).
c) The discharger agrees to use a Minimum Level* lower than those listed in Appendix III.
d) The discharger demonstrates that their calibration standard matrix is sufficiently different from that used to establish the Minimum Level* in Appendix III and proposes an appropriate Minimum Level* for their matrix.
e) A discharger uses an analytical method having a quantification practice that is not consistent with the definition of Minimum Level* (e.g., USEPA methods 1613, 1624, 1625).

Use of Minimum Levels*

Minimum Levels* in Appendix III represent the lowest quantifiable concentration in a sample based on the proper application of method-specific analytical procedures and the absence of matrix interferences. Minimum Levels* also represent the lowest standard concentration in the calibration curve for a specific analytical technique after the application of appropriate method-specific factors.

Common analytical practices may require different treatment of the sample relative to the calibration standard. Some example are given below:

Substance or Grouping	Method-Specific Treatment	Most Common Factor
Volatile Organics	No differential treatment	1
Semi-Volatile Organics	Samples concentrated by extraction	1000
Metals	Samples diluted or concentrated	½, 2, and 4
Pesticides	Samples concentrated by extraction	100

Other factors may be applied to the Minimum Level* depending on the specific sample preparation steps employed. For example, the treatment typically applied when there are matrix effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied during the computation of the reporting limit. Application of such factors will alter the reported Minimum Level*.

Dischargers are to instruct their laboratories to establish calibration standards so that the Minimum Level* (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve. In accordance with Section B2, above, the discharger's laboratory may employ a calibration standard lower than the Minimum Level* in Appendix III.

D. Sample Reporting Protocols

Dischargers must report with each sample result the reported Minimum Level* (selected in accordance with Section B, above) and the laboratory's current MDL*.

Dischargers must also report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

1. Sample results greater than or equal to the reported Minimum Level* must be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample).
2. Sample results less than the reported Minimum Level*, but greater than or equal to the laboratory's MDL*, must be reported as "Detected, but Not Quantified", or DNQ. The laboratory must write the estimated chemical concentration of the sample next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc.").
3. Sample results less than the laboratory's MDL* must be reported as "Not Detected", or ND.

E. Compliance Determination

Sufficient sampling and analysis shall be required to determine compliance with the effluent limitation.

1. Compliance with Single-Constituent Effluent Limitations

Dischargers are out of compliance with the effluent limitation if the *concentration of the pollutant* (see Section E3, below) in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level*.

2. Compliance with Effluent Limitations expressed as a Sum of Several Constituents

Dischargers are out of compliance with an effluent limitation which applies to the sum of a group of chemicals (e.g., PCB's) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.

3. Multiple Sample Data Reduction

The *concentration of the pollutant* in the effluent may be estimated from the result of a single sample analysis or by a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses when all sample results are quantifiable (i.e., greater than or equal to the reported Minimum Level*). When one or more sample results are reported as ND or DNQ, the central tendency concentration of the pollutant shall be the median (middle) value of the multiple samples. If, in an even number of samples, one or both of the middle values is ND or DNQ, the median will be the lower of the two middle values.

4. Powerplants and Heat Exchange Dischargers

Due to the large total volume of powerplant and other heat exchange discharges, special procedures must be applied for determining compliance with Table B objectives on a routine basis. Effluent concentration values (Ce) shall be determined through the use of equation 1 considering the minimal probable initial* dilution of the combined effluent (in-plant waste streams plus cooling water flow). These concentration values shall then be converted to mass emission limitations as indicated in equation 2. The mass emission limits will then serve as requirements applied to all inplant waste* streams taken together which discharge into the cooling water flow, except that limits for total chlorine residual, chronic* toxicity and instantaneous maximum concentrations in Table B shall apply to, and be measured in, the combined final effluent, as adjusted for dilution with ocean water. The Table B objective for radioactivity shall apply to the undiluted combined final effluent.

F. Pollutant Minimization Program

1. Pollutant Minimization Program Goal

The goal of the Pollutant Minimization Program is to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures, in order to maintain the effluent concentration at or below the effluent limitation.

Pollution prevention measures may be particularly appropriate for persistent bioacumulative priority pollutants where there is evidence that beneficial uses are being impacted. The completion and implementation of a Pollution Prevention Plan, required in accordance with CA Water Code Section 13263.3 (d) will fulfill the Pollution Minimization Program requirements in this section.

2. Determining the need for a Pollutant Minimization Program

(a) The discharger must develop and conduct a Pollutant Minimization Program if all of the following conditions are true:

1. The calculated effluent limitation is less than the reported Minimum Level
2. The concentration of the pollutant is reported as DNQ
3. There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.

(b) Alternatively, the discharger must develop and conduct a Pollutant Minimization Program if all of the following conditions are true:

1. The calculated effluent limitation is less than the Method Detection Limit*
2. The concentration of the pollutant is reported as ND
3. There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation

(c) Regional Boards may include special provisions in the discharge requirements to require the gathering of evidence to determine whether the pollutant is present in the effluent at levels above the calculated effluent limitation. Examples of evidence may include:

1. health advisories for fish consumption,
2. presence of whole effluent toxicity,
3. results of benthic or aquatic organism tissue sampling,
4. sample results from analytical methods more sensitive than methods included in the permit (in accordance with Section B2, above),
5. the concentration of the pollutant is reported as DNQ and the effluent limitation is less than the MDL.

3. Elements of a Pollutant Minimization Program

The Regional Board may consider cost-effectiveness when establishing the requirements of a Pollutant Minimization Program. The program shall include actions and submittals acceptable to the Regional Board including, but not limited to, the following:

(a). An annual review and semi-annual monitoring of potential sources of the reportable pollutant, which may include fish tissue monitoring and other bio-uptake sampling;

(b). Quarterly monitoring for the reportable pollutant in the influent to the wastewater treatment system;

c). Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable pollutant in the effluent at or below the calculated effluent limitation;

(d). Implementation of appropriate cost-effective control measures for the pollutant, consistent with the control strategy; and

(e). An annual status report that shall be sent to the Regional Board including:

1. All Pollutant Minimization Program monitoring results for the previous year;
2. A list of potential sources of the reportable pollutant;
3. A summary of all action taken in accordance with the control strategy; and
4. A description of actions to be taken in the following year.

2. Appendix I changes:

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

~~PQL (Practical Quantitation Level) is the lowest concentration of a substance which can be consistently determined within +/- 20% of the true concentration by 75% of the labs tested in a performance evaluation study. Alternatively, if performance data are not available, the PQL* for carcinogens is the MDL* x 5, and for noncarcinogens is the MDL* x 10.~~

3. Add the MLs presented in this issue to Appendix III

ISSUE 4: CHANGE OF FORMAT OF THE CALIFORNIA OCEAN PLAN

Present Ocean Plan

The 1997 California Ocean Plan (Ocean Plan) is arranged into six chapters that do not correspond with the three elements in the definition of a water quality control plan in section 13050(j) of the CWC. The format of other water quality control plans more recently adopted by the SWRCB corresponds to the definition.

Issue Description

Section 13050(j) of the CWC defines a water quality control plan as follows: "Water quality control plan" consists of a designation or establishment for the waters within a specified area of all of the following:

- Beneficial uses to be protected.
- Water quality objectives.
- A program of implementation needed for achieving water quality objectives.

The Ocean Plan includes chapters for the first two elements in the above definition so they are easy for people to identify. There is no single chapter that can be identified as a "program of implementation."

At the time the Ocean Plan was circulated to the public for the 1991 Triennial Review, other plans adopted or proposed for adoption by the SWRCB were available. The format of these other plans corresponded to the above definition. It was evident that the Ocean Plan would be easier for people to use and interpret if it followed the same format as other plans. Revision of the format of the Ocean Plan was identified as Issue 4C in the Triennial Review Workplan adopted by the SWRCB in 1992.

Staff is proposing to arrange the provisions of the 1997 Ocean Plan in outline form similar to that used for other water quality control plans. A comment received on this issue pointed out that the existing format was inconsistent in the different chapters and subsections. It was difficult to refer to many of the subsections because they were not identified, and this could lead to confusion among persons attempting to discuss Ocean Plan provisions. Therefore, the staff is proposing to identify every paragraph of the Ocean Plan in the outline format for easy reference.

This proposed change in format does not change the wording or intent of existing policies, beneficial uses, water quality objectives or implementation measures in the 1997 Ocean Plan. The material in Chapters II, III and IV of the existing Ocean Plan was grouped as Chapter II WATER QUALITY OBJECTIVES in the proposed Ocean Plan. The material in Chapters V and VI of the 1997 Ocean Plan was grouped under Chapter III PROGRAM OF IMPLEMENTATION in the proposed Ocean Plan. The existing paragraphs in Chapter II, WATER QUALITY OBJECTIVES, B. Bacterial Assessment and Remedial Action Requirements were moved to Chapter III PROGRAM OF IMPLEMENTATION, at B.

Because the current Ocean Plan format has been in use for many years, some objections to changing it have been mentioned. RWQCB staff members and the "regulated public" are familiar with the location and relationship of Ocean Plan provisions, and many may not wish to have it changed. The ability to identify the individual sections of the Ocean Plan may seem convenient but not worth the effort to amend the Ocean Plan.

Public Comment and Board Staff Response

Comment 4.1: Recommends moving Ch. II, Sec. G to Ch III. (17)

Response: Concur. The provisions of proposed Ch. II, Sec. G are limitations on the dischargers to achieve the water quality objectives in proposed Ch. II., sections A through F. The provisions G.1. through G.5. have been moved to Ch. III, Sec. A General Provisions. Provisions G.6., Table A, were also moved to Ch. III and Table B of Chapter II were left in place. To maintain continuity with previous Ocean Plans the original titles and designations of the two tables have been retained.

Comment 4.2: Request that the EPA's Combined Sewer Overflow Control Policy (1994) be included in this plan as has been done in the RWQCB 2 basin plan. Refer to *Section I.E.-Implementation Responsibilities* from the policy which states that authorized state NPDES authorities will implement the policy. (15)

Response: This issue is limited to re-arranging the current Ocean Plan. The addition of such a policy to the Ocean Plan was not included in the public notice of proposed amendments so it is not appropriate to add it at this time. Regardless, it is unnecessary to include it in the ocean Plan because it is in the Region 2 Basin Plan which has been approved by the SWRCB.

Comment 4.3: It is requested that the chapters in the Ocean Plan that describe beneficial uses and water quality objectives reference the implementation chapter because EPA addresses the implementation chapters differently. EPA considers water quality standards to consist of chapters on beneficial uses and objectives. (15)

Response: Referencing the implementation Chapter III in Chapters I and II does not appear necessary, and it is not clear that it would serve a useful purpose. The Ocean Plan is being formatted in compliance with Section 13050(j) CWC, which, by definition, requires a section on implementation; Section 13170 which provides that such plans may be prepared in accordance with the provisions of Sections 13240 to 13244, inclusive, for waters for which water quality standards are required by the federal Clean Water Act; and Section 13170.2 CWC which specifically requires formulation and adoption of a "California Ocean Plan". Section 13242 CWC describes the content of the implementation section of a water quality control plan. The resulting Ocean Plan is considered a part of the "state water quality standards" which, if approved by EPA, satisfy the requirements of the federal Clean Water Act.

We note that federal regulations require that state water quality standards include use designations, water quality criteria to protect the uses and antidegradation policy (40 C.F.R 131.6). Also, pursuant to 40 CFR 131.13, the state may, at their discretion, include in their state standards, policies generally affecting their application and implementation, such as mixing zones, low flows and variances..." (emphasis added). The state has elected to do this.

Comment 4.4: Support the change in format of the Ocean Plan. (2,6,10,13,14,20)

Response: Support noted.

Summary of Changes Resulting from Comments

Provisions of 1 through 5 of proposed Ch.II, Sec. G have been moved to Ch. III, Section A General Provisions. Provisions of 6 of proposed Ch II have been moved Ch III Section B.

Alternatives for Board Actions and Staff Recommendations

1) Change the format of the Ocean Plan to clearly identify the three elements specified in Section 13050(j) of the PCA, and number all sections of the Ocean Plan for easy identification.

2) Do not change the format but number or otherwise identify all sections of the Ocean Plan for identification and reference.

3)Make no changes in format and do not number all sections of the Ocean Plan.

Staff Recommendation: Adopt Alternative 1.

Environmental Impact Analyses

These changes are non-substantive and they are not considered a "project" for purposes of the California Environmental Quality Act.

Proposed Ocean Plan Amendment

The proposed change in format to the 1997 Ocean Plan is presented in Appendix A. The proposed Ocean Plan exhibiting all proposed changes from this issue and the other five issues is presented in Appendix B.

ISSUE 5: SPECIAL PROTECTION FOR WATER QUALITY AND DESIGNATED USES IN THE OCEAN WATERS OF CALIFORNIA

Present Ocean Plan

Section 13243 CWC authorizes the SWRCB to specify certain conditions or areas where discharge of waste, or certain types of waste, will not be permitted. However, the only special protection category currently recognized by the California Ocean Plan is Areas of Special Biological Significance (ASBS). The Ocean Plan does not address Outstanding National Resource Waters (ONRW), or other federal or comparable state-defined water protection categories.

Issue Description

The relative absence of special protection categories in the Ocean Plan limits the ability of the RWQCBs and SWRCB to provide water quality protection to areas with exceptional or unique resource characteristics warranting preservation. The Ocean Plan does not recognize the federal ONRW category, or any other special protection category except ASBS, which is limited in application to specific biological conditions.

Recognizing the need to be able to provide elevated levels of protection for a broader range of special resource conditions than can be addressed by the existing ASBS, amendment of the Ocean Plan is proposed to incorporate special protection categories. Under the proposed amendment, the existing Areas of Special Biological Significance (ASBS) category will be more fully explained in the Ocean Plan, the federal Outstanding National Resource Waters (ONRW) designation will be incorporated into the plan, and a new category to be known as Outstanding State Resource Waters (OSRW) shall be created and added to the Ocean Plan. The proposed amendments to the Ocean Plan associated with each of these special protection categories are described in greater detail in the following text.

Proposed Amendment to ASBS, ONRW, and OSRW

ASBS is an existing special protection category created by the SWRCB in 1972. Proposed amendment of the Ocean Plan includes:

1) Adding the definition, level of protection, and nomination process for ASBS to the Ocean Plan. These currently exist in other SWRCB documents that are not readily available to the public.
2) Revising the existing ASBS procedures to:
   (a) establish a clear procedure for public nomination of candidate areas,
   (b) change the notice requirements to comply with Water Code §13244,
   (c) comply with SWRCB regulations implementing CEQA for water quality control plan amendments,
   (d) allow a RWQCB to recommend denial of a nomination without a hearing,
   (e) clarify that either the RWQCB or the SWRCB can nominate a location for special protection consideration, and,
   (f) require that the SWRCB amend the Ocean Plan and that the affected RWQCB amend the water quality control plan to reflect an approved designation.
3) Revising the level of protection provided by the ASBS category to allow short-term activities resulting in temporary changes to water quality.
4) Adding a list of current ASBS to the Ocean Plan.

ONRW is a federally established Tier 3 protection category created by 40 CFR Section 131.12(a)(3). The California Ocean Plan does not presently recognize ONRW. Proposed amendment of the Ocean Plan includes:

5) Adding the definition, level of protection, and nomination process for ONRW to the Ocean Plan. The definition of ONRW and associated level of protection currently exist in federal regulation. A process for nominating ONRW in California does not exist, and would be established by this action. Procedures approving or denying a nomination are also added.

OSRW is a state defined protection category. The State of California has not established such designation, and accordingly, the U.S. EPA does not recognize such a category in California. OSRW is recognized in concept by the U.S. EPA and has been approved in other state water quality plans. Proposed amendment of the Ocean Plan includes:

6) Establishing a definition, level of protection, and nomination process for OSRW to be presented in the Ocean Plan. A process for nominating OSRW in California does not exist, and would be established by this action. Procedures approving or denying a nomination are added as are procedures for altering an approved OSRW designation.

These special protection categories and the proposed changes to the Ocean Plan are described in greater detail in the following discussion.

AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS)

Existing Status

The Ocean Plan and the Water Quality Control Plan for Control of Temperature in Interstate and Coastal Waters and Enclosed Bays and Estuaries of California (Thermal Plan) established the concept of ASBS in 1972.

The SWRCB defines ASBS as:

> *Areas of Special Biological Significance are those areas designated by the State Water Resources Control Board as requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable.*

The SWRCB explained the rationale for protecting these areas as follows:

> *Since most beneficial uses are to some degree mutually antagonistic, waste discharge requirements can at best provide relative protection for all beneficial uses. The concept of 'special biological significance' recognizes that certain biological communities because of their value or fragility deserve very special protection consisting of preservation and maintenance of natural water quality conditions to the extent practicable.*

In 1974 and 1975, the SWRCB designated 34 ASBS along the coast of California and established the following implementation provisions:

a) Discharge of elevated temperature wastes in a manner that would alter water quality conditions from those occurring naturally will be prohibited.

b) Discharge of discrete, point source sewage or industrial process wastes in a manner that would alter water quality conditions from those occurring naturally will be prohibited.

c) *Discharge of waste from nonpoint sources, including but not limited to storm water runoff, silt and urban runoff, will be controlled to the extent practicable. In control programs for waste from nonpoint sources, Regional Boards will give high priority to areas tributary to ASBS.*

d) *The Ocean Plan, and hence the designation of areas of special biological significance, is not applicable to vessel wastes, the control of dredging, or the disposal of dredging spoil.*

e) *The staff will advise other agencies to whom the list of designated areas is to be provided that the basis for this action by the Board is limited to considerations related to protection of marine life from waste discharges.*

ASBS are identified by the Ocean Plan as a beneficial use of ocean waters. The Ocean Plan prohibits waste discharges to ASBS, and requires that all discharges outside of ASBS be located sufficient distance from the ASBS to assure the maintenance of natural water quality conditions in the protected area. (Chapter V.B.).

The SWRCB established the following procedures for the nomination of candidate locations for ASBS consideration:

a) *The staff of those regional boards with jurisdiction over ocean waters that include areas that may qualify as being of special biological significance shall prepare a preliminary report consisting of:*

   1) *A list of areas considered by the staff to qualify as areas of special biological significance.*

   2) *A description of each area including a map delineating the boundaries of each proposed area.*

   3) *The rationale for designating each area as having special biological significance.*

b) *The staff shall seek informal comment on the preliminary report from the State Board, Department of Fish and Game, other interested State and federal agencies, conservation groups, affected waste dischargers, and other interested parties.*

c) *The regional board shall conduct a public hearing to receive testimony on the specific recommendations of the staff report.*

d) *Notice of hearing shall be published once in a daily newspaper of general circulation in the vicinity of each proposed area and shall be distributed to all known interested parties 30 days in advance of such hearing. The notice shall describe the location, boundaries, and extent of the area under consideration, as well as proposed restrictions concerning discharge of waste within the area.*

e) *The regional board, after public hearing, shall forward to the State Board its recommendation for designation of specific areas. The recommendation shall be accompanied by a copy of the staff report, a summary of the hearing, and shall contain a detailed justification supported by evidence presented at the hearing for each recommended area.*

The SWRCB established the following procedure for SWRCB action subsequent to RWQCBs fulfillment of the above procedures,

a) *After considering the recommendation and hearing record of the regional board, the State Board may designate the areas of special biological significance as recommended by the regional board, refer the matter back to the regional board for further hearing, deny the recommendation of the regional board, or conduct further hearing.*

Candidate areas for ASBS consideration are required to satisfy four criteria:

1. *Candidate areas are located in ocean waters as defined in the 'Temperature Plan' and the 'Ocean Plan'.*
2. *Candidate areas are intrinsically valuable or have recognized value to man for scientific study, commercial use, recreational use, or esthetic reasons.*
3. *Candidate areas need protection beyond that offered by waste discharge restrictions or other administrative and statutory mechanisms.*
4. *Candidate areas must have faced public review through hearings on its consideration as an ASBS.*

Discussion

Incorporation of ASBS into the Ocean Plan is proposed to elevate public awareness of this category and its application. Currently, the SWRCB Water Quality Administrative Procedures Manual, and an SWRCB ASBS publication are the primary sources of information on the ASBS concept and procedures. Because the Ocean Plan is the primary document referencing ASBS, it is the logical location for presentation of the information. Addition of ASBS information to the Ocean Plan is proposed to increase the availability of this information to the public.

Although public participation in the ASBS designation process is provided, the ASBS procedures were originally written with an emphasis on agency implementation. As a consequence, there is no clear procedure that allows the public to nominate candidate locations for ASBS consideration. Proposed revision of the ASBS procedures establishes a well-defined process by which any member of the public may submit an ASBS nomination with supporting information to the appropriate RWQCB for consideration.

Additional revisions to the ASBS procedures are proposed to:

(a) change the notice requirement for a public hearing on a proposed ASBS from publication "once" to publication "three times" in a newspaper of general circulation. This change is required because an ASBS designation under the Ocean Plan results in a discharge prohibition (see Water Code §13244).

(b) authorize the executive officer to deny a nomination based on information from the Preliminary Report without going through a public hearing. This change is proposed to minimize the expenditure of limited resources in cases where the Preliminary Report does not recommend approval of the nomination. A public noticed hearing is required to consider approval of a nomination.

(c) ensure that designations are made in compliance with the SWRCB's regulations for certified regulatory programs under CEQA (see California Code of Regulations, Title 23, §§3775-3782). This change is proposed because designations will result in an amendment to the Ocean Plan. Adoption of amendments is covered under the certified regulatory programs.

(d) require that the SWRCB amend the Ocean Plan and that the affected RWQCB amend the Basin Plan to include an approved designation. This change is proposed to increase public awareness of ASBS.

The Ocean Plan currently prohibits any discharge of waste into ASBS, and further stipulates that discharges located outside of an ASBS shall be located a sufficient distance to assure that the natural water quality conditions within the ASBS are protected. (Chapter V B). Revision of the adopted prohibition is proposed to allow activities whose water quality impacts are limited to temporary and short-term changes in water quality. Such activities must not permanently degrade water quality or result in water quality lower than that necessary to protect the species or biological communities for which the ASBS was designated. This

"exception" to the discharge prohibition is consistent with U.S. EPA policy allowing short-term activities within an ONRW. The intent of this policy change is to accommodate activities that are deemed necessary or unavoidable, such as bridge maintenance, contamination remediation actions, etc. This regulation does not relieve an applicant of any requirement to comply with normal RWQCB or SWRCB permitting requirements.

The ASBS designation is used for the protection of species or biological communities that are dependent upon the maintenance of natural water quality. In application, ASBS is applied to relatively specific locations, such as bays and coves, coastal waters around islands, or coastal waters along a specific segment of shoreline. It is generally inappropriate to apply the ASBS to expansive areas supporting a wide range of biological or physiological conditions, such as a National Marine Sanctuary.

OUTSTANDING NATIONAL RESOURCE WATERS (ONRW)

Existing Status

40 CFR Part 131 requires each state to adopt water quality standards. Section 131.12(a) requires the state to develop and adopt a statewide "antidegradation policy" and identify the methods for implementing such policy pursuant to Subpart B of Part 131.

The SWRCB adopted Resolution No. 68-16 on October 28, 1968 to satisfy the EPA requirement for a state-level antidegradation policy. Resolution No. 68-16 is incorporated in each regional water quality control plan, and is implemented by the SWRCB and regional boards in their actions to protect water quality and beneficial uses. In SWRCB Order WQ 86-17, the SWRCB interpreted Resolution No. 68-16 to incorporate the federal antidegradation policies where applicable.

The federal antidegradation policy is in 40 CFR Section 131.12. It establishes three levels, or "tiers", of water quality protection:

> *Tier 1 (40 CFR Section 131.12(a)(1)) provides that existing instream water uses and the level of water quality necessary to protect the beneficial uses shall be maintained and protected. "Existing uses" are defined by Section 131.3 as those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in water quality standards.*
>
> *Tier 2 (40 CFR Section 131.12(a)(2)) provides that where the quality of waters exceeds the levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the state finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.*
>
> *Tier 3 (40 CFR Section 131.12(a)(3)) provides that where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected. This is the source of the term "Outstanding National Resource Waters".*

U.S. EPA has approved the following guidance on ONRW:

> *In "high quality" waters that are designated as ONRW, the lowering of water quality is prohibited. US EPA has stated the belief that the best way to ensure that water quality is not lowered is to prohibit new or increased discharges to ONRW, and to tributaries to ONRW, that would result in lower water quality in the ONRW.* (U.S. EPA 1994a pg 4-10) (FR 64819 1996)
>
> *The only exception to the above interpretation is that states may allow some limited activities that result in temporary and short-term changes in water quality in the ONRW. Such activities must not permanently degrade water quality or result in water quality lower than that necessary to protect the existing uses of the ONRW* (U.S. EPA 1994a pg 4-12).
>
> *The ONRW designation also offers protection for "waters of exceptional ecological significance" whose water quality, as measured by the traditional parameters such as dissolved oxygen or pH, may not be particularly high or whose characteristics cannot be adequately described by these parameters (such as wetlands)*(U.S. EPA 1994a, pg 4-7).
>
> *Changes in water quality should not impact existing uses or alter the essential character or special use that makes the water an ONRW* (U.S. EPA 1994a pg 4-12).
>
> *Discharges into an ONRW at the time of its designation, termed "existing discharges", should have their NPDES permits reviewed at the next scheduled review to provide assurance that there is no reason to deny a permit pursuant to 40 CFR Section 122.4, or a modified permit pursuant to 40 CFR Section 125.59.*
>
> *Designation procedures must provide full opportunity for public participation and intergovernmental coordination in accordance with state and federal law. See 40 CFR Part 25.*

Even though the SWRCB has not adopted procedures for nominating or designating ONRW, the information developed for a water quality control plan or a water right decision could lead to a finding that a particular water should be designated when the plan or decision is adopted by the SWRCB. If the designation occurs as part of a water right decision, the appropriate basin water quality control plan is amended to include the ONRW. Upon approval of the basin plan by the SWRCB and U.S. EPA, the designated ONRW becomes a part of the state water quality standards.

There are presently two ONRW in the State of California, Lake Tahoe and Mono Lake. The SWRCB designated Lake Tahoe as an ONRW at the time the Water Quality Control Plan for the Lake Tahoe Basin was adopted. Mono Lake was designated as an ONRW with the adoption of a water right decision related to the diversion of water from tributary streams.

The Ocean Plan does not currently recognize the ONRW special protection category.

Discussion

Historically, large sections of the California coast have remained undeveloped and relatively inaccessible. However, continuing growth throughout the State is exerting increasing demands on all natural resources, including coastal ocean waters. As a result, the SWRCB recognizes the need to expand the levels of protection that can be employed to address specific water quality protection needs. Currently, the only special protection category available in the Ocean Plan is the ASBS, which is limited in application to specific biological conditions. The proposed ONRW designation is applicable to larger areas and diverse conditions not appropriately addressed by the existing ASBS designation.

The application and function of the ONRW category is well defined in federal regulation and guidance as described earlier in this section. Although some states have ONRW, the perceived inability to change an ONRW designation after it has been approved is a source of reservation. Consequently, some states have been reluctant to designate areas as ONRW, particularly when the contemplated location is situated in a region of rapid growth or economic change.

The nomination process for ONRW is modeled from the proposed procedures for nomination of ASBS in California. The proposed procedures allow nomination by the public as well as a RWQCB or the SWRCB.

ONRW is established to protect an existing level of high quality waters. The designation is not applicable to degraded waters and is not a mechanism to restore water quality through the restriction of discharges. Rather, the ONRW designation prohibits the lowering of existing water quality. Accordingly, new or increased discharges to ONRW, and to tributaries to ONRW, are prohibited. However, existing discharges may be allowed to persist as long as it is demonstrated that the existing discharges do not lower existing water quality, comply with all applicable water quality standards and do not contribute to degradation of water quality below that which exists at the time of designation.

Limited-term activities that result in temporary and short-term changes in water quality may be permitted in an ONRW with the stipulation that those activities do not permanently degrade water quality or result in water quality lower than that necessary to protect the existing uses of the ONRW. Limited-term activities include, but are not limited to, activities such as maintenance/repair of existing boat facilities, restoration of sea walls, repair of existing storm water pipes, and replacement/repair of existing bridges.

OUTSTANDING STATE RESOURCE WATERS (OSRW)

Existing Status

OSRW is a new designation that is not currently used by the SWRCB, and not formally defined by the U.S. EPA or federal regulations.

As described in the preceding discussion of ONRW, some states have been reluctant to implement the ONRW category of protection because it is unclear whether federal regulations allow the state to alter or remove the designation from locations after they have been designated as an ONRW. In direct response to this concern, a "hybrid" category of water quality protection, informally referred to as "Tier 2½" or "Outstanding State Resource Waters" has evolved. A State may impose more stringent controls Under Tier 2½ than under Tier 2, but retains the flexibility to alter the designation should future conditions warrant such reconsideration.

Although the U.S. EPA has accepted Tier 2½ standards in water quality programs prepared by several states, the category has not been formally defined in federal regulations. However, the concept is described in the U.S. EPA Water Quality Standards Handbook, Second Edition, on page 4-2 (U.S. EPA 1994a) as follows:

> *A category of waters may be designated in order to provide more stringent water quality protection than the Tier 2 level afforded to "high quality waters", but provide some flexibility to make changes consistent with important social and economic development on, or upstream of, ONRW. This category has been called a "Tier 2½" level of protection (U.S. EPA 1994a pg 4-2). Such waters have been given various names to differentiate them from ONRW, such as "Outstanding State Resource Waters" (OSRW).*

Discussion

Establishment of OSRW will create a category of special protection that provides an equivalent level of resource protection as the federally defined ONRW. However, the state will be able to alter or remove the OSRW designation from a specific location after it has determined that such action is in the public's best interest. In all cases, the RWQCB and the SWRCB are required to weigh benefits and adverse consequences before approving any nomination for ASBS, ONRW, or OSRW status.

The nomination process for OSRW is modeled from the proposed procedures for nomination of ASBS in California. The proposed procedure allows nomination by the public as well as a RWQCB or the SWRCB. The proposed process to change an adopted OSRW designation is similar to the nomination process for an OSRW.

As discussed under ONRW above, ASBS is the only special protection category currently available in the Ocean Plan. However, ASBS is limited in application to specific biological conditions. The ONRW and OSRW designations are applicable to larger areas supporting more diverse conditions than those protected by the ASBS category.

The proposed OSRW designation is essentially identical to the proposed ONRW designation except that it ensures the state has the future ability to reevaluate appropriateness of designated areas. As discussed above, the nomination process for OSRW is modeled from the proposed procedures for nomination of ASBS in California. The proposed procedures allow nomination by the public as well as a RWQCB or the SWRCB.

OSRW is established to protect an existing level of high quality waters. The designation is not applicable to degraded waters and is not a mechanism to restore water quality through the restriction of discharges. Rather, the OSRW designation prohibits the lowering of existing water quality. Accordingly, new or increased discharges to OSRW, and to tributaries to OSRW, are prohibited. However, existing discharges may be allowed to persist as long if it can be demonstrated that the existing discharges do not lower existing water quality, comply with all applicable water quality standards and do not contribute to degradation of water quality below that which exists at the time of designation.

Limited activities that result in temporary and short-term changes in water quality may be permitted in an OSRW with the stipulation that those activities do not permanently degrade water quality or result in water quality lower than that necessary to protect the existing uses of the OSRW.

Public Comment and Board Staff Response

Comment 5.1: Criteria for nominating special waters appear so broad that any or all waters of the California coastline could be nominated. (17)

Response: We disagree that the criteria are overly broad. All nominations will be subject to review and analyses by the RWQCB, SWRCB, and the public to determine if the designation meets the criteria and is in the public interest. In all cases, the RWQCB and the SWRCB are required to weigh benefits and adverse consequences before approving any nomination for ONRW/OSRW status. This process will necessarily limit the designation of special protection status to those locations deemed appropriate by the SWRCB.

Comment 5.2: Since significant restrictions could be put on dischargers as a result of these designations, careful and sound considerations of Section 13241 CWC factors must occur prior to any designation. (17)

Response: We agree that these factors should be considered prior to an actual designation.

Comment 5.3: Revise the criteria for designating special water bodies and establish scientifically sound criteria in accordance with Sections 13241 and 13242. (17)

Response: The criteria for any location to qualify for ASBS or ONRW status are already established in state and federal regulations, respectively. The contemplated amendments presented in this triennial review do not alter those criteria. The proposed criteria for designating an OSRW are based on the existing criteria for ONRW.

Comment 5.4: Add language requiring the RWQCBs and the SWRCB to notify the public regarding the initiation of any nominating activities. (17)

Response: The nomination procedures for ASBS, ONRW, and OSRW include public notification and participation.

Comment 5.5: Clarify that the proposed Ocean Plan language applies to "existing" water quality and "new" discharges at the following locations: (17)

page 20, C1, second line;
page 20, C2 third line;
page 20, c2b fourth line;
page 23, f2a third line.

Response: The text references have been revised since circulation of the Draft FED. The revised text includes specific reference to "existing discharge" and "existing water quality" as appropriate.

Comment 5.6: Clarify that the Ocean Plan applies to existing "permitted volumes" by adding the term "permitted" at page 27, App. I, Definition. of "Existing", fourth line (b) permitted volume of the discharge... (17)

Response: Accepted. The revised definition is as follows:

EXISTING DISCHARGE A waste discharge to ocean waters that is authorized by waste discharge requirements including NPDES Permits effective on the date of designation of an ONRW or OSRW. Changes in the permitted (1) design of the waste discharge facility, (2) volume of the discharge or (3) treatment of the waste will be considered an existing waste discharge to the extent authorized under waste discharge requirements in effect.

Comment 5.7: Consider revising the policy to provide additional flexibility for discharges to designated areas, where these discharges will not have a significant effect. (17)

Response: The existing water quality in an ONRW or an OSRW cannot be degraded. Discharges are not permitted into ASBS. Existing discharges may be allowed to continue into an ONRW or OSRW as long as such discharges comply with all applicable water quality standards and do not lower existing water quality. The proposed amendments include an exception that allows limited activities resulting in temporary and short-term changes in water quality to occur in ONRW, OSRW, and ASBS as long as those activities do not permanently degrade water quality or result in water quality lower than that necessary to protect the existing uses.

Comment 5.8: Question the need for increased use of special status waters. The current regulatory structure is already designed to provide marine waters complete protection from point source discharges. EPA and NOAA have conditionally approved the California program and the state has begun an effort to implement the 56 CZARA management measures. The current Ocean Plan toxicity limitations and effluent monitoring

performed by POTWs are already designed to protect the most sensitive life stages of the most sensitive species. (15)

Response: The regulatory system for point source discharges is designed to prevent "unreasonable degradation of the marine environment". That criterion permits some degradation. Further, the existence of a discharge facility poses an inherent risk of water quality degradation resulting from an accidental discharge produced by equipment failure, seismic event, or other unforeseen cause. As a consequence of growth and development there is an ever-increasing demand to allow increased ocean discharges. As discharge volumes increase, so does the potential that discharged waste will adversely impact sensitive resource locations along the coast. The potential for water quality degradation associated with the above circumstances is unacceptable in locations where exceptional resources exist. The purpose of the proposed special protection categories is to enable the SWRCB to identify locations with special resources and implement appropriate water quality standards to protect those resources. The only special protection category currently recognized by the Ocean Plan is Areas of Special Biological Significance (ASBS), application of which is limited to very specific biological conditions. The Ocean Plan does not provide a designation that could applied to broader resource area. Consequently, additional protection designations are warranted. The proposed ONRW and OSRW designations apply to conditions that cannot be protected by the current ASBS designation.

Comment 5.9: Addition of special status waters can cause significant administrative and monitoring expense to local government and add substantial administrative burdens to RWQCBs. (15)

Response: The RWQCBs and the SWRCB must consider public comment prior to designation of a nominated location as an ASBS, ONRW, or OSRW. In all cases, the RWQCB and the SWRCB are required to weigh benefits and adverse consequences before approving any nomination for ASBS, ONRW, or OSRW status. Approval of a nomination would convey the board's determination that the value of protecting the nominated location is greater than the costs of administering the protection status.

Comment 5.10: SWRCB should postpone this action until EPA revises its regulations, which include provisions on antidegradation (15)

Response: It is not possible to predict when EPA will complete the revision of its regulations or to predict their contents. California interests may complete recommendations for management of protected coastal waters in 1999 or 2000 and the adopted procedures would be beneficial at that time.

Comment 5.11: Designation of special status waters should be based on real demonstrated problems. Those nominating such waters should have the burden of justifying that existing protections offered by the Ocean Plan and CWA Sec. 403 are inadequate to protect beneficial uses. (15)

Response: Designation of special protection status is to protect water quality conditions before degradation occurs. Documentation of conditions warranting consideration must accompany each nomination for special protection status. The suitability of the nominated location is subject to evaluation by the RWQCB and the SWRCB before designation can occur.

Comment 5.12: The ONRW designation has the potential for creating a "no growth" requirement since any increase in mass loading of pollutants will likely be prohibited. (15)

Response: The definition of ONRW and the proposed procedures for nomination and designation of ONRW is based on existing federal regulations collectively referred to as the "antidegradation policy" (40 CFR 131.12). The comment may be correct, in that new or increased discharges are prohibited to areas designated as ONRW. However, the approval of any new ONRW is subject to public review, RWQCB consideration and SWRCB approval. The discretion exercised by these bodies will include consideration of the long-term

water quality and economic implications. The OSRW category is similar to the ONRW designation except that it ensures the state has the future ability to reevaluate appropriateness of designated areas.

Comment 5.13: The development or growth contained in an approved coastal development plan should be considered an "existing discharge". This option should be evaluated in the FED. (15)

Response: The approval of a coastal development plan cannot bind the RWQCB unless the RWQCB is party to the approval and has established the terms of its approval. The SWRCB and the California Coastal Commission have responsibility for planning in the Coastal Zone. Both agencies strive to avoid conflicts in authority that would result in unnecessary public expenditures. The legislature has adopted policy to distinguish the role of each agency in Section 30412 Public Resources Code (PRC).

Comment 5.14: City is concerned that the proposed process will lead to designation of MBNMS and Golden Gate Nat. Rec. Area which could limit or preclude City's existing ocean-side discharges. The designation procedures must be clarified and specific examples provided to show how they will be implemented. Without this more detailed description, the FED is deficient in both its environmental and economic assessment. Section 13241CWC and a specific Statement of Decision are referenced. (15)

Response: The process for nomination is described in detail in the FED. The FED includes the proposed procedures. Examples are not required to further explain the process for nomination. The focus of the currently proposed amendment is adoption of a process, and does not include the consideration of any locations for any designation. It is inappropriate, if not infeasible, to evaluate the possible merits or adverse impacts of any nomination that may or may not be proposed at some future date. Any nominations that are submitted in the future will be evaluated on their individual merits at the time they are presented. Some may be approved while others may be denied.

Comment 5.15: The proposal should be held in abeyance until it is studied further. (15)

Response: The proposal has received additional study since the Draft FED was circulated in October 1998. The process for nomination is described in detail in the FED, and the FED presents the proposed procedures in their entirety.

Comment 5.16: Should the SWRCB proceed, the Ocean Plan should require that the administrative record for any nomination document explain why a special status designation is needed to protect uses of the water in question. (15)

Response: The agency or person nominating an ONRW or OSRW is required to document how the nomination is in the public interest. The nomination documents will be part of the public record at the time the SWRCB or RWQCB announces a public meeting or hearing to consider the nomination. If the SWRCB or RWQCB proposes to adopt a protected area, an administrative record of all documents considered must be transmitted to the state Office of Administrative Law for approval as a regulatory action. Such administrative records are available to the public.

Comment 5.17: Recommend eliminating the proposed OSRW designation. The definitions of the two waters are the same. Federal antidegradation policy and SWRCB 68-16 provide assurance that dischargers will maintain existing water quality unless a discharger is able to establish that a lower water quality is necessary. The OSRW designation will add little to SWRCB's ability to protect water quality and will add greater burden to dischargers. (18)

Response: The OSRW designation is proposed to ensure that the State has a special protection category that allows designated locations to be reevaluated and the level of protection changed as may be necessary to serve the public interest.

Comment 5.18: The definition of discharges "existing" at the time of designation should be changed. The phrase "...to the extent provisions for such changes are included in the waste discharge requirements..." is (1) vague and ambiguous and (2) does not reflect the reality of how changes are approved. (18)

Response: The definition has been revised to clarify that discharges authorized by Waste Discharge Requirements in effect on the effective date of designation are "existing discharges. Staff is reluctant to base the determination on "... an approved local coastal program" even though the RWQCB may take that into consideration. Therefore, that provision has not been included. See response to comment 5.13

Comment 5.19: Water quality impacts of existing discharges should be considered at the time of designation rather than after designation. Par. C.2. (page 113) would require RWQCBs to review waste discharge requirements as soon as possible after designation to determine if there is a reasonable potential for the discharge to cause or contribute to lowering water quality. If the area is not attaining the water quality standards because a discharge is out of compliance, the area does not qualify. Recommend deleting all of Par. C.2. except first sentence. (18)

Response: The effects of an existing discharge are not considered in determination of level of protection needed to protect beneficial uses. If a candidate area is found to deserve special water quality protection, then the impacts of the existing discharge will be considered in the context of protecting the designated area. At the time the RWQCB considers a change in the permit for an existing discharge, the reasonableness of the proposed decision must be considered.

Comment 5.20: Procedures for finding that an area qualifies for designation should be changed. It is not appropriate for a RWQCB to determine that an area qualifies during "consideration of a decision affecting water quality." Proposed Appendix V provisions for ASBS would allow ASBS to be designated only upon nomination by "any person" or a RWQCB, not in the context of a water quality decision. SAM recommends:

(1) Modify first sentence of App. VI, Par. A.2 to read: "During the (a) development of a water quality control plan, or (b) consideration of a candidate ONRW...".

(2) Modify second sentence of App.VI, Par. A.2. to read: "If a specific designation is proposed, it shall be supported by the information specified in Par. A.1. above, and considered as an amendment to the appropriate water quality control plan." If SWRCB rejects this recommendation, amendments should clarify that the responsibility for submitting the required information should not be imposed on the discharger. (18)

Response: App. VI. paragraph A.2 of the October 1998 Draft FED relates only to the nomination and designation of ONRW and OSRW. RWQCBs and the SWRCB currently have the authority to consider the designation of ONRW in the context of a decision affecting water quality. See the response to comment 5.19. The point of that response is that each time a board makes a decision affecting water quality, it has a responsibility to consider the applicability of the state and federal antidegradation policies. Compliance with the antidegradation policies is not limited to planning decisions.

An example of this process is the SWRCB Mono Lake Water Right Decision 1631 of September 28, 1994. In the analysis of information relating to the water right license of the City of Los Angeles, the SWRCB recognized their decision could affect the water quality of Mono Lake. The analysis of information led to a finding that the state and federal antidegradation policies would require a decision to restore the lake level to a level calculated to restore the water quality to what it was in November 1975. The SWRCB also found that Mono Lake constituted an Outstanding National Resource Water. The SWRCB decision restricted the

diversion of water from streams flowing into Mono Lake to allow the lake level to raise. The water in Mono Lake was more saline at the time of the decision than it had been in November 1975. The SWRCB recognized that it would take a number of years for the lake level to raise and the salinity to decrease to desirable levels. However, the fact that the water quality did not meet water quality standards at the time of the decision did not negate their responsibility.

The proposed provision has been amended to allow nomination by individuals, the RWQCBs and the SWRCB.

Comment 5.21: Modify the list of information required to support designation of an ONRW or OSRW. Recommend App. VI, Par. A.1(a)(2) be changed as follows; "The candidate area satisfies the definition of the designation sought, including a description, on a parameter by parameter basis, of the water quality to be maintained and protected." (18)

Response: The proposed definitions for an ONRW and for an OSRW do not include water quality parameters. Such parameters must be based on the requirements of the uses considered for special protection when an individual nomination is considered. If information on specific parameters is not available for consideration during the designation process, or it is incomplete, it may be necessary to develop such information after designation. However, the availability of such information cannot be a requirement for designation.

Comment 5.22: The analysis of environmental and economic considerations is inadequate. Request that SWRCB evaluate the technical and practical feasibility of locating future discharge outfalls so as not to impact designated areas, and assess the potential economic impact on coastal communities of having to comply with the requirements for petitioning to lower water quality in designated ONRW. (18)

Response: The process for nomination is described in detail in the FED, including the proposed procedures. The focus of the currently proposed amendment is adoption of a process, and does not include the consideration of any locations for any designation. It is inappropriate, if not infeasible, to evaluate the possible merits or adverse impacts of any nomination that may or may not be proposed at some future date. Any nominations that are submitted in the future will be evaluated on their individual merits at the time they are presented. Some may be approved while others may be denied. There are approximately 43 municipal discharges along the California coast. Some may be affected by nominations; others may not. It is impossible to anticipate locations that may be nominated, the geographical boundaries of any nominated location, or the potential impact on any municipal discharge at some future date.

Summary of Changes Resulting from Comments

The following proposed changes have been added to this issue since the October 1998 draft FED

1. A new definition was added for the term "existing".
2. Language was added to clarify which implementation provisions apply to "new" and to "existing" waste discharges.
3. Language was added to distinguish ASBS, ONRW, and OSRW.
4. The definitions of ONRW and OSRW were revised.

Alternatives for Board Actions and Staff Recommendations

1. Do not amend the Ocean Plan to include definitions and procedures for the designation and implementation of ONRW, OSRW, and ASBS and make no reference to ONRW and OSRW in the Plan.

If the proposed amendment is not approved, the existing ASBS definition and procedures would not be incorporated into the Ocean Plan. The established policies would continue to exist in less prominent SWRCB documents, but the objective to increase public awareness of the ASBS designation would not be realized.

The proposed amendment would create a clear provision for the public nomination of locations for ASBS consideration. If this amendment is not approved, the existing nomination procedures would remain in effect without a clear procedure to allow public nomination.

The Ocean Plan does not currently address ONRW or OSRW. If this amendment is not approved, the options available to the SWRCB and RWQCB for the special protection of resources in ocean waters would be limited to already established ASBS designation.

2. Amend the Ocean Plan to include definitions and procedures for the designation and implementation of ONRW, OSRW, and ASBS.

This alternative would provide information to interested parties on the adopted policies and procedures of the SWRCB related to the designation of special areas for the protection of water quality. Any interested party, including RWQCBs and other state agencies, would have the confidence that the policies and procedures had been approved in advance by the State Board and U.S. EPA. A nomination and supporting information could be developed with a greater likelihood that it could be considered by the SWRCB on its merits, rather than become delayed or disapproved because of differences in the interpretation of state and federal law. An action by the SWRCB to designate an area would be more likely to receive approval by U.S. EPA.

Staff Recommendation: Adopt Alternative 2.

Environmental Impact Analyses

The proposed amendments would put all the procedures in one document where they would be readily available to anyone. The proposed amendments revise the procedures to establish a public nomination process, comply with Water Code and CEQA requirements and authorize short-term discharge exceptions to the existing prohibition. Short term exception is restricted to activities that are limited in duration, that do not permanently degrade water quality and that do not lower water quality beyond that necessary to protect beneficial uses. This amendment is not expected to result in any significant adverse environmental impacts.

The proposed amendments relating to ONRW implement existing federal law and guidance on ONRW. The proposed amendments on OSRW establish an additional category of special protection waters. The amendments provide a process for nominating locations and establish implementation procedures for ONRW and OSRW designation. Nomination of locations for consideration as ONRW or OSRW are not proposed or solicited. The proposed amendments would increase public awareness of tiered water quality protection and antidegradation. These concepts have been a part of federal and state law for many years. The proposed amendments establish formal procedures for nominating and designating waters for water quality protection. The proposed amendment includes a discharge exception for limited-term activities in designated areas.

The primary effect of the proposed amendments will be to create public awareness of the concepts of protected waters and open the procedures for designation to the public. It may be assumed that this increased awareness will result in nominations by the public for some form of water quality protection in specific areas. Whether any nominations will result in the designation of areas as ASBS, ONRW or OSRW is speculative at this time. It should be noted that since the original 34 ASBS were designated in 1974 and 1975, no new nominations have been made. No significant environmental impacts are expected from the proposed amendments.

Proposed Ocean Plan Amendment

1. Amend Chapter 1 BENEFICIAL USES as follows:

The beneficial uses of the ocean* waters of the State that shall be protected include industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture*; preservation and enhancement of designated Areas* of Special Biological Significance (ASBS), rare and endangered species; marine habitat; fish migration; fish spawning and shellfish* harvesting.

2. Define ONRW, OSRW and ASBS. The definition of ONRW and OSRW would be derived from 40 CFR Section 131.12(a) (3) and the U.S. EPA Water Quality Standards Handbook, and be included in Appendix I as follows:

OUTSTANDING NATIONAL RESOURCE WATERS (ONRW): High quality waters which constitute an outstanding national resource, such as waters of National and State parks, national marine sanctuaries, wildlife refuges and waters of exceptional recreational or ecological significance. Waters of exceptional ecological significance may include water bodies that are important, unique, or sensitive ecologically, but whose water quality, as measured by the traditional parameters such as dissolved oxygen, or pH, may not be particularly high or whose characteristics cannot be adequately described by these parameters (such as wetlands).

OUTSTANDING STATE RESOURCE WATERS (OSRW): High quality waters that meet the definition of ONRW, but that are subject to less stringent requirements than ONRW. In particular, the boundary of an OSRW may be changed, its water quality may be lowered, or its designation as an OSRW may be removed, as provided in Chapter III.F.4. of this Plan.

The definition of ASBS taken from the revised Administrative Procedures which was authorized by SWRCB Resolution 74-27, would be included in Appendix I as follows:

AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS): Those areas designated by the State Water Resources Control Board as requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable.

3. Provide procedures in an Appendix to the Ocean Plan for the nomination and designation of ASBS. The procedures that were based upon the original procedures required by the SWRCB in the selection of the existing ASBS, are as follows:

APPENDIX III

PROCEDURES FOR THE NOMINATION AND DESIGNATION OF AREAS* OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS).

1. Any person may nominate areas of ocean waters for designation as ASBS by the SWRCB. Nominations shall be made to the appropriate RWQCB and shall include:

(a) Information such as maps, reports, data, statements, and photographs to show that:

(1) Candidate areas are located in ocean waters as defined in the "Ocean Plan".

(2) Candidate areas are intrinsically valuable or have recognized value to man for scientific study, commercial use, recreational use, or esthetic reasons.

(3) Candidate areas need protection beyond that offered by waste discharge restrictions or other administrative and statutory mechanisms.

(b) Data and information to indicate whether the proposed designation may have a significant effect on the environment.

(1) If the data or information indicate that the proposed designation will have a significant effect on the environment, the nominee must submit sufficient information and data to identify feasible changes in the designation that will mitigate or avoid the significant environmental effects.

2. The SWRCB or a RWQCB may also nominate areas for designation as ASBS on their own motion.

3. A RWQCB may decide to (a) consider individual ASBS nominations upon receipt, (b) consider several nominations in a consolidated proceeding, or (c) consider nominations in the triennial review of its water quality control plan (basin plan). In no event shall a nomination that meets the requirements of 1. above be considered later than the next scheduled triennial review of the basin plan.

4. After determining that a nomination meets the requirements of paragraph 1. above, the executive officer of the affected RWQCB shall prepare a preliminary report containing the following:

(a) The area or areas nominated for designation as ASBS.

(b) A description of each area including a map delineating the boundaries of each proposed area.

(c) A recommendation for action on the nomination(s) and the rationale for the recommendation. If the preliminary report recommends approval of the proposed designation, the preliminary report shall comply with the CEQA documentation requirements for a water quality control plan amendment in Section 3777, Title 23, California Code of Regulations.

5. The executive officer shall, at a minimum, seek informal comment on the preliminary report from the SWRCB, Department of Fish and Game, other interested state and federal agencies, conservation groups, affected waste dischargers, and other interested parties.

6. (a) If the preliminary report recommends approval of the proposed designation, the executive officer shall ensure that processing of the nomination complies with the CEQA consultation requirements in Section 3778, Title 23, California Code of Regulations and proceed to step 7 below.

(b) If the preliminary report recommends against approval of the proposed designation, the executive officer shall notify interested parties of the decision. No further action need be taken. The nominating party may seek reconsideration of the decision by the RWQCB itself.

7. The RWQCB shall conduct a public hearing to receive testimony on the proposed designation. Notice of the hearing shall be published three times in a newspaper of general circulation in the vicinity of the proposed area or areas and shall be distributed to all known interested parties 45 days in advance of the hearing. The notice shall describe the location, boundaries, and extent of the area or areas under consideration, as well as proposed restrictions on waste discharges within the area.

8. The RWQCB shall respond to comments as required in Section 3779, Title 23, California Code of Regulations, and 40 C.F.R. Part 25 (July 1, 1999).

9. The RWQCB shall consider the nomination after completing the required public review processes required by CEQA.

   (a) If the RWQCB supports the recommendation for designation, the board shall forward to the SWRCB its recommendation for approving designation of the proposed area or areas and the supporting rationale. The RWQCB submittal shall include a copy of the staff report, hearing transcript, comments, and responses to comments.

   (b) If the RWQCB does not support the recommendation for designation, the executive officer shall notify interested parties of the decision, and no further action need be taken.

10. After considering the RWQCB recommendation and hearing record, the SWRCB may approve or deny the recommendation, refer the matter to the RWQCB for appropriate action, or conduct further hearing itself. If the SWRCB acts to approve a recommended designation, the SWRCB shall amend Appendix VI, Table VI-1, of this Plan. The amendment will go into effect after approval by the Office of Administrative Law and U.S. EPA. In addition, after the effective date of a designation, the affected RWQCB shall revise its water quality control plan in the next triennial review to include the designation.

11. The SWRCB executive officer shall advise other agencies to whom the list of designated areas is to be provided that the basis for an ASBS designation is limited to protection of marine life from wastewater discharges.

4. Provide procedures for the nomination and designation of ONRW and OSRW in an appendix to the Ocean Plan.

APPENDIX IV

PROCEDURES FOR THE NOMINATION AND DESIGNATION OF OUTSTANDING* NATIONAL RESOURCE WATERS AND OUTSTANDING* STATE RESOURCE WATERS.

1. Any person may nominate an area of ocean waters for designation as an ONRW or an OSRW. Nominations may be made to the SWRCB or to the appropriate RWQCB and shall include:

   (a) Information such as maps, reports, data, statements, and photographs to show that:

      (1) The candidate area is located in ocean waters as defined in the “Ocean Plan”.

      (2) The candidate area meets the definition of an ONRW or OSRW, as appropriate.

(b) Data and information to indicate whether the proposed designation may have a significant effect on the environment.

(1) If the data or information indicates that the proposed designation will have a significant effect on the environment, the nominee must submit sufficient information and data to identify feasible changes in the designation that will mitigate or avoid the significant environmental effects.

2. The SWRCB or a RWQCB may also nominate ocean areas for designation as ONRW or OSRW on their own motion.

3. Nominations received by the SWRCB or a RWQCB that fulfill the requirements of paragraph 1. above may be considered at any time, but not later than the next scheduled triennial review of the appropriate Basin Plan or Ocean Plan.

4. RWQCB nominations:

(a) After determining that a nomination meets the requirements of paragraph 1. above, the executive officer shall prepare a preliminary report containing the following:

(1) The area or areas nominated for designation as ONRW or OSRW.

(2) A description of each area including a map delineating the boundaries of each proposed area.

(3) A recommendation for action on the nomination(s) and the rationale for the recommendation. If the preliminary report recommends approval of the proposed designation, the preliminary report shall comply with the CEQA documentation requirements for a water quality control plan amendment in Section 3777, Title 23, California Code of Regulations.

5. The executive officer shall, at a minimum, seek informal comment on the preliminary report from the SWRCB, the Department of Fish and Game, other interested state and federal agencies, conservation groups, affected waste dischargers, and other interested parties.

6. (a) If the preliminary report recommends approval of the proposed designation, the executive officer shall ensure that processing of the nomination complies with the CEQA consultation requirements in Section 3778, Title 23, California Code of Regulations for consideration of the proposed designation and proceed to step 7.

(b) If the preliminary report recommends against approval of the proposed designation, the executive officer shall notify interested parties of the decision. No further action need be taken. The nominating party may seek reconsideration of the decision by the RWQCB itself.

7. The RWQCB shall conduct a public hearing to receive testimony on the proposed designation. Notice of the hearing shall be published three times in a newspaper of general circulation in the vicinity of the proposed area or areas and shall be distributed to all known interested parties 45 days in advance of the hearing. The notice shall describe the location, boundaries, and extent

of the area or areas under consideration, as well as proposed restrictions on waste discharges within the area.

8. The RWQCB shall respond to comments as required in Section 3779, Title 23, California Code of Regulations, and 40 C.F.R. Part 25 (July 1, 1999).

9. The RWQCB shall consider the nomination after completing the required the public review process required by CEQA.

   (a) If the RWQCB supports the nomination for designation, the board shall forward to the SWRCB its recommendation for approving designation of the proposed area or areas and the supporting rationale. The RWQCB submittal shall include a copy of the staff report, hearing transcript, comments, and responses to comments.

   (b) If the RWQCB does not support the recommendation for designation, the executive officer shall notify interested parties of the decision. No further action need be taken.

10. After considering the RWQCB recommendation and hearing record, the SWRCB may approve or deny the recommendation, refer the matter to the RWQCB for appropriate action, or conduct further hearing itself.

   (a) If the SWRCB acts to approve a recommended designation, the SWRCB shall amend Appendix V, Tables V-2 or V-3, as appropriate, of this Plan. The amendment will go into effect after approval by the Office of Administrative Law and U.S. EPA. In addition, after the effective date of a designation, the affected RWQCB shall revise its water quality control plan in the next triennial review to include the designation.

   (b) If the SWRCB elects to deny a recommended designation, the executive officer shall notify interested parties of the decision. No further action shall be warranted.

SWRCB Nominations

1. The SWRCB shall prepare a preliminary report meeting the requirements in 4 (a), above, and shall comply with the requirements of 6(a) above.

2. (a) If the preliminary report recommends approval of the proposed designation, the executive officer shall ensure that processing of the nomination complies with the CEQA consultation requirements in Section 3778, Title 23, California Code of Regulations for consideration of the proposed designation. The SWRCB executive officer shall place consideration of the preliminary report's recommendation on the SWRCB meeting agenda for action by the board.

   (b) If the preliminary report recommends against approval of the proposed designation, the executive officer shall notify interested parties of the decision. No further action need be taken. The nominating party may seek reconsideration of the decision by the SWRCB itself.

   (c) Except as provided in (b) above, the SWRCB shall conduct a public hearing and shall respond to comments as stipulated in steps 7 and 8 of the RWQCB nomination process.

(d) After considering the evidence in the record, the SWRCB may approve or deny the proposed designation or take other appropriate action. If the SWRCB acts to approve a designation, the SWRCB shall amend Appendix VI, Tables VI-2 or VI-3, as appropriate, of this Plan. The amendment will go into effect after approval by the Office of Administrative Law and U.S. EPA. In addition, after the effective date of the designation, the affected RWQCB shall revise its water quality control plan in the next triennial review to include the designation.

Procedures for Petitions for Change in OSRW Designation

1. Any person may file a petition with the SWRCB or a RWQCB to modify the boundary of, lower the water quality of, or remove the designation for an OSRW. The designation shall include:

   (a) The specific change requested;

   (b) A justification for the proposed change, including a description of any proposed activity that could take place if the petition is granted. The description shall include a list of the other approvals needed and an estimate of the time required for the approvals.

   (c) An analysis demonstrating that the requested change is consistent with all applicable water quality standards, including state and federal antidegradation requirements.

   (d) Data and information to indicate whether the proposed change may have a significant effect on the environment. If the data or information indicate that the proposed change will have a significant effect on the environment, the petitioner must submit sufficient information and data to identify feasible changes in the proposal that will mitigate or avoid the significant environmental effects.

2. Upon a determination that a petition is complete, in accordance with 1. above, the SWRCB or RWQCB, as appropriate, shall process the petition in accordance with the procedures for nomination of an OSRW contained in this Appendix.

5. Include implementation procedures in Chapter III of the Ocean Plan for ASBS, ONRW, and OSRW. The location of waste discharges must be determined after a detailed assessment of the oceanographic characteristics and current patterns to assure that (a) in areas designated as ONRW, the best water quality which has existed since November 28, 1975, and (b) in areas designated OSRW, the water quality which existed at the time of designation, are not lowered except as provided by a specific provision which will allow limited-term activities in ONRW or OSRW, or which will allow modifications in an OSRW in response to a petition.

Chapter III

E. Implementation Provisions For Areas* of Special Biological Significance (ASBS)

1. Waste* shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.

2. Regional Boards may approve waste discharge requirements or recommend certification for limited-term (i.e. weeks or months) activities in ASBS*. Limited-term activities include, but are not limited to, activities such as maintenance/repair of existing boat facilities,

restoration of sea walls, repair of existing storm water pipes, and replacement/repair of existing bridges. Limited-term activities may result in temporary and short-term changes in existing* water quality. Water quality degradation shall be limited to the shortest possible time: the activities must not permanently degrade water quality or result in water quality lower than that necessary to protect existing* uses, and all practical means of minimizing such degradation shall be implemented

F. Implementation Provisions For Outstanding National Resource Waters and Outstanding State Resource Waters.

1. The primary purpose of designating waters as ONRW* and OSRW* is to maintain and protect their existing* high quality waters. For this reason, lowering of water quality in an ONRW* or OSRW* is prohibited except as allowed in F.4. below for limited-term activities and F.5 below for OSRW*.

2. Existing* Discharges

a. ONRW*/OSRW*: existing* discharges cannot lower existing* water quality. (Existing water quality is at a minimum, the best water quality of the receiving waters since November 28, 1975).

b. Regulation of existing* dischargers:

(1) The Regional Boards shall review waste discharge requirements or permits for existing* waste dischargers as soon as possible following the designation of an ONRW* or OSRW*, and at each regularly scheduled review of requirements or permits, to determine if there is a reasonable potential for the discharge to cause or contribute to a lowering of existing* water quality in an ONRW*/OSRW*.

(A) if there is a finding that the discharge will not lower existing* water quality in an ONRW*/OSRW*, the discharge may continue. The potential for the discharge to cause or contribute to a lowering of existing* water quality shall be re-evaluated at each regularly scheduled review of requirements or permits as described in F.2.b.(1) above.

(B) if there is a finding that the discharge could cause or contribute to a lowering of water quality in an ONRW*/OSRW*, the Regional Board shall modify the requirements or permit or take other appropriate action to ensure that existing* water quality or natural water quality conditions, as appropriate, are maintained and protected. Modifications to waste discharge requirements or permits may include appropriate conditions and a compliance schedule to ensure that reasonable progress is made toward attaining and protecting existing* water quality for ONRW*/OSRW*.

3. New* Discharges

a. ONRW*/OSRW*: new* or increased discharges that lower existing* water quality are prohibited.

4. Regional Boards may approve waste discharge requirements or recommend certification for limited-term (i.e. weeks or months) activities in ONRW* and OSRW*. Limited-term activities include, but are not limited to, activities such as maintenance and repair of existing boat facilities, restoration of sea walls, repair of existing storm water pipes, and replacement/repair of existing bridges. Limited-term activities may result in temporary and short-term changes in existing* water quality. Water quality degradation shall be limited to the shortest possible time: the activities must not permanently degrade water quality or result in water quality lower than that necessary to protect existing* uses, and all practical means of minimizing such degradation shall be implemented.

5. Any person may file a petition with the State Board or a Regional Board to modify the boundary or lower the water quality of a designated OSRW*, or to have the designation removed. The petition shall include:

a. The specific boundary change that would be modified or the specific water quality parameters that would be lowered;

b. A description of any proposed activity which could take place if the petition is granted, including a list of the other approvals needed and an estimate of the time required for the approvals;

c. An analysis demonstrating that the requested change is consistent with all applicable water quality standards, including state and federal antidegradation requirements.

6. The provisions in Chapter V Discharge Prohibitions would be amended as follows:

B.-. Areas ~~of~~ Designated for Special Water Quality Protection. ~~Biological Significance.~~

a. Waste* shall not be discharged to ~~areas~~ designated ~~as being~~ Areas* of ~~s~~Special ~~b~~Biological ~~s~~Significance except as provided in Chapter III E. Implementation Provisions For Areas of Special Biological Significance. ~~Discharges shall be located a sufficient distance from such designated areas to assure maintenance of existing* water quality conditions in these areas.~~ *(The strikeout sentence is moved to III.E.1)*

b. Waste shall not be discharged to Outstanding National Resource Waters or Outstanding State Resource Waters except as provided in Chapter III. F. Implementation Provisions For Outstanding National Resource Waters and Outstanding State Resource Waters.

In Chapter VI, provision E would be amended as follows:

E. ASBS* ~~Areas of special biological significance~~ shall be designated by the SWRCB as provided in the procedures in Appendix III ~~after a public hearing by the Regional Board and review of its recommendations.~~ A list of ASBS* shall be available in Appendix V.

A new provision would be added to Chapter VI as follows:

F. Outstanding* National Resource Waters (ONRW*) and Outstanding State Resource Waters (OSRW*) shall be designated by the SWRCB as provided in the procedures included in Appendix IV. A list ONRW* and OSRW* shall be available in Appendix V.

Chapter VI. F would be changed to G.

7. **Define the terms, "existing discharge" and "new discharge" for waste discharges being regulated at the time amendments to the Ocean Plan are approved. Chapter II.D.1 of the Ocean Plan states "the regional Board shall revise the waste* discharge requirements for existing discharges as necessary to achieve compliance with this Plan and shall also establish a time schedule for such compliance." Staff proposes to add definitions for these terms into Appendix I to ensure consistency among RWQCBs, and to clarify implementation of proposed provision C.2. above.**

   EXISTING DISCHARGE A waste discharge to ocean waters that is authorized by waste discharge requirements including NPDES Permits effective on the date of designation of an ONRW or OSRW. Changes in the permitted (1) design of the waste discharge facility, (2) volume of the discharge or (3) treatment of the waste will be considered an existing waste discharge to the extent authorized under waste discharge requirements in effect.

   NEW DISCHARGE Any discharge not considered an existing discharge

   EXISTING WATER QUALITY As related to the designation of ONRW and OSRW means, at a minimum, the best water quality actually obtained in the water body on or after November 28, 1975.

8. **Lists of designated ASBS, ONRW, and OSRW would be made available in an appendix to the Ocean Plan. ASBS are also listed and described in a pamphlet published by the SWRCB in July 1976 and revised in November 1999. Many persons are not aware they exist, or that descriptions and maps of their boundaries are available. Including definitions and nomination procedures in the Ocean Plan for the three types of designated areas will create interest in these areas. It is proposed to provide for such lists as shown in the amended provisions of Chapter VI E and F.**

Proposed Appendix V of the Ocean Plan with the ASBS, ONRW, and OSRW tables is presented on the following pages.

APPENDIX V

AREAS* OF SPECIAL BIOLOGICAL SIGNIFICANCE, OUTSTANDING* NATIONAL RESOURCE WATERS AND OUTSTANDING* STATE RESOURCE WATERS

A. AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE

TABLE V-1
AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE
(DESIGNATED OR APPROVED BY THE STATE WATER RESOURCES CONTROL BOARD)

No.	ASBS Name	Date Designated	SWRCB Resolution No.	Region No.
1.	Pygmy Forest Ecological Staircase	March 21, 1974,	74-28	1
2.	Del Mar Landing Ecological Reserve	March 21, 1974,	74-28	1
3.	Gerstle Cove	March 21, 1974,	74-28	1
4.	Bodega Marine Life Refuge	March 21, 1974,	74-28	1
5.	Kelp Beds at Saunders Reef	March 21, 1974,	74-28	1
6.	Kelp Beds at Trinidad Head	March 21, 1974,	74-28	1
7.	Kings Range National Conservation Area	March 21, 1974,	74-28	1
8.	Redwoods National Park	March 21, 1974,	74-28	1
9.	James V. Fitzgerald Marine Reserve	March 21, 1974,	74-28	2
10.	Farallon Island	March 21, 1974,	74-28	2
11.	Duxbury Reef Reserve and Extension	March 21, 1974,	74-28	2
12.	Point Reyes Headland Reserve and Extension	March 21, 1974,	74-28	2
13.	Double Point	March 21, 1974,	74-28	2
14.	Bird Rock	March 21, 1974,	74-28	2
15.	Ano Nuevo Point and Island	March 21, 1974,	74-28	3
16.	Point Lobos Ecological Reserve	March 21, 1974,	74-28	3
17.	San Miguel, Santa Rosa, and Santa Cruz Islands	March 21, 1974,	74-28	4
18.	Julia Pfeiffer Burns Underwater Park	March 21, 1974,	74-28	3
19.	Pacific Grove Marine Gardens Fish Refuge and Hopkins Marine Life Refuge	March 21, 1974,	74-28	3
20.	Ocean Area Surrounding the Mouth of Salmon Creek	March 21, 1974,	74-28	3
21.	San Nicolas Island and Begg Rock	March 21, 1974,	74-28	4
22.	Santa Barbara Island, Santa Barbara County and Anacapa Island	March 21, 1974,	74-28	4
23.	San Clemente Island	March 21, 1974,	74-28	4
24.	Mugu Lagoon to Latigo Point	March 21, 1974,	74-28	4

Table VI-6 Continued on next page…

Table V-1 (Continued)

Areas of Special Biological Significance
(Designated or Approved by the State Water Resources Control Board)

No.	ASBS Name	Date Designated	SWRCB Resolution No.	Region No.
22.	Santa Barbara Island, Santa Barbara County and Anacapa Island	March 21, 1974,	74-28	4
23.	San Clemente Island	March 21, 1974,	74-28	4
24.	Mugu Lagoon to Latigo Point	March 21, 1974,	74-28	4
25.	Santa Catalina Island – Subarea One, Isthmus Cove to Catalina Head	March 21, 1974,	74-28	4
26.	Santa Catalina Island - Subarea Two, North End of Little Harbor to Ben Weston Point	March 21, 1974,	74-28	4
27.	Santa Catalina Island - Subarea Three, Farnsworth Bank Ecological Reserve	March 21, 1974,	74-28	4
28.	Santa Catalina Island - Subarea Four, Binnacle Rock to Jewfish Point	March 21, 1974,	74-28	4
29.	San Diego-La Jolla Ecological Reserve	March 21, 1974,	74-28	9
30.	Heisler Park Ecological Reserve	March 21, 1974,	74-28	9
31.	San Diego Marine Life Refuge	March 21, 1974,	74-28	9
32.	Newport Beach Marine Life Refuge	April 18, 1974	74-32	8
33.	Irvine Coast Marine Life Refuge	April 18, 1974	74-32	8
34.	Carmel Bay	June 19, 1975	75-61	3

B. OUTSTANDING* NATIONAL RESOURCE WATERS

TABLE V-2
OUTSTANDING NATURAL RESOURCE WATERS
(DESIGNATED OR APPROVED BY THE STATE WATER RESOURCES CONTROL BOARD[1])

No.	ONRW Name	Date Designated or Approved by SWRCB	SWRCB Resolution No.	Region No.

C. OUTSTANDING* STATE RESOURCE WATERS

TABLE V-3
OUTSTANDING STATE RESOURCE WATERS
(DESIGNATED OR APPROVED BY THE STATE WATER RESOURCES CONTROL BOARD[1])

No.	OSRW Name	Date Designated or Approved by SWRCB	SWRCB Resolution No.	Region No.

ISSUE 6: ADMINISTRATIVE CHANGES IN THE CALIFORNIA OCEAN PLAN

Present Ocean Plan

The 1997 Ocean Plan includes references to various sections of law or implementing regulations. As these laws or regulations change, the references in the Ocean Plan must be revised to reflect the current law. Occasionally, it is recognized that the meaning of words, phrases or definitions in the current Ocean Plan are not clear. When this occurs, it is desirable to consider changes to clarify the meaning without changing or increasing the authority of the SWRCB

Issue Description

1. The Ocean Plan contains a number of different terms used to refer to various agencies. Sometimes these terms are confusing to the reader. It is proposed to add a paragraph to the Introduction section which will explain the meaning of the terms used to refer to the State Board, a Regional Board, and the federal Environmental Protection Agency.

2. It is proposed to change the term "dredging spoil" to "dredged material". The word "spoil" has fallen into disuse for dredging activities and the word "material" is used commonly in federal and state law (33 U.S.C. Sections 1344 and 1413; 33 CFR PARTS 335, 336, 337 and 338; 40 CFR PART 233; Sections 13370, 13376, 13377 and 13378 Calif. Water Code). The term "dredged material" will be defined consistent with the definition in 33 U.S.C. 1402(i).

3. The rescinded Inland Surface Waters Plan and the rescinded Enclosed Bays and Estuaries Plan included information in the Introduction section which explained the relationship between the plan at hand and other statewide plans or policies. Staff believes it is beneficial to add similar information to the Ocean Plan to explain the intent of the SWRCB that the following principles continue to be implemented:

- Each water quality control plan will provide for the attainment and maintenance of the water quality standards of downstream* ocean waters.

This principle is from 40 CFR Section 131.10(b) of the federal regulations which requires that each state ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters. A proposed definition has been added to clarify use of the term "downstream" as applied to ocean waters.

- To the extent there is a conflict between a provision of the Ocean Plan and a provision of another statewide plan or policy, or a regional water quality control plan (basin plan), the more stringent provision shall apply except where, pursuant to Chap. III. H of this Plan, the SWRCB has approved an exception to Plan requirements.

This principle is derived, in part, from 40 CFR Section 131.10(b) and Section 13170 CWC. The Ocean Plan currently provides that Regional Boards may impose alternative less restrictive provisions than those contained within Table B of the Plan, provided the State Board grants the exception (Chapter VI B and F.). If the State Board has granted an exception, the less restrictive limitation in a waste discharge requirement or basin plan does not constitute a conflict with the Ocean Plan. The provisions for exceptions will not change in the proposed revision of the Ocean Plan.

- Pursuant to Section 13140 CWC, the Ocean Plan is intended to conform to any applicable state policy for water quality control, including the provisions of Section 13142.5 CWC.

Amending the Ocean Plan to include the above principles would not increase the authority of the State Board.

4. Table B WATER QUALITY OBJECTIVES includes the term "Radioactivity". It was intended to reference Title 17 Section 30269 of the California Code of Regulations which is administered by the state Department of Health Services (DHS). However, Section 30269 was repealed as an emergency action by DHS in 1994. Section 30253, which makes reference to federal radiological standards, will be substituted in the reference. The reference will be made prospective to include future changes to the incorporated provisions as the changes take effect.

5. Appendix II of the 1997 Ocean Plan includes references to specific publications in Chapters II A Bacterial Standards and Chapter IV Compliance with Toxicity Limitations and Objectives as sources of biological testing methods. Staff proposes to delete the reference to the specific publication for total and fecal coliform in Chapter II A, and for acute toxicity in Chapter IV. Both chapters would contain a reference to the EPA approved methods in Table 1 A of 40 CFR PART 136, as revised May 14, 1999. At this time, the EPA approved methods for total and fecal coliform, and acute toxicity. However, 40 CFR 136.1 specifically requires use of the tests in 40 CFR PART 136 so staff considers it best to use that reference when possible. The reference in Chapter II. A. to a specific publication for the enterococcus test method would not be changed.

6. Appendix II of the 1997 Ocean Plan includes Chapter IV Compliance with Toxicity Limitations and Objectives. It is proposed to delete the term, "Limitations" since the limitations are water quality objectives and the use of both terms in the title is redundant.

Chapter IV specifies that compliance with the acute toxicity limitation (TUa) shall be determined using an established protocol. Federal regulations (40 CFR PART 136) require the use of EPA approved toxicity test protocols for NPDES permit compliance monitoring unless an alternate protocol has been approved in advance. The only approved toxicity test protocol is listed in Table 1A of 40 CFR PART 136, as revised May 14, 1999.

7. Chapter VI General Provisions of the Ocean Plan states that the Plan is in effect as of the date of approval by the Office of Administrative Law (OAL).

On April 27, 2000, the U.S.EPA published a final rule concerning review and approval of state water quality standards. Effective May 30, 2000, changes in water quality control plans are effective when approved by U.S. EPA.

Public Comment and Board Staff Response

Comment 6.1: On page 135 and 139, the (October 1998) DFED proposes to add language that states "To the extent that there is a conflict between a provision of this plan and a provision of another statewide plan or policy, or a regional water quality control plan (basin plan), the more stringent provision shall apply in case of any conflict ...". Recommend the FED and proposed amendments to the Ocean Plan be revised to except site specific water quality objectives from the "more stringent" provision. (15,19)

Response: Chapter VI of the current Ocean Plan provides that RWQCBs may establish more, or less, restrictive water quality objectives and effluent limitations than those in the Ocean Plan under certain conditions. When these exceptions are approved by the SWRCB, there is no conflict. The SWRCB may grant exceptions to Ocean Plan requirements (Ch. VI F of 1997 Ocean Plan and proposed Ch. III.J of

Appendix B). SWRCB approval of a site-specific objective would, in essence, grant an exception to the Ocean Plan.

To further address the commenters' concern, language has been added to clarify that the more stringent provisions apply "except where, pursuant to Ch. III.G. of this Plan, the SWRCB has approved an exception to Plan requirements." However, please note that the 1999-2000 California Ocean Plan Triennial Review Work Plan (SWRCB, 1999b), approved July 15, 1999, includes Issue C.3.g "Incorporation of Site-Specific Water Quality Objectives Into The Ocean Plan". The workplan provides staff resources to study the development of procedures for site-specific water quality objectives that could be included in the Ocean Plan.

Comment 6.2: We have concerns with the statement on page 139, "*To the extent there is a conflict...*" of the October 1998 DFED. It appears this statement would preclude the adoption of a site-specific objective that is less restrictive than an objective in another plan. Please explain exactly what is meant and provide a specific example of the statement concerning application of downstream objectives to upstream tributaries. (2) (13) (15) (16)

Response: The basic concept in the proposed language is from Section 13170 CWC which states; "The state board may adopt water quality control plans in accordance with the provisions of Sections 13240 to 13244, inclusive, insofar as they are applicable, for waters for which water quality standards are required by the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto. *Such plans, when adopted, supersede any regional water quality control plans for the same waters to the extent of any conflict*." (emphasis added).

The California Ocean Plan is prepared by the SWRCB pursuant to Section 13170.1 CWC. It is prepared in accordance with Sections 13240 to 13244, inclusive, to fulfill provisions of the federal Clean Water Act that require each state to adopt water quality standards. When adopted by the SWRCB, the Ocean Plan will supersede any basin plan to the extent of any conflict. However, if a RWQCB adopts a less restrictive provision than contained in the 1997 Ocean Plan pursuant to Chapter VI B and F, and the SWRCB approves the RWQCB action, there is no conflict. In addition, language has been added to clarify that the more stringent provisions apply "except where, pursuant to Ch. III.G. of this Plan, the SWRCB has approved an exception to Plan requirements."

The statement concerning application of downstream objectives to upstream tributaries, when used in a basin plan, is intended to ensure that all surface waters have applicable water quality standards. Therefore, if a basin plan does not designate beneficial uses for a tributary, the objectives and beneficial uses established for the primary water body also extend upstream to the tributary. That portion of the statement in proposed Principle 1.b. for amendment to the Ocean Plan is confusing and unclear. Therefore, it has been omitted.

Comment 6.3: In the ocean, it is not clear always what constitutes "downstream". Since the state must comply with federal regulations, it is immaterial whether this principle is restated in the Ocean Plan. (2) (16)

Response: Staff believes it is desirable to restate the principle in the Ocean Plan for the benefit of members of the public who may not be familiar with federal regulations. The fundamental principle is that water quality control activities in a stream tributary to the ocean must not cause water quality problems in the ocean, which is the final "downstream water". "Downstream" in ocean waters is considered to be either downstream with respect to ocean currents, or beyond an administrative boundary. As an example, the jurisdiction over ocean waters is divided among the RWQCBs whose regions include the ocean. Neighboring RWQCBs may have differing standards for some pollutants. If a discharge plume is carried by ocean currents from the jurisdiction of one RWQCB into the jurisdiction of an adjacent RWQCB, the plume may not violate the standards of the receiving RWQCB, i.e. the downstream jurisdiction. To further clarify use of the term

"downstream" in the Ocean Plan, a definition has been added which should distinguish it from use of the term in inland waters.

> "DOWNSTREAM OCEAN WATERS shall mean waters downstream with respect to ocean currents, or beyond an administrative boundary."

Comment 6.4: Requests that staff provide information concerning the result of the redefinition of the term "radioactivity" - is it more restrictive and, if so, what are the economic impacts of this change? (19)

Response: The redefinition of the term "Radioactivity" does not make the limitation more restrictive.

Comment 6.5: The proposed redefinition states reference to Sec. 30253 is "*prospective*" It is inappropriate for the Ocean Plan to incorporate changes in other laws on a prospective basis. It prevents a discharger regulated by the Ocean Plan from due notice pursuant to WC sec. 13240-44 inc., and prevents due consideration as would be afforded under the Triennial Review pursuant to Water Code Sections 13240-44 inc. Recommends staff delete "prospective incorporation of revisions" language from the proposed amendments. (19)

Response: Use of the term "prospective" is permissible when the SWRCB intends to rely entirely on the regulation of another agency and the other agency is required to go through a formal rulemaking process to amend the regulation. If the other agency proposes to change the regulatory limits for radioactivity, that agency will publish a Notice of Hearing and provide opportunity for comments.

Comment 6.6 : Place high priority on making Ocean Plan applicable to the control of disposal of dredge material. Continue efforts to control disposal of dredged material in next Triennial Review. (3)

Response: The 1999-2000 Triennial Review Workplan for the Ocean Plan, approved July 15, 1999, includes Issue C.1.a "Applicability of the Ocean Plan to Water Quality Certification and Waste Discharge Requirements for Dredging Activity". At the conclusion of the workplan task, the staff will determine what amendments, if any, are appropriate for inclusion in the Ocean Plan.

Comment 6.7: FED should clarify that CWA only allows EPA to exempt from NPDES permit incidental wastes that are from Army vessels. Thus EPA's regulations exempting all vessel wastes are most likely an illegal exceedance of authority. (3)

Response: The CWA excludes sewage from vessels and discharges incidental to the normal operation of an armed forces vessel from the definition of "pollutant". 33 USC §1362(6). The regulations exclude sewage from vessels and effluent from properly functioning marine engines, laundry, shower and galley sink wastes or any other discharge incidental to the normal operation of a vessel from the requirement to have an NPDES permit. 40 CFR §122.3(a). The SWRCB lacks the authority to determine whether EPA exceeded its rulemaking authority in adopting the regulations.

Comment 6.8: Request that staff include on page 133 that" staff does not propose amendment of the Ocean Plan *at this time* to make it applicable to vessel wastes" (amendment italicized). Issue should be considered in Triennial Review. (3)

Response: The text on page 133 was deleted as ballast water controls are not proposed at this time. This issue is included in the 1999-2000 Triennial Review Workplan dated July 15, 1999.

Comment 6.9: Control of dredge material disposed in the ocean should have a high priority. Should be included in the Triennial Review and staff should work closely with Bay Protection and Toxic Hot Spots

staff. Page 133 of Draft FED should state, "the SWRCB *has not yet been able to adopt a standard test for sediment toxicity, but will place a high priority on working to ensure the development of sediment quality criteria."*

Staff should consider how guidance could be made on this issue in the near term. Consider use of federal "Green Book" criteria and ocean disposal requirements. Consider having the Ocean Plan state that disposal of dredge material does not impact ASBS, ONRWs and OSRWs. Appropriate state and Reg. Board staff should consider potential for using Green Book testing and ocean disposal requirements for inland waters that may impact ocean water quality. (3)

Response: This issue described in the 1999 Triennial Workplan and designated as Issue C.1.a. "Applicability of the Ocean Plan to Water Quality Certification and Waste Discharge Requirements for Dredging Activity" will allow staff to develop proposed amendments to the Ocean Plan for the control of the disposal of dredged material. It is planned also to develop non-regulatory guidance material for use by the RWQCBs. The workplan does not include development of a standard test for sediment toxicity. Both U.S. EPA and USACE are working to agree on standard methods and, since they share certain authority in controlling dredging and dredged material disposal, it appears desirable to use their tests, if possible.

Comment 6.10 : Support the proposals to (1) explain the meaning of terms referring to agencies, (2) change reference to radioactivity to Sec. 30253 from 30269 and (3) specify that toxicity compliance shall be determined using 40 CFR Part 136. (6)

Response: Support is noted.

Comment 6.11: The proposed language referencing 40 CFR 136, as revised July, 1997, could provide an obstacle to transitioning to better, more recent methods. Suggest adopting current version, or checking just before adoption to determine if there is a 1999 update. (6) (13) (16)

Response: SWRCB regulations must reference a specific document. At this time, the current regulation is the July 1, 1999 revision of 40 CFR Part 136. However, 40 CFR Section 136.5 provides procedures for the use of alternate methods.

Comment 6.12: Should be some recognition that California DHS ELAP program must certify labs. (2) (6) (13) (16)

Response: The comment about laboratory certification has led staff to include the following statement in the proposed Appendix IV, STANDARD MONITORING PROCEDURES, under Chapter III, Table B.
Compliance with Table B Objectives:
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.

Comment 6.13: Support Issues 1, 2, 4 and 6. (2) (16)

Response: Support noted.

Comment 6.14: This proposed provision is unclear and it is inconsistent with Sec. 13170 CWC. Despite agreement with EPA, SWRCB must change this provision to be consistent with Sec. 13170. The proposed provision is inconsistent also with the proposed "Policy for Implementation of Toxic Standards for Inland Waters, Enclosed Bays and Estuaries of California" which states, *"To the extent of any conflict between a*

provision of this Policy and a provision of a basin plan adopted by a RWQCB, insofar as they apply to the implementation of priority criteria/objectives and chronic toxicity requirements, the provisions of this Policy shall apply". In addition, this provision would preclude the adoption of site-specific objectives. (2) (16)

Response: The proposed language is not inconsistent with Section 13170. Section 13170 applies if there is a conflict between the Ocean Plan and a Basin Plan. The proposed language ensures there will not be a conflict by clarifying that if one plan is more stringent than another, the more stringent prevails. A discharger can comply with both by being in compliance with the more stringent. The Proposed Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California is not applicable to ocean waters. The Ocean Plan does not have to be consistent with that policy.

Comment 6.15: The provision. "Pursuant to Section 13140 CWC,..." states what is already legally true - this water quality control plan must conform to water quality control policies adopted by the SWRCB. It is not necessary to state this. (2) (16)

Response: The proposed provision is intended to inform the public of the existence of the other policies on the assumption that such information will help explain actions of the SWRCB**.** As stated in paragraph 3 of the Response to Commenter 15 (City and County of San Francisco), reference to the exception regarding downstream objectives in proposed principle B.1.b will be omitted.

Comment 6.16: The 1998 Triennial Review Staff Report indicated on page C-3 that the staff intended to propose an amendment to the Ocean Plan that would clarify its applicability to vessel wastes and dredging material. The October 1998 FED states that the SWRCB is unable to propose any amendments making the Ocean Plan applicable to the control of dredging spoil "at this time". It is not clear what the SWRCB intends to do about this long-standing issue in view of the different statements in Triennial Report and FED. The State's rationale in FED not clear. (12) (18)

Response: The two documents included different statements because they were for a different purpose. It is recognized that having them circulate for public review at the same time did create some confusion. The Triennial Review Staff Report was intended to solicit comments and suggestions for a workplan which could explore potential amendments to the Ocean Plan over a three year period. A potential issue was to clarify the applicability of the Ocean Plan to the control of vessel wastes and dredged material. The Triennial Review Workplan, approved July 15, 1999, includes Issue C.1.a. which will allow the staff to explore amending the Ocean Plan for the control of dredged material. However, it does not include the development of sediment criteria. It is assumed that US EPA and US ACE will agree on sediment criteria in the future and that the States may rely on the agreed-upon criteria and methods. Based on this assumption, it does not seem appropriate to expend state resources for the development of sediment criteria.

The approved workplan also includes Issue C.1.c for the development of amendments for the control of ballast water disposal by vessels. It is assumed that the exploration of this issue will clarify the applicability of the Ocean Plan to the control of vessel wastes. The dFFED has been amended and much of the discussion has been deleted for clarity and to avoid additional confusion.

Comment 6.17: In Appendix A, page 18, the discussion of "Lethal Concentration" in the definition of Acute Toxicity should include a reference to the Standard Monitoring Procedures in Appendix II. (18)

Response: The text of Appendix A, page 18 has not been changed to include a reference to Appendix II within Appendix A because the reference is not included in the 1997 Ocean Plan. The intent of Appendix A was to present a rearrangement of the existing Ocean Plan provisions with no other changes.

Comment 6.18: In Appendix B, page 25, the discussion of "Lethal Concentration" in the definition of Acute Toxicity should include a reference to the Standard Monitoring Procedures in Appendix IV of the amended OP. (18)

Response: In Appendix B, which is the amended Ocean Plan, the definition of ACUTE TOXICITY on page 25, has been changed to include a reference to the standard procedures in Appendix IV.

Comment 6.19: On page 26 (*Appendix B*), the reference to "Appendix II" in the last line of "Chronic toxicity" should be changed to "App. IV". (18)

Response: The reference is to Appendix II of the 1997 Ocean Plan. If the SWRCB adopts all the proposed amendments the reference in the 2000 Ocean plan will be to Appendix IV.

Comment 6.20: The term "dredging material" should be changed to "dredged material" as used in Clean Water Act Section 404. (12)

Response: The term "dredging material" has been changed to "dredged material".

Comment 6.21: Species names such as *Enterococcus* and *Echerichia coli* (FED p. 141; Appendix B, p. 19) should be shown in italic fonts or underlined as in Appendix IV (FED Appendix B, p 38). (12)

Response: Enterococcus is a noun referring to a subgroup of fecal streptocci. *Echerichia coli* is a species name and will be shown in italics.

Comment 6.22: Chapter 1 Beneficial Uses The term ASBS should be added to the definitions section, using the definition on page 107. (12)

Response: The term "ASBS" will be added to the definitions and an asterisk will follow the term in the text of the FED to indicate it has been defined.

Comment 6.23: Chapter II A. Each reference to a concentration of bacteria should contain units. The most common unit is Most Probable Number (of bacteria cells) per 100 milliliters, abbreviated to MPN/100 ml.(12)

Response: The bacterial concentration units were deliberately left off to allow for the analyses to be done using either the most probable number technique (units in MPN) or the membrane filter technique (units in CFU/ml; CFU stands for colony forming units).

Comment 6.24: Chapter II. The term "discharged*" (Section G.2, App. B, p. 5) should be defined and included in App. I (12)

Response: The term "discharged" is not defined in the 1997 Ocean Plan and it will not be added as an amendment at this time. The asterisk in the Draft FED was added accidentally. The Triennial Review Workplan includes Issue C.5.a Clarification of Terminology in the Ocean Plan and definition of the term can be considered in that task.

Comment 6.25: Chapter II. The term "Maximum" should be defined. (12)

Response: The term "maximum" is not defined in the 1997 Ocean Plan and it will not be added as an amendment at this time. The response to Comment 6.24 applies here also.

Comment 6.26: Check regarding pathogenic organisms - need for standard? (12)

Response: The 1997 Ocean Plan does not contain standards for any specific pathogenic organisms, including viruses, and the proposed amendments regarding format of the Ocean Plan are not intended to extend the authority of the SWRCB. In addition, we do not foresee including standards for these organisms in the near future for the following reasons:
1. It would be very impractical to test for specific pathogenic bacterial organisms. Routine water quality sampling consists of collecting a grab sample from the receiving water. Pathogenic organisms are not expected to be present in as great a concentration as indicator organisms. The absence of a specific pathogenic organism does not necessarily mean that the receiving water is free of that particular organism, but only that the pathogen was not present in that sample.
2. It is premature to develop standards for viruses. Although analytical methods are constantly improving, there still is approximately a 50% false negative rate using current methods of detection.

Comment 6.27: Sec. G6 discusses sections of Clean Water Act. Sec. G6c should include Sec. 304 of CWA with the other seven sections (FED App. B, page 7) (12)

Response: Reference to Section 304 is not included in the 1997 Ocean Plan and we do not wish to propose an amendment to add it at this time. Consideration of adding it can be included in Issue C.5 of the Triennial Review Workplan (SWRCB, 1999b).

Comment 6.28: The numbers after equations should indicate that they refer to Equation 1, Equation 2, and Equation 3 to prevent confusion with actual equation terms (FED Appendix B pages 13-14). (12)

Response: Concur. Each equation will be identified by the appropriate label, as follows: (Equation 1) in front of the equation.

Comment 6.29: Sections A.1.e, A.1.f and A.1.g refer to definitions of Six-Month Median, Daily Maximum and Instantaneous Maximum in Table B (FED Appendix B page 9). These definitions should be noted with an asterisk on Table B and the definitions should be moved to Appendix I of the new Ocean Plan.

Response: Since these definitions are very specific to Table B and are not used in other parts of the Ocean Plan, staff prefers to keep these definitions where they are without change.

Summary of Changes Resulting from Comments

The following proposed changes have been made to this issue since the October 1998 Draft FED.

1. The paragraphs describing dredged materials and vessel wastes have been deleted as there are no proposed changes to these issues in the Ocean Plan at this time.
2. The term “downstream” used in Principle B.1.a of the Introduction has been defined as it applies to ocean water discharges.
3. The Principle in the Introduction at B.1.b has been revised to explain that when there is a conflict between a provision of the Ocean Plan and a provision of another statewide plan or policy, or a regional basin plan, the more stringent provision shall apply except where, pursuant to Chap. III.G. of the this Plan, the SWRCB has approved an exception to Plan requirements.
4. In Principle B.1.c of the Introduction, the reference to other statewide policies has been omitted.
5. A definition for ASBS has been added.
6. A statement has been added to Chap. III, Table B to clarify that laboratories analyzing monitoring data must be certified by the Department of Health Services.
7. Latin names of organisms have been italicized or underlined as appropriate.

8. In App. B, the amended Ocean Plan, the definition of Acute Toxicity has been changed to include a reference to the standard procedures in App. IV.
9. The term "dredging material" has been changed to "dredged material".
11. The species name, *Echerichia coli*, is shown in italics.
12. Equations 1, 2 and 3 in Appendix B on pages 13-14 will be labeled (Equation 1), (Equation 2) and (Equation 3) as appropriate in front of each equation.

Alternatives for Board Actions and Staff Recommendations

1. Include proposed amendments numbered 1 through 7 above in the Ocean Plan.

2. Include proposed amendments 1, 2, 4, 5 and 6 but do not include proposed amendment 3 in the Ocean Plan.

3. Do not include proposed amendments numbered 1 through 5 in the Ocean Plan.

Staff Recommendation: Adopt Alternative 1.

Environmental Impact Analyses

These changes are non-substantive and they would not increase the authority of the State Board. The proposed changes are not considered to be a "project" for purposes of the California Environmental Quality Act.

Proposed Ocean Plan Amendment

Proposed Change 1.

F. Within this Plan, references to the State Board or SWRCB shall mean the State Water Resources Control Board. References to a Regional Board or RWQCB shall mean a California Regional Water Quality Control Board. References to the Environmental Protection Agency, US EPA or EPA shall mean the federal Environmental Protection Agency.

Proposed Change 2.

C. This plan is applicable, in its entirety, to point source discharges to the ocean*. Nonpoint sources of waste* discharges to the ocean* are subject to Chapter I Beneficial Uses, Chapter II - WATER QUALITY OBJECTIVES, Part G, Table B (wherein compliance with water quality objectives shall, in all cases, be determined by direct measurements in the receiving waters) and Chapter III - PROGRAM OF IMPLEMENTATION .

D. This plan is not applicable to discharges to enclosed* bays and estuaries* or inland waters, nor is it applicable to vessel wastes, or the control of dredged~~ing~~ material.

DREDGED MATERIALS: Any material excavated or dredged from the navigable waters of the United States, including material otherwise referred to as "spoil".

Proposed Change 3.

B. Principles

1. Harmony Among Water Quality Control Plans and Policies.
a). In the adoption and amendment of water quality plans, it is the intent of this Board that each plan will provide for the attainment and maintenance of the water quality standards of downstream* ocean waters.
b). To the extent there is a conflict between a provision of this plan and a provision of another statewide plan or policy, or a regional water quality control plan (basin plan), the more stringent provision shall apply except where, pursuant to Chap. III.G. of this Plan, the SWRCB has approved an exception to Plan requirements.

Proposed Change 4.

TABLE B

WATER QUALITY OBJECTIVES

(contents of table omitted)

Radioactivity**

** Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the California Code of Regulations. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.

Proposed Change 5.

APPENDIX II
STANDARD MONITORING PROCEDURES
(Paragraph omitted.)

The appendix is organized in the same manner as the Ocean Plan. All references to 40 CFR PART 136 are to the revised edition of July 1, 1997.

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 methods used for each analysis shall be reported with the results of the analysis.

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 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 of *Escherichia coli* and Enterococci in Water By Membrane Filter Procedure or any improved method determined by the Regional Board to be appropriate.

Chapter III. 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 mg/l.

(Paragraph omitted.)

Proposed Change 6.

Chapter III. Compliance with Toxicity Objectives:

Compliance with the acute toxicity objective (TUa) in Table B shall be determined using an EPA approved protocol as provided in 40 CFR PART 136.

Proposed Change 7.

Chapter VI. A. Effective Date

The *Water Quality Control Plan, Ocean Waters of California, California Ocean Plan* was adopted and has been effective since 1972. There have been multiple amendments of the Ocean Plan since its' adoption. The current version of the Ocean Plan became effective July 23, 1997.

This document includes the most recent amendments of the Ocean Plan as adopted by the SWRCB on October 18, 2000. However, amendments in this version of the Ocean Plan do not become effective until approved by the U.S. EPA. Persons using the Ocean Plan prior to approval of this version should reference the 1997 Ocean Plan. Once approved by the U.S. EPA, this document (the 2000 Ocean Plan) will supercede the 1997 Ocean Plan.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Introduction

In California, protection of the quality of waters of the State is entrusted by law to the State Water Resources Control Board (State Board) and the nine Regional Water Quality Control Boards (Regional Boards). As authorized by the California Water Code, the State Board has adopted statewide Water Quality Control Plans, such as the California "Ocean Plan" and "Thermal Plan". Consistent with and complementary to these statewide plans, each Regional Board has adopted a regional water quality control plan (basin plan) that contains specific water quality standards and implementation provisions for its region. (Water quality standards consist of a water body's designated uses and water quality objectives to protect those uses and antidegradation) Basin plans must be approved by the State Board and by the State Office of Administrative Law (OAL). Regional Boards are primarily responsible for implementing both statewide water quality control plans and basin plans.

Both the federal Clean Water Act and the California Water Code require periodic review of the State's water quality standards. The purpose of such reviews is to determine, with public input, whether any changes are needed in the standards. Follow-up actions by the State or Regional Boards ensure that needed changes identified in the review process will be made as amendments to the water quality control plan under review.

Under provisions of the California Environmental Quality Act, certified state regulatory programs are exempt from certain aspects of the CEQA process. As noted below:

> *Section 21080.5 of the Public Resources Code provides that a regulatory program of a state agency shall be certified by the Secretary for Resources as being exempt from the requirements for preparing EIRs, Negative Declarations, and Initial Studies if the Secretary finds that the program meets the criteria contained in that code section. A certified program remains subject to other provisions in CEQA such as the policy of avoiding significant adverse effects on the environment where feasible. This article provides information concerning certified programs. (CEQA Guidelines, §15250)*

The water quality planning process of the State and Regional Boards, by which the boards prepare, adopt, review, and amend the statewide and regional water quality control plans, is certified by the Secretary for Resources as "functionally equivalent" to the CEQA process. This means that the State and Regional Boards' process of public hearings, responsiveness to public comments, preparation of environmental documentation, and public decision-making serves as an approved alternative to the CEQA process, substituting this "functionally equivalent" procedure for some CEQA requirements. The current review process for the Ocean Plan follows the approved procedure for review of water quality control plans.

This section summarizes the CEQA compliance provided by the SWRCB through preparation and circulation of the Draft FED (DFED) and this Final FED (FFED) including the Growth Inducing and Cumulative Impact descriptions, and miscellaneous "clean-up" items from the environmental checklist.

Growth Inducing Impacts

The CEQA Guidelines provide the following direction for examination of growth-inducing impacts:

> (d) Growth-Inducing Impact of the Proposed Project. Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to

> population growth (a major expansion of a waste water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment. (CEQA Guidelines, §15162.2 (d)).

The proposed actions contemplated by this FED include:

Issue 1: Replacement of the acute toxicity effluent limitation in Table "A" with an acute toxicity water quality objective.

Issue 2: Revision of chemical water quality objectives for protection of human health.

Issue 3: Compliance determination for chemical water quality objectives.

Issue 4: Format and organization of the Ocean Plan.

Issue 5: Development of special protection for water quality and designated uses.

Issue 6: Administrative Changes to the Ocean Plan.

Implementation of Issues 1-3 are not expected to induce additional growth as a result of perceived lessening of water quality protection requirements.

Issue 5 establishes a protocol to designate special protection for water quality and designated uses. The imposition of more stringent water quality standards in locations of special concern would not promote growth or development.

Issues 4 and 6 are administrative changes to the Ocean Plan, and by their nature will not pose growth-inducing impacts.

Cumulative Impacts

The CEQA Guidelines (§15355) provide the following definition of cumulative impacts:

> *"Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.*
>
> *(a) The individual effects may be changes resulting from a single project or a number of separate projects.*
>
> *(b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.*

The fundamental purpose of the cumulative impact analysis is to ensure that the potential environmental impacts of any individual project are not considered in isolation. Impacts that are individually less than

significant on a project-by-project basis, could pose a potentially significant impact when considered with the impacts of other projects. The cumulative impact analysis need not be performed at the same level of detail as a "project level" analysis, but must be sufficient to disclose potential combined effects that could constitute a significant adverse impact.

Implementation of the proposed amendments to the Ocean Plan would alter the manner in which water quality is assessed and monitored. However, the required frequency of sampling and number of analyses would not be substantially changed from existing requirements, and consequently the proposed changes would not require a significant change in sampling personnel, vehicle trips, field equipment, or other parameters of the sampling process. Many laboratories are already capable of performing the proposed analyses within their existing facilities, and in most instances only minimal changes to equipment and/or procedures would be required to accommodate the changes. It is recognized that some laboratories may encounter unusual difficulties in upgrading their facilities to provide a particular service. However, it is not necessary that all laboratories be capable of all of the analyses. Based on a survey of existing labs, SWRCB staff have determined that a sufficient number of labs would be able to provide the required services with minimal changes to their equipment or operation.

The proposed changes to the Ocean Plan are consistent with direction from the EPA, and as such could reduce the possibility that different analyses could be required to determine compliance with the respective requirements of each agency.

Based on the evaluation presented under "Environmental Impacts" in the DFED as well as the preceding discussion, implementation of the proposed amendments is not expected to contribute to a significant cumulative impact.

Resolution of Environmental Checklist Items

At the onset of the proposed project, a CEQA environmental checklist was completed to identify potentially significant adverse environmental impacts. The completed checklist is presented in its' entirety in Appendix C of the FFED. Eight potential impacts were identified in the environmental checklist as "Potentially Significant Unless Mitigation Incorporated". The disposition of each of these issues is presented below.

Excerpted from the CEQA Environmental Checklist

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	LAND USE AND PLANNING.				
	Would the proposal:				
b.	Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project?	[ ]	[X]	[ ]	[ ]
c.	Be incompatible with existing land use in the vicinity?	[ ]	[X]	[ ]	[ ]
e.	Disrupt or divide the physical arrangement of an established community (including a low-income or minority community)?	[ ]	[X]	[ ]	[ ]
VIII.	ENERGY AND MINERAL RESOURCES				
	Would the proposal:				

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c.	Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State?	[ ]	[X]	[ ]	[ ]
XI.	PUBLIC SERVICES				
	Would the proposal have an effect upon or result in a need for new or altered government services in any of the following areas:				
d.	Maintenance of public facilities, including roads?	[ ]	[X]	[ ]	[ ]
XII.	UTILITIES AND SERVICE SYSTEMS				
	Would the proposal result in a need for new systems or supplies or substantial alterations to the following utilities:				
d.	Sewer or septic tanks?	[ ]	[X]	[ ]	[ ]
e.	Storm water drainage?	[ ]	[X]	[ ]	[ ]
f.	Solid waste disposal?	[ ]	[X]	[ ]	[ ]

The environmental checklist provides the following explanation why these items were suggested to pose a potentially significant impact:

I.b. Conceivably, an OSRW could be designated which has an existing discharge from a project utilizing a combination waste treatment lagoon and waterfowl habitat area. If it was found at some point in time that the project was causing, or had the potential to cause, a lowering of water quality within the OSRW, it is possible the project would have to be altered.

I.c. If land use plans included storm drains, watershed drainage projects or right-of-ways for projects that discharged into an OSRW, and there was a reasonable potential for the land use plans to cause water quality to be lowered in the OSRW, the plans could be found incompatible with the designation. However, if a RWQCB or the SWRCB is considering a nomination for an OSRW, it is assumed the environmental analysis would reveal any potential conflicts and mitigation measures. If an OSRW has been designated and another agency is considering land use plans which might conflict with the purposes of the OSRW, it is assumed also that the environmental analysis for the land use plan would reveal potential conflicts.

I.e. If an OSRW is designated and there is an established community which has a community waste disposal facility discharging into the OSRW, it is conceivable that the waste could be found to have a reasonable potential to lower water quality within the OSRW. A situation could exist in which the community would be required to construct collection facilities, or upgrade treatment works, or improve discharge facilities. If any of these measures were a reasonable solution but the community could not finance them, there could be a problem. However, it is possible that local districts could be formed and grants and/or loans could help finance the necessary project.

VIII.c. If an OSRW is designated, there could be a situation where undersea exploratory or production drilling for oil would conflict with the purposes of the OSRW. A determination would have to be made

concerning potential impacts and mitigation measures with a specific designated area and a specific project proposal.

B.XI.d. If an OSRW is designated, nonpoint source waste discharges will have to be controlled to a reasonable extent to prevent a lowering of water quality within the OSRW. It is possible that road maintenance would have to be increased or improved to achieve appropriate "best management practices" (BMPs). There could be situations where significant erosion from public lands, drainage courses or highway embankments would be found to be a threat to water quality in the OSRW and improvements would be required.

B.XII.d. As previously described in B.I.e., an existing municipal waste discharge into an OSRW may be found to have a reasonable potential for lowering water quality within the designated area. If so, the collection system, waste treatment facility or discharge facility may be required to change and cause secondary impacts. It is premature to attempt to define potential secondary impacts or mitigation measures at this time. However, the type of secondary impacts could be related to construction of collection systems, enlargement of treatment facilities, or extension or enlargement of waste discharge outfalls.

There may be watersheds tributary to coastal waters where septic tanks are not maintained adequately to prevent bacterial contamination of coastal waters, but the problem has not had sufficient priority to result in correction. If the coastal waters are designated as an OSRW, it may raise the priority for corrective measures required of septic tank owners.

B.XII.e. Existing storm water drainage into a designated OSRW may be found to have a potential for causing unacceptable changes in water quality or biological communities within the OSRW. Corrective measures could include new, more stringent, BMPs for asphalt surfaces, pesticide use, rubbish disposal, industrial yards, land surfaces and drainage ways.

B.XII.f. Solid waste disposal in the form of dredged material, or fill, may not be acceptable within a specific OSRW. However, there is provision for temporary, limited changes in water quality within a designated area, so a particular project could be approved under conditions required for the amount and type of material, the season and length of time of disposal, etc.

The reasoning for identifying these checklist items as potentially significant is fundamentally correct. If and when any location(s) is/are nominated for OSRW status, the consequences of designating such locations would be subject to CEQA review. However, the FFED is a programmatic level document that addresses proposed amendments to the Ocean Plan. Establishment of a process to allow locations to be designated as OSRWs does not in itself pose any direct environmental impact. Further, because a process to designate OSRWs does not exist, potential locations have not been nominated. Identification of specific locations that may be nominated for OSRW at some future date would be speculative and beyond the requirements for environmental review at this time.

The fundament function of CEQA disclosure is served by SWRCB recognition that adoption of the proposed amendment would create a process for designation of OSRWs, and that subsequent CEQA review could be required at the project-level to ascertain the potential environmental impacts of designating specific locations.

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Appendix A
Draft Ocean Plan with Format Change Only

State of California

STATE WATER RESOURCES CONTROL BOARD

~~1997~~

CALIFORNIA OCEAN PLAN

WATER QUALITY CONTROL PLAN

OCEAN WATERS OF CALIFORNIA

Adopted _____

Effective _____

DRAFT

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Proposed Amendment
of the Format of the

CALIFORNIA OCEAN PLAN

WATER QUALITY CONTROL PLAN FOR
OCEAN WATERS OF CALIFORNIA

INTRODUCTION

A. In furtherance of legislative policy set forth in Section 13000 of Division 7 of the California Water Code (Stats. 1969, Chap. 482) pursuant to the authority contained in Section 13170 and 13170.2 (Stats. 1971, Chap. 1288) the State Water Resources Control Board hereby finds and declares that protection of the quality of the ocean* waters for use and enjoyment by the people of the State requires control of the discharge of waste* to ocean* waters in accordance with the provisions contained herein. The Board finds further that this plan shall be reviewed at least every three years to guarantee that the current standards are adequate and are not allowing degradation* to marine species or posing a threat to public health.

B. This plan is applicable, in its entirety, to point source discharges to the ocean*. Nonpoint sources of waste* discharges to the ocean* are subject to Chapter I Beneficial Uses; Chapter II - WATER QUALITY OBJECTIVES, including Part G,~~Chapter III - General Requirements, Chapter IV -~~ and Table B (wherein compliance with water quality objectives shall, in all cases, be determined by direct measurements in the receiving waters); and Chapter III - PROGRAM OF IMPLEMENTATION, Parts A,D and G ~~V - Discharge Prohibitions~~.

C. This plan is not applicable to discharges to enclosed* bays and estuaries* or inland waters nor is it applicable to vessel wastes, or the control of dredging spoil.

D. Provisions regulating the thermal aspects of waste* discharged to the ocean* are set forth in the Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and Enclosed* Bays and Estuaries* of California.

*See Appendix I for definition of terms.

~~Chapter I~~

I. BENEFICIAL USES

A. The beneficial uses of the ocean* waters of the State that shall be protected include industrial water supply, water contact and non-contact recreation, including aesthetic enjoyment, navigation, commercial and sport fishing, mariculture, preservation and enhancement of Areas of Special Biological Significance, rare and endangered species, marine habitat, fish migration, fish spawning and shellfish* harvesting.

*See Appendix I for definition of terms.

~~Chapter II~~

II. WATER QUALITY OBJECTIVES

A. General Provisions

1. This chapter sets forth limits or levels of water quality characteristics for ocean* waters to ensure the reasonable protection of beneficial uses and the prevention of nuisance. The discharge of waste* shall not cause violation of these objectives.

2. The Water Quality Objectives and Effluent Limitations are defined by a statistical distribution when appropriate. This method recognizes the normally occurring variations in treatment efficiency and sampling and analytical techniques and does not condone poor operating practices.

3. Compliance with the water quality objectives of this chapter shall be determined from samples collected at stations representative of the area within the waste field where initial* dilution is completed.

B~~A~~. Bacterial Characteristics

1. Water-Contact Standards

a. Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board, but including all kelp* beds, the following bacterial objectives shall be maintained throughout the water column:

(1)~~a~~ Samples of water from each sampling station shall have a density of total coliform organisms less than 1,000 per 100 ml (10 per ml); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 per 100 ml (10 per ml), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 ml (100 per ml).

(2)~~b~~ The fecal coliform density based on a minimum of not less than five samples for any 30-day period, shall not exceed a geometric mean of 200 per 100 ml nor shall more than 10 percent of the total samples during any 60-day period exceed 400 per 100 ml.

b. The “Initial* Dilution Zone” of wastewater outfalls shall be excluded from designation as "kelp* beds” for purposes of bacterial standards, and Regional Boards should recommend extension of such exclusion zone where warranted to the SWRCB (for consideration under Chapter III.G. ~~VI.F.~~). Adventitious assemblages of kelp plants on waste discharge structures (e.g., outfall pipes and diffusers) do not constitute kelp* beds for purposes of bacterial standards.

*See Appendix I for definition of terms.

2. Shellfish* Harvesting Standards

a. At all areas where shellfish* may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

(1) The median total coliform density shall not exceed 70 per 100 ml, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

C. Physical Characteristics

1. Floating particulates and grease and oil shall not be visible.

2. The discharge of waste* shall not cause aesthetically undesirable discoloration of the ocean* surface.

3. Natural* light shall not be significantly* reduced at any point outside the initial* dilution zone as the result of the discharge of waste*.

4. The rate of deposition of inert solids and the characteristics of inert solids in ocean* sediments shall not be changed such that benthic communities are degraded*.

D. Chemical Characteristics

1. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste* materials.

2. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.

3. The dissolved sulfide concentration of waters in and near sediments shall not be significantly* increased above that present under natural conditions.

4. The concentration of substances set forth in Chapter II ~~IV~~, Table B, in marine sediments shall not be increased to levels which would degrade* indigenous biota.

5. The concentration of organic materials in marine sediments shall not be increased to levels which would degrade* marine life.

6. Nutrient materials shall not cause objectionable aquatic growths or degrade* indigenous biota.

7. Numerical Water Quality Objectives

a. Table B water quality objectives apply to all discharges within the jurisdiction of this plan.

b. Table B Water Quality Objectives:

*See Appendix I for definition of terms.

Table B
WATER QUALITY OBJECTIVES

	Units of Measurement	Limiting Concentrations 6-Month Median	Daily Maximum	Instantaneous Maximum
OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE				
Arsenic	ug/l	8.	32.	80.
Cadmium	ug/l	1.	4.	10.
Chromium (Hexavalent) (see below, a)	ug/l	2.	8.	20.
Copper	ug/l	3.	12.	30.
Lead	ug/l	2.	8.	20.
Mercury	ug/l	0.04	0.16	0.4
Nickel	ug/l	5.	20.	50.
Selenium	ug/l	15.	60.	150.
Silver	ug/l	0.7	2.8	7.
Zinc	ug/l	20.	80.	200.
Cyanide (see below, b)	ug/l	1.	4.	10.
Total Chlorine Residual (For intermittent chlorine sources see below, c)	ug/l	2.	8.	60.
Ammonia (expressed as nitrogen)	ug/l	600	2400.	6000.
Chronic* Toxicity	TUc	N/A	1	N/A
Phenolic Compounds (non-chlorinated)	ug/l	30	120	300
Chlorinated Phenolics	ug/l	1	4	10
Endosulfan	ug/l	0.009	0.018	0.027
Endrin	ug/l	0.002	0.004	0.006
HCH*	ug/l	0.004	0.008	0.012
Radioactivity	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30269 of the California Code of Regulations.			

*See Appendix I for definition of terms.

Table B Continued

Chemical	30-day Average (ug/l) Decimal Notation	Scientific Notation
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – NONCARCINOGENS		
acrolein	220.	2.2×10^{2}
antimony	1,200.	1.2×10^{3}
bis(2-chloroethoxy) methane	4.4	4.4×10^{0}
bis(2-chloroisopropyl) ether	1,200.	1.2×10^{3}
chlorobenzene	570.	5.7×10^{2}
chromium (III)	190,000.	1.9×10^{5}
di-n-butyl phthalate	3,500.	3.5×10^{3}
dichlorobenzenes*	5,100.	5.1×10^{3}
1,1-dichloroethylene	7,100.	7.1×10^{3}
diethyl phthalate	33,000.	3.3×10^{4}
dimethyl phthalate	820,000.	8.2×10^{5}
4,6-dinitro-2-methylphenol	220.	2.2×10^{2}
2,4-dinitrophenol	4.0	4.0×10^{0}
ethylbenzene	4,100.	4.1×10^{3}
fluoranthene	15.	1.5×10^{1}
hexachlorocyclopentadiene	58.	5.8×10^{1}
isophorone	150,000.	1.5×10^{5}
nitrobenzene	4.9	4.9×10^{0}
thallium	14.	1.4×10^{1}
toluene	85,000.	8.5×10^{4}
1,1,2,2-tetrachloroethane	1,200.	1.2×10^{3}
tributyltin	0.0014	1.4×10^{-3}
1,1,1-trichloroethane	540,000.	5.4×10^{5}
1,1,2-trichloroethane	43,000.	4.3×10^{4}
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS		
acrylonitrile	0.10	1.0×10^{-1}
aldrin	0.000022	2.2×10^{-5}
benzene	5.9	5.9×10^{0}
benzidine	0.000069	6.9×10^{-5}
beryllium	0.033	3.3×10^{-2}
bis(2-chloroethyl) ether	0.045	4.5×10^{-2}
bis(2-ethylhexyl) phthalate	3.5	3.5×10^{0}
carbon tetrachloride	0.90	9.0×10^{-1}
chlordane*	0.000023	2.3×10^{-5}
chloroform	130.	1.3×10^{2}
DDT*	0.00017	1.7×10^{-4}
1,4-dichlorobenzene	18.	1.8×10^{1}
3,3'-dichlorobenzidine	0.0081	8.1×10^{-3}
1,2-dichloroethane	130.	1.3×10^{2}

*See Appendix I for definition of terms.

Table B Continued

Chemical	30-day Average (ug/l) Decimal Notation	Scientific Notation
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS		
dichloromethane	450.	4.5×10^{2}
1,3-dichloropropene	8.9	8.9×10^{0}
dieldrin	0.00004	4.0×10^{-5}
2,4-dinitrotoluene	2.6	2.6×10^{0}
1,2-diphenylhydrazine	0.16	1.6×10^{-1}
halomethanes*	130.	1.3×10^{2}
heptachlor*	0.00072	7.2×10^{-4}
hexachlorobenzene	0.00021	2.1×10^{-4}
hexachlorobutadiene	14.	1.4×10^{1}
hexachloroethane	2.5	2.5×10^{0}
N-nitrosodimethylamine	7.3	7.3×10^{0}
N-nitrosodiphenylamine	2.5	2.5×10^{0}
PAHs*	0.0088	8.8×10^{-3}
PCBs*	0.000019	1.9×10^{-5}
TCDD equivalents*	0.0000000039	3.9×10^{-9}
tetrachloroethylene	99.	9.9×10^{1}
toxaphene	0.00021	2.1×10^{-4}
trichloroethylene	27.	2.7×10^{1}
2,4,6-trichlorophenol	0.29	2.9×10^{-1}
vinyl chloride	36.	3.6×10^{1}

Table B Notes:

a) Dischargers may at their option meet this objective as a total chromium objective.

b) If a discharger can demonstrate to the satisfaction of the Regional Board (subject to EPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by Standard Methods 412F, G, and H (Standard Methods for the Examination of Water and Wastewater. Joint Editorial Board, American Public Health Association, American Water Works Association, and Water Pollution Control Federation. Most recent edition.).

c) Water quality objectives for total chlorine residual applying to intermittent discharges not exceeding two hours, shall be determined through the use of the following equation:

$$\log y = -0.43 (\log x) + 1.8$$

where: y = the water quality objective (in ug/l) to apply when chlorine is being discharged;
x = the duration of uninterrupted chlorine discharge in minutes.

*See Appendix I for definition of terms.

E. Biological Characteristics

1. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded*.

2. The natural taste, odor, and color of fish, shellfish*, or other marine resources used for human consumption shall not be altered.

3. The concentration of organic materials in fish, shellfish* or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

F. Radioactivity

1. Discharge of radioactive waste* shall not degrade* marine life.

*See Appendix I for definition of terms.

~~Chapter III~~
~~Chapter IV~~
~~QUALITY REQUIREMENTS~~
~~FOR WASTE* DISCHARGES~~
~~(EFFLUENT LIMITATIONS)~~

~~This chapter sets forth the quality requirements for waste* discharge to the ocean*.~~

III. PROGRAM OF IMPLEMENTATION

A. General Provisions

1. ~~A.~~Effective Date

a. This Plan is in effect as of the date of approval by U.S. EPA.

2. General Requirements For Management Of Waste Discharge To The Ocean*

a. Waste* management systems that discharge to the ocean* must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.

b Waste discharged* to the ocean* must be essentially free of:

(1) Material that is floatable or will become floatable upon discharge.

(2) Settleable material or substances that may form sediments which will degrade* benthic communities or other aquatic life.

(3) Substances which will accumulate to toxic levels in marine waters, sediments or biota.

(4) Substances that significantly* decrease the natural* light to benthic communities and other marine life.

(5) Materials that result in aesthetically undesirable discoloration of the ocean* surface.

c Waste* effluents shall be discharged in a manner which provides sufficient initial* dilution to minimize the concentrations of substances not removed in the treatment.

d Location of waste* discharges must be determined after a detailed assessment of the oceanographic characteristics and current patterns to assure that:

(1) Pathogenic organisms and viruses are not present in areas where shellfish* are harvested for human consumption or in areas used for swimming or other body-contact sports.

*See Appendix I for definition of terms.

(2) Natural water quality conditions are not altered in areas designated as being of special biological significance or areas that existing marine laboratories use as a source of seawater.

(3) Maximum protection is provided to the marine environment.

e. Waste* that contains pathogenic organisms or viruses should be discharged a sufficient distance from shellfishing* and water-contact sports areas to maintain applicable bacterial standards without disinfection. Where conditions are such that an adequate distance cannot be attained, reliable disinfection in conjunction with a reasonable separation of the discharge point from the area of use must be provided. Disinfection procedures that do not increase effluent toxicity and that constitute the least environmental and human hazard should be used.

3. Areas of Special Biological Significance

a. Areas of special biological significance shall be designated by the SWRCB after a public hearing by the Regional Board and review of its recommendations.

B. Table A Effluent Limitations

Table A
EFFLUENT LIMITATIONS

		Limiting Concentrations		
	Unit of Measurement	Monthly (30-day Average)	Weekly (7-day Average)	Maximum at any time
Grease and Oil	mg/l	25.	40.	75.
Suspended Solids			See below +	
Settleable Solids	Ml/l	1.0	1.5	3.0
Turbidity	NTU	75.	100.	225.
PH	Units		Within limit of 6.0 to 9.0 at all times	
Acute* Toxicity	TUa	1.5	2.0	2.5

Table A Notes:

+ Suspended Solids: Dischargers shall, as a 30-day average, remove 75% of suspended solids from the influent stream before discharging wastewaters to the ocean*, except that the effluent limitation to be met shall not be lower than 60 mg/l. Regional Boards may recommend that the SWRCB (Chapter *III.G* ~~VI.F~~.), with the concurrence of the Environmental Protection Agency, adjust the lower effluent concentration limit (the 60 mg/l above) to suit the environmental and effluent characteristics of the discharge. As a further consideration in making such recommendation for adjustment, Regional Boards should evaluate effects on existing and potential water* reclamation projects.

*See Appendix I for definition of terms.

If the lower effluent concentration limit is adjusted, the discharger shall remove 75% of suspended solids from the influent stream at any time the influent concentration exceeds four times such adjusted effluent limit.

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1. Table A effluent limitations apply only to publicly owned treatment works and industrial discharges for which Effluent Limitations Guidelines have not been established pursuant to Sections 301, 302, 304, or 306 of the Federal Clean Water Act.

2. Table A effluent limitations shall apply to a discharger's total effluent, of whatever origin (i.e., gross, not net, discharge), except where otherwise specified in this Plan.

3. The SWRCB is authorized to administer and enforce effluent limitations established pursuant to the Federal Clean Water Act. Effluent limitations established under Sections 301, 302, 306, 307, 316, 403, and 405 of the aforementioned Federal Act and administrative procedures pertaining thereto, are included in this plan by reference. Compliance with Table A effluent limitations, or Environmental Protection Agency Effluent Limitations Guidelines for industrial discharges, based on Best Practicable Control Technology, shall be the minimum level of treatment acceptable under this plan, and shall define reasonable treatment and waste control technology.

C. Implementation Provisions for Table B

1. Effluent concentrations calculated from Table B water quality objectives shall apply to a discharger's total effluent, of whatever origin (i.e., gross, not net, discharge), except where otherwise specified in this Plan.

2. Effluent limitations shall be imposed in a manner prescribed by the SWRCB such that the concentrations set forth below as water quality objectives shall not be exceeded in the receiving water upon completion of initial* dilution, except that objectives indicated for radioactivity shall apply directly to the undiluted waste* effluent.

3. A. Calculation of Effluent Limitations

a. Effluent limitations for water quality objectives listed in Table B, with the exception of radioactivity, shall be determined through the use of the following equation:

Equation 1: $Ce = Co + Dm (Co - Cs)$ (1)

where:

Ce = the effluent concentration limit, ug/l

Co = the concentration (water quality objective) to be met at the completion of initial* dilution, ug/l

Cs = background seawater concentration (see Table C below), ug/l

Dm = minimum probable initial* dilution expressed as parts seawater per part wastewater.

*See Appendix I for definition of terms.

Table C
BACKGROUND SEAWATER CONCENTRATIONS (Cs)

Waste Constituent	Cs (ug/l)
Arsenic	3.
Copper	2.
Mercury	0.0005
Silver	0.16
Zinc	8.

For all other Table B parameters, Cs = 0.

b. For the purpose of this Plan, minimum initial dilution is the lowest average initial dilution within any single month of the year. Dilution estimates shall be based on observed waste flow characteristics, observed receiving water density structure, and the assumption that no currents, of sufficient strength to influence the initial dilution process, flow across the discharge structure.

c. The Executive Director of the SWRCB shall identify standard dilution models for use in determining Dm, and shall assist the Regional Board in evaluating Dm for specific waste discharger. Dischargers may propose alternative methods of calculating Dm, and the Regional Board may accept such method upon verification of its accuracy and applicability.

d. The six-month median shall apply as a moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.

e. The daily maximum shall apply to flow weighted 24hour composite samples.

f. The instantaneous maximum shall apply to grab sample determinations.

g. If only one sample is collected during the time period associated with the water quality objective (e.g., 30-day average or 6-month median), the single measurement shall be used to determine compliance with the effluent limitation for the entire time period.

h. Discharge requirements shall also specify effluent limitations in terms of mass emission rate limits utilizing the general formula:

*See Appendix I for definition of terms.

Equation 2: lbs/day = 0.00834 x Ce x Q ~~(2)~~

where:

Ce = the effluent concentration limit, ug/l

Q = flow rate, million gallons per day (MGD)

i. The six-month median limit on daily mass emissions shall be determined using the six-month median effluent concentration as Ce and the observed flow rate Q in millions of gallons per day. The daily maximum mass emission shall be determined using the daily maximum effluent concentration limit as Ce and the observed flow rate Q in millions of gallons per day.

j. Any significant change in waste* flow shall be cause for reevaluating effluent limitations.

4.~~B.~~ Compliance Determination

a. All analytical data shall be reported uncensored with detection limits and quantitation limits identified. For any effluent limitation, compliance shall be determined using appropriate statistical methods to evaluate multiple samples. Compliance based on a single sample analysis should be determined where appropriate as described below.

b. When a calculated effluent limitation is greater than or equal to the PQL*, compliance shall be determined based on the calculated effluent limitation and either single or multiple sample analyses.

c. When the calculated effluent limitation is below the PQL*, compliance determinations based on analysis of a single sample shall only be undertaken if the concentration of the constituent of concern in the sample is greater than or equal to the PQL*.

d. When the calculated effluent limitation is below the PQL*, and recurrent analytical responses between the PQL* and the calculated limit occur, compliance shall be determined by statistical analysis of multiple samples. Sufficient sampling and analysis shall be required to determine compliance.

e. Published values for MDL*s and PQL*s should be used except where revised MDL*s and PQL*s are available from recent laboratory performance evaluations, in which case the revised MDL*s and PQL*s should be used. Where published values are not available the Regional Boards should determine appropriate values based on available information.

f. If a discharger believes the sample matrix under consideration in the waste discharge requirements is sufficiently different from that used for an established MDL* value, the discharger may demonstrate to the satisfaction of the Regional Board what the appropriate MDL* should be for the discharger's matrix. In this case the PQL* shall be established at the limit of quantitation (equal to 10

*See Appendix I for definition of terms.

standard deviations above the average measured blank used for development of the MDL* in the discharger's matrix).

g. When determining compliance based on a single sample, with a single effluent limitation which applies to a group of chemicals (e.g., PCBs) concentrations of individual members of the group may be considered to be zero if the analytical response for individual chemicals falls below the MDL* for that parameter.

h. Due to the large total volume of powerplant and other heat exchange discharges, special procedures must be applied for determining compliance with Table B objectives on a routine basis. Effluent concentration values (Ce) shall be determined through the use of equation 1 considering the minimal probable initial* dilution of the combined effluent (in-plant waste streams plus cooling water flow). These concentration values shall then be converted to mass emission limitations as indicated in equation 2. The mass emission limits will then serve as requirements applied to all in-plant waste* streams taken together which discharge into the cooling water flow, except that limits for total chlorine residual, chronic* toxicity and instantaneous maximum concentrations in Table B shall apply to, and be measured in, the combined final effluent, as adjusted for dilution with ocean water. The Table B objective for radioactivity shall apply to the undiluted combined final effluent.

5. ~~C.~~ Toxicity Reduction Requirements

a. If a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table B, a toxicity reduction evaluation (TRE) is required. The TRE shall include all reasonable steps to identify the source of toxicity. Once the source(s) of toxicity is identified, the discharger shall take all reasonable steps necessary to reduce toxicity to the required level.

b. The following shall be incorporated into waste discharge requirements: (1) a requirement to conduct a TRE if the discharge consistently exceeds its toxicity effluent limitation, and (2) a provision requiring a discharger to take all reasonable steps to reduce toxicity once the source of toxicity is identified.

D. Implementation Provisions for Bacterial Assessment and Remedial Action Requirements

1. The requirements listed below shall be used to ~~1.)~~ determine the occurrence and extent of any impairment of a beneficial use due to bacterial contamination, ~~2)~~ generate information that can be used in the development of an enterococcus standard, and ~~3)~~ provide the basis for remedial actions necessary to minimize or eliminate any impairment of a beneficial use.

a. Measurement of enterococcus density shall be conducted at all stations where measurement of total and fecal coliforms are required. In addition to the requirements of Chapter II.B.I ~~Section II.A.1.,~~ if a shore station consistently exceeds a coliform objective or exceeds a geometric mean enterococcus density of 24 organisms per 100 ml for a 30-day period or 12 organisms per 100 ml for a six-month period, the Regional Board shall require the appropriate agency to

*See Appendix I for definition of terms.

conduct a survey to determine if that agency's discharge is the source of the contamination. The geometric mean shall be a moving average based on no less than five samples per month, spaced evenly over the time interval. When a sanitary survey identifies a controllable source of indicator organisms associated with a discharge of sewage, the Regional Board shall take action to control the source.

b. Waste discharge requirements shall require the discharger to conduct sanitary surveys when so directed by the Regional Board. Waste discharge requirements shall contain provisions requiring the discharger to control any controllable discharges identified in a sanitary survey.

E. Revision of Waste* Discharge Requirements

1. The Regional Board shall revise the waste* discharge requirements for existing* discharges as necessary to achieve compliance with this Plan and shall also establish a time schedule for such compliance.

2. The Regional Boards may establish more restrictive water quality objectives and effluent limitations than those set forth in this Plan as necessary for the protection of beneficial uses of ocean* waters.

3. Regional Boards may impose alternative less restrictive provisions than those contained within Table B of the Plan, provided an applicant can demonstrate that:

   a. Reasonable control technologies (including source control, material substitution, treatment and dispersion) will not provide for complete compliance; or

   b. Any less stringent provisions would encourage water* reclamation;

4. Provided further that:

   a. Any alternative water quality objectives shall be below the conservative estimate of chronic toxicity, as given in Table D below, and such alternative will provide for adequate protection of the marine environment;

   b. A receiving water quality toxicity* objective of 1 TUc is not exceeded; and

   c. The State Board grants an exception (Chapter III. G. ~~VI.F~~.) to the Table B limits as established in the Regional Board findings and alternative limits.

*See Appendix I for definition of terms.

Table D
CONSERVATIVE ESTIMATES OF CHRONIC TOXICITY

Constituent	Estimate of Chronic Toxicity (ug/l)
Arsenic	19.
Cadmium	8.
Hexavalent Chromium	18.
Copper	5.
Lead	22.
Mercury	0.4
Nickel	48.
Silver	3.
Zinc	51.
Cyanide	10.
Total Chlorine Residual	10.0
Ammonia	4000.0
Phenolic Compounds (non-chlorinated)	a) (see below)
Chlorinated Phenolics	a)
Chlorinated Pesticides and PCB's	b)

Table D Notes:

a) There *are* ~~is~~ insufficient data for phenolics to estimate chronic toxicity levels. Requests for modification of water quality objectives for these waste* constituents must be supported by chronic toxicity data for representative sensitive species. In such cases, applicants seeking modification of water quality objectives should consult the Regional Water Quality Control Board to determine the species and test conditions necessary to evaluate chronic effects.

b) Limitations on chlorinated pesticides and PCB's shall not be modified so that the total of these compounds is increased above the objectives in Table B.

F. Monitoring Program

1. The Regional Boards shall require dischargers to conduct self-monitoring programs and submit reports necessary to determine compliance with the waste* discharge requirements, and may require dischargers to contract with agencies or persons acceptable to the Regional Board to provide monitoring reports. Monitoring provisions contained in waste discharge requirements shall be in accordance with the Monitoring Procedures provided in Appendix II.

2. Where the Regional Board is satisfied that any substance(s) of Table B will not significantly occur in a discharger's effluent, the Regional Board may elect not to require monitoring for such substance(s), provided the discharger submits periodic certification that such substance(s) are not added to the waste* stream, and that no change has occurred in activities that could cause such substance(s) to be present in

*See Appendix I for definition of terms.

the waste* stream. Such election does not relieve the discharger from the requirement to meet the objectives of Table B.

3. The Regional Board may require monitoring of bioaccumulation of toxicants in the discharge zone. Organisms and techniques for such monitoring shall be chosen by the Regional Board on the basis of demonstrated value in waste* discharge monitoring.

G. Discharge Prohibitions

1. ~~A.~~Hazardous Substances

a. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste* into the ocean* is prohibited.

2~~B~~. Areas of Special Biological Significance.

a. Waste* shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.

3. Sludge

a. Pipeline discharge of sludge to the ocean* is prohibited by federal law; the discharge of municipal and industrial waste* sludge directly to the ocean*, or into a waste* stream that discharges to the ocean*, is prohibited by this Plan. The discharge of sludge digester supernatant directly to the ocean*, or to a waste* stream that discharges to the ocean* without further treatment, is prohibited.

b. It is the policy of the SWRCB that the treatment, use and disposal of sewage sludge shall be carried out in the manner found to have the least adverse impact on the total natural and human environment. Therefore, if federal law is amended to permit such discharge, which could affect California waters, the SWRCB may consider requests for exceptions to this section under Chapter VI, F. of this Plan, provided further that an Environmental Impact Report on the proposed project shows clearly that any available alternative disposal method will have a greater adverse environmental impact than the proposed project.

4. ~~D.~~By-Passing

a. The bypassing of untreated wastes* containing concentrations of pollutants in excess of those of Table A or Table B to the ocean* is prohibited.

H. State Board Exceptions to Plan Requirements

1. The State Board may, in compliance with the California Environmental Quality Act, subsequent to a public hearing, and with the concurrence of the Environmental Protection Agency, grant exceptions where the Board determines:

*See Appendix I for definition of terms.

a~~1~~. The exception will not compromise protection of ocean* waters for beneficial uses, and,

b~~2~~. The public interest will be served.

*See Appendix I for definition of terms.

APPENDIX I

DEFINITION OF TERMS

ACUTE TOXICITY

a. Acute Toxicity (TUa)

Expressed in Toxic Units Acute (TUa)

$$TUa = \frac{100}{\text{96-hr LC 50\%}}$$

b. Lethal Concentration 50% (LC 50)

LC 50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard test species. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$TUa = \frac{\log (100 - S)}{1.7}$$

where:

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

CHLORDANE shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

CHRONIC TOXICITY: This parameter shall be used to measure the acceptability of waters for supporting a healthy marine biota until improved methods are developed to evaluate biological response.

a. Chronic Toxicity (TUc)

Expressed as Toxic Units Chronic (TUc)

$$TUc = \frac{100}{NOEL}$$

b. No Observed Effect Level (NOEL)

*See Appendix I for definition of terms.

The NOEL is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Appendix II.

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.

DEGRADE: Degradation shall be determined by comparison of the waste field and reference site(s) for characteristics species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected, or are not the only ones affected.

DICHLOROBENZENES shall mean the sum of 1,2- and 1,3-dichlorobenzene.

ENCLOSED BAYS are indentations along the coast which enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. This definition includes but is not limited to: Humboldt Bay, Bodega Harbor, Tomales Bay, Drakes Estero, San Francisco Bay, Morro Bay, Los Angeles Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay.

ENDOSULFAN shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.

ESTUARIES AND COASTAL LAGOONS are waters at the mouths of streams, which serve as mixing zones for fresh, and ocean waters during a major portion of the year. Mouths of streams, which are temporarily separated from the ocean by sandbars, shall be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open ocean to the upstream limit of tidal action but may be considered to extend seaward if significant mixing of fresh and salt water occurs in the open coastal waters. The waters described by this definition include but are not limited to the Sacramento-San Joaquin Delta as defined by Section 12220 of the California Water Code, Suisun Bay, Carquinez Strait downstream to Carquinez Bridge, and appropriate areas of the Smith, Klamath, Mad, Eel, Noyo, and Russian Rivers.

HALOMETHANES shall mean the sum of bromoform, bromomethane (methyl bromide), chloromethane (methyl chloride), chlorodibromomethane, and dichlorobromomethane.

HEPTACHLOR shall mean the sum of heptachlor and heptachlor epoxide.

HCH shall mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.

INITIAL DILUTION is the process, which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

*See Appendix I for definition of terms.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and nonbuoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Board, whichever results in the lower estimate for initial dilution.

KELP BEDS, for purposes of the bacteriological standards of this plan, are significant aggregations of marine algae of the genera Macrocystis and Nereocystis. Kelp beds include the total foliage canopy of Macrocystis and Nereocystis plants throughout the water column.

MARICULTURE is the culture of plants and animals in marine waters independent of any pollution source.

MDL (Method Detection Limit) is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as defined in 40 CFR 136 Appendix B.

NATURAL LIGHT: Reduction of natural light may be determined by the Regional Board by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the Regional Board.

OCEAN WATERS are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.

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.

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.

PQL (Practical Quantitation Level) is the lowest concentration of a substance, which can be consistently determined within +/- 20% of the true concentration by 75% of the labs tested in a performance evaluation study. Alternatively, if performance data are not available, the PQL* for carcinogens is the MDL* x 5, and for noncarcinogens is the MDL* x 10.

*See Appendix I for definition of terms.

SHELLFISH are organisms identified by the California Department of Health Services as shellfish for public health purposes (i.e., mussels, clams and oysters).

SIGNIFICANT difference is defined as a statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

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.

Isomer Group	Toxicity Equivalence Factor
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

WASTE: As used in this Plan, waste includes a discharger's total discharge, of whatever origin, i.e., gross, not net, discharge.

WATER RECLAMATION: The treatment of wastewater to render it suitable for reuse, the transportation of treated wastewater to the place of use, and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.

*See Appendix I for definition of terms.

APPENDIX II

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 components 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 appendix is organized in the same manner as the Ocean Plan.~~ The following text is referenced by applicable chapter in the Ocean Plan:

Ocean Plan Chapter II. B.~~A~~. Bacterial Standards:

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

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 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.

Ocean Plan Chapter III. ~~IV.~~ 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 136). All methods shall be specified in the monitoring requirement section of waste discharge requirements.

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

*See Appendix I for definition of terms.

The State or Regional Board may, subject to EPA approval, specify test methods, which are more sensitive than those specified in 40 CFR 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.

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 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.

Ocean Plan Chapter III. ~~IV.~~ Compliance with Toxicity Limitations and Objectives:

Compliance with the acute toxicity limitation (TUa) in Table A shall be determined using an established protocol, e.g., American Society for Testing Materials (ASTM), EPA, American Public Health Association, or State Board.

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. For major dischargers scheduled for waste discharge requirements renewal less than one year after the adoption of the toxicity objective, critical life stage bioassay testing shall be included as a monitoring requirement at the same time as the chronic toxicity effluent limits is established in the waste discharge requirements.

*See Appendix I for definition of terms.

The following tests shall be used to measure TUc. Other tests may be added to the list when approved by the State Board.

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

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.

*See Appendix I for definition of terms.

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.

*See Appendix I for definition of terms.

Appendix B
Draft Ocean Plan with Proposed Amendments

State of California

STATE WATER RESOURCES CONTROL BOARD

~~1997~~

CALIFORNIA OCEAN PLAN

WATER QUALITY CONTROL PLAN

OCEAN WATERS OF CALIFORNIA

Adopted _____

~~Effective~~ _____

APPENDIX B
DRAFT OCEAN PLAN WITH PROPOSED AMENDMENTS

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LIST OF TABLES

Proposed Amendment
of the Reformatted

CALIFORNIA OCEAN PLAN

WATER QUALITY CONTROL PLAN FOR
OCEAN WATERS OF CALIFORNIA

INTRODUCTION

A. Purpose and Authority

1. In furtherance of legislative policy set forth in Section 13000 of Division 7 of the California Water Code (CWC) (Stats. 1969, Chap. 482) pursuant to the authority contained in Section 13170 and 13170.2 (Stats. 1971, Chap. 1288) the State Water Resources Control Board hereby finds and declares that protection of the quality of the ocean* waters for use and enjoyment by the people of the State requires control of the discharge of waste* to ocean* waters in accordance with the provisions contained herein. The Board finds further that this plan shall be reviewed at least every three years to guarantee that the current standards are adequate and are not allowing degradation* to marine species or posing a threat to public health.

B. Principles

1. Harmony Among Water Quality Control Plans and Policies.

a. In the adoption and amendment of water quality control plans, it is the intent of this Board that each plan will provide for the attainment and maintenance of the water quality standards of downstream waters.

b. To the extent there is a conflict between a provision of this plan and a provision of another statewide plan or policy, or a regional water quality control plan (basin plan), the more stringent provision shall apply except where pursuant to Chap III.H of this Plan, the SWRCB has approved an exception to the Plan requirements.

C. Applicability

1. This plan is applicable, in its entirety, to point source discharges to the ocean*. Nonpoint sources of waste* discharges to the ocean* are subject to Chapter I Beneficial Uses, Chapter II - WATER QUALITY OBJECTIVES ~~Chapter III General Requirements, Chapter IV~~ (wherein compliance with water quality objectives shall, in all cases, be determined by direct measurements in the receiving waters) and Chapter III - PROGRAM OF IMPLEMENTATION Part A,and I ~~V Discharge Prohibitions.~~

2. This plan is not applicable to discharges to enclosed* bays and estuaries* or inland waters, nor is it applicable to vessel wastes, or the control of dredged~~ing~~* ~~spoil~~ material.

* See Appendix I for definition of terms.

3 Provisions regulating the thermal aspects of waste* discharged to the ocean* are set forth in the Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and Enclosed* Bays and Estuaries* of California

4 Within this Plan, references to the State Board or SWRCB shall mean the State Water Resources Control Board. References to a Regional Board or RWQCB shall mean a California Regional Water Quality Control Board. References to the Environmental Protection Agency, US EPA or EPA shall mean the federal Environmental Protection Agency.

* See Appendix I for definition of terms.

~~Chapter I~~

I. BENEFICIAL USES

A. The beneficial uses of the ocean* waters of the State that shall be protected include industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture*; preservation and enhancement of designated Areas* of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish migration; fish spawning and shellfish* harvesting.

* See Appendix I for definition of terms.

~~Chapter II~~
II. WATER QUALITY OBJECTIVES

A. General Provisions

1. This chapter sets forth limits or levels of water quality characteristics for ocean* waters to ensure the reasonable protection of beneficial uses and the prevention of nuisance. The discharge of waste* shall not cause violation of these objectives.

2. The Water Quality Objectives and Effluent Limitations are defined by a statistical distribution when appropriate. This method recognizes the normally occurring variations in treatment efficiency and sampling and analytical techniques and does not condone poor operating practices.

3. Compliance with the water quality objectives of this chapter shall be determined from samples collected at stations representative of the area within the waste field where initial* dilution is completed.

B~~A~~. Bacterial Characteristics

1. Water-Contact Standards

a. Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board, but including all kelp* beds, the following bacterial objectives shall be maintained throughout the water column:

(1)~~a.~~ Samples of water from each sampling station shall have a density of total coliform organisms less than 1,000 per 100 ml (10 per ml); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 per 100 ml (10 per ml), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 ml (100 per ml).

(2)~~b.~~ The fecal coliform density based on a minimum of not less than five samples for any 30-day period, shall not exceed a geometric mean of 200 per 100 ml nor shall more than 10 percent of the total samples during any 60-day period exceed 400 per 100 ml.

b. The “Initial* Dilution Zone” of wastewater outfalls shall be excluded from designation as "kelp* beds” for purposes of bacterial standards, and Regional Boards should recommend extension of such exclusion zone where warranted to the SWRCB (for consideration under Chapter III.H. ~~VI.F~~.). Adventitious assemblages of kelp plants on waste discharge structures (e.g., outfall pipes and diffusers) do not constitute kelp* beds for purposes of bacterial standards.

* See Appendix I for definition of terms.

2. Shellfish* Harvesting Standards

   a. At all areas where shellfish* may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

      (1) The median total coliform density shall not exceed 70 per 100 ml, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

C. Physical Characteristics

1. Floating particulates and grease and oil shall not be visible.

2. The discharge of waste* shall not cause aesthetically undesirable discoloration of the ocean* surface.

3. Natural* light shall not be significantly* reduced at any point outside the initial* dilution zone as the result of the discharge of waste*.

4. The rate of deposition of inert solids and the characteristics of inert solids in ocean* sediments shall not be changed such that benthic communities are degraded*.

D. Chemical Characteristics

1. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste* materials.

2. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.

3. The dissolved sulfide concentration of waters in and near sediments shall not be significantly* increased above that present under natural conditions.

4. The concentration of substances set forth in Chapter II ~~IV~~, Table B, in marine sediments shall not be increased to levels which would degrade* indigenous biota.

5. The concentration of organic materials in marine sediments shall not be increased to levels that would degrade* marine life.

6. Nutrient materials shall not cause objectionable aquatic growths or degrade* indigenous biota.

7. Numerical Water Quality Objectives

   a. Table B water quality objectives apply to all discharges within the jurisdiction of this Pplan.

   b. Table B Water Quality Objectives

* See Appendix I for definition of terms.

TABLE B
WATER QUALITY OBJECTIVES

	Units of Measurement	Limiting Concentrations 6-Month Median	Daily Maximum	Instantaneous Maximum
OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE				
Arsenic	ug/l	8.	32.	80.
Cadmium	ug/l	1.	4.	10.
Chromium (Hexavalent) (see below, a)	ug/l	2.	8.	20.
Copper	ug/l	3.	12.	30.
Lead	ug/l	2.	8.	20.
Mercury	ug/l	0.04	0.16	0.4
Nickel	ug/l	5.	20.	50.
Selenium	ug/l	15.	60.	150.
Silver	ug/l	0.7	2.8	7.
Zinc	ug/l	20.	80.	200.
Cyanide (see below, b)	ug/l	1.	4.	10.
Total Chlorine Residual (For intermittent chlorine sources see below, c)	ug/l	2.	8.	60.
Ammonia (expressed as nitrogen)	ug/l	60.0	2400.	6000.
Acute* Toxicity	TUa	N/A	0.3	N/A
Chronic* Toxicity	TUc	N/A	1.	N/A
Phenolic Compounds (non-chlorinated)	ug/l	30.	120.	300.
Chlorinated Phenolics	ug/l	1.	4.	10.
Endosulfan	ug/l	0.009	0.018	0.027
Endrin	ug/l	0.002	0.004	0.006
HCH*	ug/l	0.004	0.008	0.012
Radioactivity	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section ~~30269~~ 30253 of the California Code of Regulations. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.			

* See Appendix I for definition of terms.

Table B Continued

Chemical	30-day Average (ug/l) Decimal Notation	Scientific Notation
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – NONCARCINOGENS		
acrolein	220.	2.2×10^{2}
antimony	1,200.	1.2×10^{3}
bis(2-chloroethoxy) methane	4.4	4.4×10^{0}
bis(2-chloroisopropyl) ether	1,200.	1.2×10^{3}
chlorobenzene	570.	5.7×10^{2}
chromium (III)	190,000.	1.9×10^{5}
di-n-butyl phthalate	3,500.	3.5×10^{3}
dichlorobenzenes*	5,100.	5.1×10^{3}
~~1,1-dichloroethylene~~	~~7,100.~~	~~7.1×10^{3}~~
diethyl phthalate	33,000.	3.3×10^{4}
dimethyl phthalate	820,000.	8.2×10^{5}
4,6-dinitro-2-methylphenol	220.	2.2×10^{2}
2,4-dinitrophenol	4.0	4.0×10^{0}
ethylbenzene	4,100.	4.1×10^{3}
fluoranthene	15.	1.5×10^{1}
hexachlorocyclopentadiene	58.	5.8×10^{1}
~~isophorone~~	~~150,000.~~	~~1.5×10^{5}~~
nitrobenzene	4.9	4.9×10^{0}
thallium	~~14.~~ 2.	~~1.4×10^{1}~~ $2. \times 10^{0}$
toluene	85,000.	8.5×10^{4}
~~1,1,2,2-tetrachloroethane~~	~~1,200.~~	~~1.2×10^{3}~~
tributyltin	0.0014	1.4×10^{-3}
1,1,1-trichloroethane	540,000.	5.4×10^{5}
~~1,1,2-trichloroethane~~	~~43,000.~~	~~4.3×10^{4}~~
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS		
acrylonitrile	0.10	1.0×10^{-1}
aldrin	0.000022	2.2×10^{-5}
benzene	5.9	5.9×10^{0}
benzidine	0.000069	6.9×10^{-5}
beryllium	0.033	3.3×10^{-2}
bis(2-chloroethyl) ether	0.045	4.5×10^{-2}
bis(2-ethylhexyl) phthalate	3.5	3.5×10^{0}
carbon tetrachloride	0.90	9.0×10^{-1}
chlordane*	0.000023	2.3×10^{-5}
chlorodibromomethane	8.6	8.6×10^{0}

Table B Continued

* See Appendix I for definition of terms.

Chemical	30-day Average (ug/l) Decimal Notation	Scientific Notation
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS		
chloroform	130.	1.3×10^{2}
DDT*	0.00017	1.7×10^{-4}
1,4-dichlorobenzene	18.	1.8×10^{1}
3,3'-dichlorobenzidine	0.0081	8.1×10^{-3}
1,2-dichloroethane	~~130~~28.	2.8×10^{1}
1,1-dichloroethylene	0.9	9×10^{-1}
dichlorobromomethane	6.2	6.2×10^{0}
dichloromethane	450.	4.5×10^{2}
1,3-dichloropropene	8.9	8.9×10^{0}
dieldrin	0.00004	4.0×10^{-5}
2,4-dinitrotoluene	2.6	2.6×10^{0}
1,2-diphenylhydrazine	0.16	1.6×10^{-1}
halomethanes*	130.	1.3×10^{2}
~~heptachlor*~~	~~0.00072~~	~~7.2×10^{-4}~~
heptachlor	0.00005	5×10^{-5}
heptachlor epoxide	0.00002	2×10^{-5}
hexachlorobenzene	0.00021	2.1×10^{-4}
hexachlorobutadiene	14.	1.4×10^{1}
hexachloroethane	2.5	2.5×10^{0}
isophorone	730.	7.3×10^{2}
N-nitrosodimethylamine	7.3	7.3×10^{0}
N-nitrosodi-N-propylamine	0.38	3.8×10^{-1}
N-nitrosodiphenylamine	2.5	2.5×10^{0}
PAHs*	0.0088	8.8×10^{-3}
PCBs*	0.000019	1.9×10^{-5}
TCDD equivalents*	0.0000000039	3.9×10^{-9}
1,1,2,2-tetrachloroethane	2.3	2.3×10^{0}
tetrachloroethylene	~~99~~2.0	2.0×10^{0}
toxaphene	0.00021	2.1×10^{-4}
trichloroethylene	27.	2.7×10^{1}
1,1,2-trichloroethane	9.4	9.4×10^{0}
2,4,6-trichlorophenol	0.29	2.9×10^{-1}
vinyl chloride	36.	3.6×10^{1}

* See Appendix I for definition of terms.

Table B Notes:

a) Dischargers may at their option meet this objective as a total chromium objective.

b) If a discharger can demonstrate to the satisfaction of the Regional Board (subject to EPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by ~~Standard Methods 412F, G, and H (Standard Methods for the Examination of Water and Wastewater. Joint Editorial Board, American Public Health Association, American Water Works Association, and Water Pollution Control Federation. Most recent edition.).~~ the approved method in 40 CFR PART 136, as revised May 14, 1999.

c) Water quality objectives for total chlorine residual applying to intermittent discharges not exceeding two hours, shall be determined through the use of the following equation:

$$\log y = -0.43 (\log x) + 1.8$$

where: y = the water quality objective (in ug/l) to apply when chlorine is being discharged;
x = the duration of uninterrupted chlorine discharge in minutes.

E. Biological Characteristics

1. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded*.

2. The natural taste, odor, and color of fish, shellfish*, or other marine resources used for human consumption shall not be altered.

3. The concentration of organic materials in fish, shellfish* or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

F. Radioactivity

1. Discharge of radioactive waste* shall not degrade* marine life.

* See Appendix I for definition of terms.

~~Chapter IV~~
~~QUALITY REQUIREMENTS~~
~~FOR WASTE* DISCHARGES~~
~~(EFFLUENT LIMITATIONS)~~

~~This chapter sets forth the quality requirements for waste* discharge to the ocean*.~~

III. PROGRAM OF IMPLEMENTATION

A. General Provisions

1. ~~A.~~Effective Date

a. The *Water Quality Control Plan, Ocean Waters of California, California Ocean Plan* was adopted and has been effective since 1972. There have been multiple amendments of the Ocean Plan since its' adoption. The current version of the Ocean Plan became effective July 23, 1997.

This document includes the most recent amendments of the Ocean Plan as adopted by the SWRCB on October 18, 2000. However, amendments in this version of the Ocean Plan do not become effective until approved by the U.S. EPA. Persons using the Ocean Plan prior to approval of this version should reference the 1997 Ocean Plan. Once approved by the U.S. EPA, this document (the 2000 Ocean Plan) will supercede the 1997 Ocean Plan.

2. General Requirements For Management Of Waste Discharge To The Ocean*

a. Waste* management systems that discharge to the ocean* must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.

b Waste discharged* to the ocean* must be essentially free of:

(1) Material that is floatable or will become floatable upon discharge.
(2) Settleable material or substances that may form sediments which will degrade* benthic communities or other aquatic life.
(3) Substances which will accumulate to toxic levels in marine waters, sediments or biota.
(4) Substances that significantly* decrease the natural* light to benthic communities and other marine life.
(5) Materials that result in aesthetically undesirable discoloration of the ocean* surface.

c Waste* effluents shall be discharged in a manner which provides sufficient initial* dilution to minimize the concentrations of substances not removed in the treatment.

d Location of waste* discharges must be determined after a detailed assessment of the oceanographic characteristics and current patterns to assure that:

* See Appendix I for definition of terms.

(1) Pathogenic organisms and viruses are not present in areas where shellfish* are harvested for human consumption or in areas used for swimming or other body-contact sports.

(2) Natural water quality conditions are not altered in areas designated as being of special biological significance or areas that existing marine laboratories use as a source of seawater.

(3) Maximum protection is provided to the marine environment.

e. Waste* that contains pathogenic organisms or viruses should be discharged a sufficient distance from shellfishing* and water-contact sports areas to maintain applicable bacterial standards without disinfection. Where conditions are such that an adequate distance cannot be attained, reliable disinfection in conjunction with a reasonable separation of the discharge point from the area of use must be provided. Disinfection procedures that do not increase effluent toxicity and that constitute the least environmental and human hazard should be used.

3. Areas of Special Biological Significance

a. ASBS* ~~Areas of special biological significance~~ shall be designated by the SWRCB following the procedures provided in Appendix IV. A list of ASBS* is available in Appendix VI.

4. Outstanding* National Resource Waters (ONRW*) and Outstanding State Resource Waters (ONSW*)

a. ONRW* and OSRW* shall be designated by the SWRCB following the procedures included in Appendix V. A list of ONRW* and OSRW* is available in Appendix VI.

B. Table A Effluent Limitations

TABLE A
EFFLUENT LIMITATIONS

	Unit of Measurement	Limiting Concentrations Monthly (30-day Average)	Weekly (7-day Average)	Maximum at any time
Grease and Oil	mg/l	25.	40.	75.
Suspended Solids			See below +	
Settleable Solids	Ml/l	1.0	1.5	3.0
Turbidity	NTU	75.	100.	225.
PH	Units		Within limit of 6.0 to 9.0 at all times	
~~Acute* Toxicity~~	~~Tua~~	~~1.5~~	~~2.0~~	~~2.5~~

* See Appendix I for definition of terms.

Table A Notes:

+ Suspended Solids: Dischargers shall, as a 30-day average, remove 75% of suspended solids from the influent stream before discharging wastewaters to the ocean*, except that the effluent limitation to be met shall not be lower than 60 mg/l. Regional Boards may recommend that the SWRCB (Chapter IIIJ ~~VI.F~~.), with the concurrence of the Environmental Protection Agency, adjust the lower effluent concentration limit (the 60 mg/l above) to suit the environmental and effluent characteristics of the discharge. As a further consideration in making such recommendation for adjustment, Regional Boards should evaluate effects on existing and potential water* reclamation projects.

  If the lower effluent concentration limit is adjusted, the discharger shall remove 75% of suspended solids from the influent stream at any time the influent concentration exceeds four times such adjusted effluent limit.

---

1. Table A effluent limitations apply only to publicly owned treatment works and industrial discharges for which Effluent Limitations Guidelines have not been established pursuant to Sections 301, 302, 304, or 306 of the Federal Clean Water Act.

2. Table A effluent limitations, ~~and effluent concentrations calculated from Table B water quality objectives,~~ shall apply to a discharger's total effluent, of whatever origin (i.e., gross, not net, discharge), except where otherwise specified in this Plan.

3. The SWRCB is authorized to administer and enforce effluent limitations established pursuant to the Federal Clean Water Act. Effluent limitations established under Sections 301, 302, 306, 307, 316, 403, and 405 of the aforementioned Federal Act and administrative procedures pertaining thereto, are included in this plan by reference. Compliance with Table A effluent limitations, or Environmental Protection Agency Effluent Limitations Guidelines for industrial discharges, based on Best Practicable Control Technology, shall be the minimum level of treatment acceptable under this plan, and shall define reasonable treatment and waste control technology.

C. Implementation Provisions for Table B

1. ~~Table A effluent limitations, and~~ Effluent concentrations calculated from Table B water quality objectives shall apply to a discharger's total effluent, of whatever origin (i.e., gross, not net, discharge), except where otherwise specified in this Plan.

2. Effluent limitations shall be imposed in a manner prescribed by the SWRCB such that the concentrations set forth below as water quality objectives shall not be exceeded in the receiving water upon completion of initial* dilution, except that objectives indicated for radioactivity shall apply directly to the undiluted waste* effluent.

3.~~A.~~ Calculation of Effluent Limitations

a. Effluent limitations for water quality objectives listed in Table B, with the exception of acute* toxicity and radioactivity, shall be determined through the use of the following equation:

Equation 1: $Ce = Co + Dm (Co - Cs)$ ~~(1)~~

where:

* See Appendix I for definition of terms.

Ce = the effluent concentration limit, ug/l

Co = the concentration (water quality objective) to be met at the completion of initial* dilution, ug/l

Cs = background seawater concentration (see Table C below), ug/l

Dm = minimum probable initial* dilution expressed as parts seawater per part wastewater.

TABLE C
BACKGROUND SEAWATER CONCENTRATIONS (Cs)

Waste Constituent	CS (ug/l)
Arsenic	3.
Copper	2.
Mercury	0.0005
Silver	0.16
Zinc	8.

For all other Table B parameters, Cs = 0.

b. Determining a Mixing Zone for the Acute* Toxicity Objective

The mixing zone for the acute* toxicity objective shall be ten percent (10%) of the distance from the edge of the outfall structure to the edge of the chronic mixing zone (zone of initial dilution). There is no vertical limitation on this zone. The effluent limitation for the acute* toxicity objective listed in Table B shall be determined through the use of the following equation:

Equation 2: Ce = Ca + (0.1) Dm (Ca)

where:

Ca = the concentration (water quality objective) to be met at the edge of the acute mixing zone.

Dm = minimum probable initial* dilution expressed as parts seawater per part wastewater.

c. Toxicity Testing Requirements based on the Minimum Initial Dilution Factor for Ocean Waste Discharges

(1) Dischargers shall conduct **acute*** toxicity testing if the minimum initial dilution* of the effluent is greater than 1000:1 at the edge of the mixing zone.

(2) Dischargers shall conduct either **acute*** or **chronic*** toxicity testing if the minimum initial dilution* ranges from 300:1 to 1000 depending on the specific discharge conditions. The RWQCB shall make this determination

(3) Dischargers shall conduct **chronic*** toxicity testing for ocean waste discharges with minimum initial dilution* factors ranging from 100:1 to 300:1.

* See Appendix I for definition of terms.

The RWQCBs may require that acute toxicity testing be conducted in addition to chronic as necessary for the protection of beneficial uses of ocean waters.

(4) Dischargers shall conduct **chronic** toxicity testing if the minimum initial dilution of the effluent falls below 100:1 at the edge of the mixing zone

d. For the purpose of this Plan, minimum initial dilution is the lowest average initial dilution within any single month of the year. Dilution estimates shall be based on observed waste flow characteristics, observed receiving water density structure, and the assumption that no currents, of sufficient strength to influence the initial dilution process, flow across the discharge structure.

e. The Executive Director of the SWRCB shall identify standard dilution models for use in determining Dm, and shall assist the Regional Board in evaluating Dm for specific waste discharger. Dischargers may propose alternative methods of calculating Dm, and the Regional Board may accept such method upon verification of its accuracy and applicability.

f. The six-month median shall apply as a moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.

g. The daily maximum shall apply to flow weighted 24 hour composite samples.

h. The instantaneous maximum shall apply to grab sample determinations.

i. If only one sample is collected during the time period associated with the water quality objective (e.g., 30-day average or 6-month median), the single measurement shall be used to determine compliance with the effluent limitation for the entire time period.

j. Discharge requirements shall also specify effluent limitations in terms of mass emission rate limits utilizing the general formula:

Equation 3: lbs/day = 0.00834 x Ce x Q ~~(2)~~

where:

Ce = the effluent concentration limit, ug/l

Q = flow rate, million gallons per day (MGD)

k. The six-month median limit on daily mass emissions shall be determined using the six-month median effluent concentration as Ce and the observed flow rate Q in millions of gallons per day. The daily maximum mass emission shall be determined using the daily maximum effluent concentration limit as Ce and the observed flow rate Q in millions of gallons per day.

l. Any significant change in waste* flow shall be cause for reevaluating effluent limitations.

* See Appendix I for definition of terms.

~~**B.** Compliance Determination~~

~~All analytical data shall be reported uncensored with detection limits and quantitation limits identified. For any effluent limitation, compliance shall be determined using appropriate statistical methods to evaluate multiple samples. Compliance based on a single sample analysis should be determined where appropriate as described below.~~

~~When a calculated effluent limitation is greater than or equal to the PQL*, compliance shall be determined based on the calculated effluent limitation and either single or multiple sample analyses.~~

~~When the calculated effluent limitation is below the PQL*, compliance determinations based on analysis of a single sample shall only be undertaken if the concentration of the constituent of concern in the sample is greater than or equal to the PQL*.~~

~~When the calculated effluent limitation is below the PQL*, and recurrent analytical responses between the PQL* and the calculated limit occur, compliance shall be determined by statistical analysis of multiple samples. Sufficient sampling and analysis shall be required to determine compliance.~~

~~Published values for MDL*s and PQL*s should be used except where revised MDL*s and PQL*s are available from recent laboratory performance evaluations, in which case the revised MDL*s and PQL*s should be used. Where published values are not available the Regional Boards should determine appropriate values based on available information.~~

~~If a discharger believes the sample matrix under consideration in the waste discharge requirements is sufficiently different from that used for an established MDL* value, the discharger may demonstrate to the satisfaction of the Regional Board what the appropriate MDL* should be for the discharger's matrix. In this case the PQL* shall be established at the limit of quantitation (equal to 10 standard deviations above the average measured blank used for development of the MDL* in the discharger's matrix).~~

~~When determining compliance based on a single sample, with a single effluent limitation which applies to a group of chemicals (e.g., PCBs) concentrations of individual members of the group may be considered to be zero if the analytical response for individuals chemicals falls below the MDL* for that parameter.~~

4. Minimum Levels*

For each numeric effluent limitation, the Regional Board must select one or more Minimum Levels* (and their associated analytical methods) for inclusion in the permit. The "reported" Minimum Level* is the Minimum Level* (and its associated analytical method) chosen by the discharger for reporting and compliance determination from the Minimum Levels* included in their permit.

a. Selection of Minimum Levels* from Appendix II

The Regional Board must select all Minimum Levels* from Appendix II that are below the effluent limitation. If the effluent limitation is lower than all the Minimum

* See Appendix I for definition of terms.

Levels* in Appendix II, the Regional Board must select the lowest Minimum Level* from Appendix II.

b. Deviations from Minimum Levels* in Appendix II

The Regional Board, in consultation with the State Water Board's Quality Assurance Program, must establish a Minimum Level* to be included in the permit in any of the following situations:

1. A pollutant is not listed in Appendix II.
2. The discharger agrees to use a test method that is more sensitive than those described in 40 CFR 136 (revised May 14, 1999).
3. The discharger agrees to use a Minimum Level* lower than those listed in Appendix II.
4. The discharger demonstrates that their calibration standard matrix is sufficiently different from that used to establish the Minimum Level* in Appendix II and proposes an appropriate Minimum Level* for their matrix.
5. A discharger uses an analytical method having a quantification practice that is not consistent with the definition of Minimum Level* (e.g., USEPA methods 1613, 1624, 1625).

5. Use of Minimum Levels*

a. Minimum Levels* in Appendix II represent the lowest quantifiable concentration in a sample based on the proper application of method-specific analytical procedures and the absence of matrix interferences. Minimum Levels* also represent the lowest standard concentration in the calibration curve for a specific analytical technique after the application of appropriate method-specific factors.

Common analytical practices may require different treatment of the sample relative to the calibration standard. Some example are given below:

Substance or Grouping	Method-Specific Treatment	Most Common Factor
Volatile Organics	No differential treatment	1
Semi-Volatile Organics	Samples concentrated by extraction	1000
Metals	Samples diluted or concentrated	½, 2, and 4
Pesticides	Samples concentrated by extraction	100

b. Other factors may be applied to the Minimum Level* depending on the specific sample preparation steps employed. For example, the treatment typically applied when there are matrix effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied during the computation of the reporting limit. Application of such factors will alter the reported Minimum Level*.

c. Dischargers are to instruct their laboratories to establish calibration standards so that the Minimum Level* (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no

* See Appendix I for definition of terms.

time is the discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve. In accordance with Section 2b, above, the discharger's laboratory may employ a calibration standard lower than the Minimum Level* in Appendix II.

6. Sample Reporting Protocols

a. Dischargers must report with each sample result the reported Minimum Level* (selected in accordance with Section 2, above) and the laboratory's current MDL*.

b. Dischargers must also report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

(1) Sample results greater than or equal to the reported Minimum Level* must be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample).

(2) Sample results less than the reported Minimum Level*, but greater than or equal to the laboratory's MDL*, must be reported as "Detected, but Not Quantified", or DNQ. The laboratory must write the estimated chemical concentration of the sample next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc.").

(3) Sample results less than the laboratory's MDL* must be reported as "Not Detected", or ND.

7. Compliance Determination

Sufficient sampling and analysis shall be required to determine compliance with the effluent limitation.

a. Compliance with Single-Constituent Effluent Limitations

Dischargers are out of compliance with the effluent limitation if the *concentration of the pollutant* (see Section 5c, below) in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level*.

b. Compliance with Effluent Limitations expressed as a Sum of Several Constituents

Dischargers are out of compliance with an effluent limitation which applies to the sum of a group of chemicals (e.g., PCB's) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.

c. Multiple Sample Data Reduction

The *concentration of the pollutant* in the effluent may be estimated from the result of a single sample analysis or by a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses when all sample results are quantifiable (i.e., greater than or equal to the reported Minimum Level*). When one or more sample results are reported as ND or DNQ, the

* See Appendix I for definition of terms.

central tendency concentration of the pollutant shall be the median (middle) value of the multiple samples. If, in an even number of samples, one or both of the middle values is ND or DNQ, the median will be the lower of the two middle values.

d. Powerplants and Heat Exchange Dischargers

Due to the large total volume of powerplant and other heat exchange discharges, special procedures must be applied for determining compliance with Table B objectives on a routine basis. Effluent concentration values (Ce) shall be determined through the use of equation 1 considering the minimal probable initial* dilution of the combined effluent (in-plant waste streams plus cooling water flow). These concentration values shall then be converted to mass emission limitations as indicated in equation 3. The mass emission limits will then serve as requirements applied to all inplant waste* streams taken together which discharge into the cooling water flow, except that limits for total chlorine residual, acute* and chronic* toxicity and instantaneous maximum concentrations in Table B shall apply to, and be measured in, the combined final effluent, as adjusted for dilution with ocean water. The Table B objective for radioactivity shall apply to the undiluted combined final effluent.

8. Pollutant Minimization Program

a. Pollutant Minimization Program Goal

The goal of the Pollutant Minimization Program is to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures, in order to maintain the effluent concentration at or below the effluent limitation.

Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The completion and implementation of a Pollution Prevention Plan, required in accordance with CA Water Code Section 13263.3 (d) will fulfill the Pollution Minimization Program requirements in this section.

b. Determining the need for a Pollutant Minimization Program

1. The discharger must develop and conduct a Pollutant Minimization Program if all of the following conditions are true:
   (a) The calculated effluent limitation is less than the reported Minimum Level
   (b) The concentration of the pollutant is reported as DNQ
   (c) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.
2. Alternatively, the discharger must develop and conduct a Pollutant Minimization Program if all of the following conditions are true:
   (a) The calculated effluent limitation is less than the Method Detection Limit*
   (b) The concentration of the pollutant is reported as ND
   (c) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation

* See Appendix I for definition of terms.

c. Regional Boards may include special provisions in the discharge requirements to require the gathering of evidence to determine whether the pollutant is present in the effluent at levels above the calculated effluent limitation. Examples of evidence may include:

1. health advisories for fish consumption,

2. presence of whole effluent toxicity,

3. results of benthic or aquatic organism tissue sampling,

4. sample results from analytical methods more sensitive than methods included in the permit (in accordance with Section 2b, above).

5. the concentration of the pollutant is reported as DNQ and the effluent limitation is less than the MDL

d. Elements of a Pollutant Minimization Program

The Regional Board may consider cost-effectiveness when establishing the requirements of a Pollutant Minimization Program. The program shall include actions and submittals acceptable to the Regional Board including, but not limited to, the following:

1. An annual review and semi-annual monitoring of potential sources of the reportable pollutant, which may include fish tissue monitoring and other bio-uptake sampling;

2. Quarterly monitoring for the reportable pollutant in the influent to the wastewater treatment system;

3. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable pollutant in the effluent at or below the calculated effluent limitation;

4. Implementation of appropriate cost-effective control measures for the pollutant, consistent with the control strategy; and

5. An annual status report that shall be sent to the Regional Board including:

(a) All Pollutant Minimization Program monitoring results for the previous year;

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

(c) A summary of all action taken in accordance with the control strategy; and

(d) A description of actions to be taken in the following year

9. ~~C.~~ Toxicity Reduction Requirements

a. If a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table B, a toxicity reduction evaluation (TRE) is required. The TRE shall include all reasonable steps to identify the source of toxicity. Once the source(s) of toxicity is identified, the discharger shall take all reasonable steps necessary to reduce toxicity to the required level.

* See Appendix I for definition of terms.

b. The following shall be incorporated into waste discharge requirements: (1) a requirement to conduct a TRE if the discharge consistently exceeds its toxicity effluent limitation, and (2) a provision requiring a discharger to take all reasonable steps to reduce toxicity once the source of toxicity is identified.

D. Implementation Provisions for Bacterial Assessment and Remedial Action Requirements

1. The requirements listed below shall be used to ~~1.)~~ determine the occurrence and extent of any impairment of a beneficial use due to bacterial contamination, ~~2)~~ generate information which can be used in the development of an enterococcus standard, and ~~3)~~ provide the basis for remedial actions necessary to minimize or eliminate any impairment of a beneficial use.

   a. Measurement of enterococcus density shall be conducted at all stations where measurement of total and fecal coliforms are required. In addition to the requirements of Chapter II.B.I ~~Section II.A.1.,~~ if a shore station consistently exceeds a coliform objective or exceeds a geometric mean enterococcus density of 24 organisms per 100 ml for a 30-day period or 12 organisms per 100 ml for a six-month period, the Regional Board shall require the appropriate agency to conduct a survey to determine if that agency's discharge is the source of the contamination. The geometric mean shall be a moving average based on no less than five samples per month, spaced evenly over the time interval. When a sanitary survey identifies a controllable source of indicator organisms associated with a discharge of sewage, the Regional Board shall take action to control the source.

   b. Waste discharge requirements shall require the discharger to conduct sanitary surveys when so directed by the Regional Board. Waste discharge requirements shall contain provisions requiring the discharger to control any controllable discharges identified in a sanitary survey.

E. Implementation Provisions For Areas* of Special Biological Significance (ASBS)

1. Waste* shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.

2. Regional Boards may approve waste discharge requirements or recommend certification for limited-term (i.e. weeks or months) activities in ASBS*. Limited-term activities include, but are not limited to, activities such as maintenance/repair of existing boat facilities, restoration of sea walls, repair of existing storm water pipes, and replacement/repair of existing bridges. Limited-term activities may result in temporary and short-term changes in existing* water quality. Water quality degradation shall be limited to the shortest possible time: the activities must not permanently degrade water quality or result in water quality lower than that necessary to protect existing* uses, and all practical means of minimizing such degradation shall be implemented

* See Appendix I for definition of terms.

F. Implementation Provisions For Outstanding National Resource Waters and Outstanding State Resource Waters.

1. The primary purpose of designating waters as ONRW* and OSRW* is to maintain and protect their existing* high quality waters. For this reason, lowering of water quality in an ONRW* or OSRW* is prohibited except as allowed in F.4. below for limited-term activities and F.5 below for OSRW*.

2. Existing* Discharges

a. ONRW*/OSRW*: existing* discharges cannot lower existing* water quality. (Existing water quality is at a minimum, the best water quality of the receiving waters since November 28, 1975).

b. Regulation of existing* dischargers:

(1) The Regional Boards shall review waste discharge requirements or permits for existing* waste dischargers as soon as possible following the designation of an ONRW* or OSRW*, and at each regularly scheduled review of requirements or permits, to determine if there is a reasonable potential for the discharge to cause or contribute to a lowering of existing* water quality in an ONRW*/OSRW*.

(A) if there is a finding that the discharge will not lower existing* water quality in an ONRW*/OSRW*, the discharge may continue. The potential for the discharge to cause or contribute to a lowering of existing* water quality shall be re-evaluated at each regularly scheduled review of requirements or permits as described in F.2.b.(1) above.

(B) if there is a finding that the discharge could cause or contribute to a lowering of water quality in an ONRW*/OSRW*, the Regional Board shall modify the requirements or permit or take other appropriate action to ensure that existing* water quality or natural water quality conditions, as appropriate, are maintained and protected. Modifications to waste discharge requirements or permits may include appropriate conditions and a compliance schedule to ensure that reasonable progress is made toward attaining and protecting existing* water quality for ONRW*/OSRW*.

3. New* Discharges

a. ONRW*/OSRW*: new* or increased discharges that lower existing* water quality are prohibited.

4. Regional Boards may approve waste discharge requirements or recommend certification for limited-term (i.e. weeks or months) activities in ONRW* and OSRW*. Limited-term activities include, but are not limited to, activities such as maintenance and repair of existing boat facilities, restoration of sea walls, repair of existing storm water pipes, and replacement/repair of existing bridges. Limited-term activities may result in temporary and short-term changes in existing* water quality. Water quality degradation shall be limited to the shortest possible time: the activities must not permanently degrade water quality or result in water quality lower than that necessary

* See Appendix I for definition of terms.

to protect existing* uses, and all practical means of minimizing such degradation shall be implemented.

5. Any person may file a petition with the State Board or a Regional Board to modify the boundary or lower the water quality of a designated OSRW*, or to have the designation removed. The petition shall include:

a. The specific boundary change that would be modified or the specific water quality parameters that would be lowered;

b. A description of any proposed activity which could take place if the petition is granted, including a list of the other approvals needed and an estimate of the time required for the approvals;

c. An analysis demonstrating that the requested change is consistent with all applicable water quality standards, including state and federal antidegradation requirements.

G.~~B.~~ Revision of Waste* Discharge Requirements

1. The Regional Board shall revise the waste* discharge requirements for existing* discharges as necessary to achieve compliance with this Plan and shall also establish a time schedule for such compliance.
2. The Regional Boards may establish more restrictive water quality objectives and effluent limitations than those set forth in this Plan as necessary for the protection of beneficial uses of ocean* waters.
3. Regional Boards may impose alternative less restrictive provisions than those contained within Table B of the Plan, provided an applicant can demonstrate that:

a. Reasonable control technologies (including source control, material substitution, treatment and dispersion) will not provide for complete compliance; or

b. Any less stringent provisions would encourage water* reclamation;

4. Provided further that:

a. Any alternative water quality objectives shall be below the conservative estimate of chronic* toxicity, as given in Table D, and such alternative will provide for adequate protection of the marine environment;

b. A receiving water quality toxicity objective of 1 TUc is not exceeded; and

c. The State Board grants an exception (Chapter III. H. ~~VI.F~~.) to the Table B limits as established in the Regional Board findings and alternative limits.

H. Monitoring Program

* See Appendix I for definition of terms.

1. The Regional Boards shall require dischargers to conduct self-monitoring programs and submit reports necessary to determine compliance with the waste* discharge requirements, and may require dischargers to contract with agencies or persons acceptable to the Regional Board to provide monitoring reports. Monitoring provisions contained in waste discharge requirements shall be in accordance with the Monitoring Procedures provided in Appendix III.

2. Where the Regional Board is satisfied that any substance(s) of Table B will not significantly occur in a discharger's effluent, the Regional Board may elect not to require monitoring for such substance(s), provided the discharger submits periodic certification that such substance(s) is not added to the waste* stream, and that no change has occurred in activities that could cause such substance(s) to be present in the waste* stream. Such election does not relieve the discharger from the requirement to meet the objectives of Table B.

3. The Regional Board may require monitoring of bioaccumulation of toxicants in the discharge zone. Organisms and techniques for such monitoring shall be chosen by the Regional Board on the basis of demonstrated value in waste* discharge monitoring.

TABLE D
CONSERVATIVE ESTIMATES OF CHRONIC TOXICITY

Constituent	Estimate of Chronic Toxicity (ug/l)
Arsenic	19.
Cadmium	8.
Hexavalent Chromium	18.
Copper	5.
Lead	22.
Mercury	0.4
Nickel	48.
Silver	3.
Zinc	51.
Cyanide	10.
Total Chlorine Residual	10.0
Ammonia	4000.0
Phenolic Compounds (non-chlorinated)	a) (see below)
Chlorinated Phenolics	a)
Chlorinated Pesticides and PCB's	b)

Table D Notes:

a) There *are* ~~is~~ insufficient data for phenolics to estimate chronic toxicity levels. Requests for modification of water quality objectives for these waste* constituents must be supported by chronic toxicity data for representative sensitive species. In such cases, applicants seeking modification of water quality objectives should consult the Regional Water Quality Control Board to determine the species and test conditions necessary to evaluate chronic effects.

* See Appendix I for definition of terms.

b) Limitations on chlorinated pesticides and PCB's shall not be modified so that the total of these compounds is increased above the objectives in Table B.

I. Discharge Prohibitions

1~~A.~~ Hazardous Substances

a. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste* into the ocean* is prohibited.

2~~B.~~. Areas ~~of~~ Designated for Special Water Quality Protection. ~~Biological Significance.~~

a. Waste* shall not be discharged to ~~areas~~ designated ~~as being~~ Areas* of ~~s~~Special ~~b~~Biological ~~s~~Significance except as provided in Chapter III E. Implementation Provisions For Areas of Special Biological Significance. ~~Discharges shall be located a sufficient distance from such designated areas to assure maintenance of existing* water quality conditions in these areas.~~

b. Waste shall not be discharged to Outstanding National Resource Waters or Outstanding State Resource Waters except as provided in Chapter III. F. Implementation Provisions For Outstanding National ResourceWaters and Outstanding State Resource Waters.

3. ~~C.~~Sludge

a. Pipeline discharge of sludge to the ocean* is prohibited by federal law; the discharge of municipal and industrial waste* sludge directly to the ocean*, or into a waste* stream that discharges to the ocean*, is prohibited by this Plan. The discharge of sludge digester supernatant directly to the ocean*, or to a waste* stream that discharges to the ocean* without further treatment, is prohibited.

b. It is the policy of the SWRCB that the treatment, use and disposal of sewage sludge shall be carried out in the manner found to have the least adverse impact on the total natural and human environment. Therefore, if federal law is amended to permit such discharge, which could affect California waters, the SWRCB may consider requests for exceptions to this section under Chapter III, H. of this Plan, provided further that an Environmental Impact Report on the proposed project shows clearly that any available alternative disposal method will have a greater adverse environmental impact than the proposed project.

4~~D.~~ By-Passing

a. The by-passing of untreated wastes* containing concentrations of pollutants in excess of those of Table A or Table B to the ocean* is prohibited.

~~Chapter VI~~

J~~F.~~ State Board Exceptions to Plan Requirements

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* See Appendix I for definition of terms.

1. The State Board may, in compliance with the California Environmental Quality Act, subsequent to a public hearing, and with the concurrence of the Environmental Protection Agency, grant exceptions where the Board determines:

   a. ~~1.~~ The exception will not compromise protection of ocean* waters for beneficial uses, and,

   b. ~~2.~~ The public interest will be served.

* See Appendix I for definition of terms.

APPENDIX I

DEFINITION OF TERMS

ACUTE TOXICITY

a. Acute Toxicity (TUa)

Expressed in Toxic Units Acute (TUa)

$$TUa = \frac{100}{\text{96-hr LC 50\%}}$$

b. Lethal Concentration 50% (LC 50)

LC 50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard marine test species as specified in Appendix III, Chapter III. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$TUa = \frac{\log (100 - S)}{1.7}$$

where:

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS) are those areas designated by the SWRCB as requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable.

CHLORDANE shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

CHRONIC TOXICITY: This parameter shall be used to measure the acceptability of waters for supporting a healthy marine biota until improved methods are developed to evaluate biological response.

a. Chronic Toxicity (TUc)

Expressed as Toxic Units Chronic (TUc)

$$TUc = \frac{100}{NOEL}$$

b. No Observed Effect Level (NOEL)

The NOEL is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Appendix II.

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.

DEGRADE: Degradation shall be determined by comparison of the waste field and reference site(s) for characteristic species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected, or are not the only ones affected.

DICHLOROBENZENES shall mean the sum of 1,2- and 1,3-dichlorobenzene.

DOWNSTREAM OCEAN WATERS shall mean waters downstream with respect to ocean currents, or beyond an administrative boundary.

DREDGED MATERIAL: Any material excavated or dredged from the navigable waters of the United States, including material otherwise referred to as "spoil".

ENCLOSED BAYS are indentations along the coast which enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. This definition includes but is not limited to: Humboldt Bay, Bodega Harbor, Tomales Bay, Drakes Estero, San Francisco Bay, Morro Bay, Los Angeles Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay.

ENDOSULFAN shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.

ESTUARIES AND COASTAL LAGOONS are waters at the mouths of streams that serve as mixing zones for fresh and ocean waters during a major portion of the year. Mouths of streams that are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open ocean to the upstream limit of tidal action but may be considered to extend seaward if significant mixing of fresh and salt water occurs in the open coastal waters. The waters described by this definition include but are not limited to the Sacramento-San Joaquin Delta as defined by Section 12220 of the California Water Code, Suisun Bay, Carquinez Strait downstream to Carquinez Bridge, and appropriate areas of the Smith, Klamath, Mad, Eel, Noyo, and Russian Rivers.

EXISTING DISCHARGE is any discharge that is not a new* discharge* or increased discharge*.

HALOMETHANES shall mean the sum of bromoform, bromomethane (methyl bromide) and chloromethane (methyl chloride~~), chlorodibromomethane, and dichlorobromomethane~~.

~~HEPTACHLOR shall mean the sum of heptachlor and heptachlor epoxide.~~

HCH shall mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.

INCREASED DISCHARGE, relative to ASBS, ONRW, or OSRW includes an increase in the volume of an existing discharge, over the volume specified by permit on the effective date of the special water quality protection designation.

INITIAL DILUTION is the process which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and nonbuoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Board, whichever results in the lower estimate for initial dilution.

KELP BEDS, for purposes of the bacteriological standards of this plan, are significant aggregations of marine algae of the genera Macrocystis and Nereocystis. Kelp beds include the total foliage canopy of Macrocystis and Nereocystis plants throughout the water column.

MARICULTURE is the culture of plants and animals in marine waters independent of any pollution source.

MATERIAL: (a) In common usage: (1) the substance or substances of which a thing is made or composed (2) substantial; (b) For purposes of this Ocean Plan relating to waste disposal, dredging and the disposal of dredged material and fill, MATERIAL means matter of any kind or description which is subject to regulation as waste, or any material dredged from the navigable waters of the United States. See also, DREDGED MATERIAL.

MDL (Method Detection Limit) is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as defined in 40 CFR PART 136 Appendix B.

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

NATURAL LIGHT: Reduction of natural light may be determined by the Regional Board by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the Regional Board.

NEW DISCHARGE, relative to ASBS, ONRW or OSRW, includes any building structure, facility, or installation from which there is, or may be, a discharge of pollutants, the consrtuction of which commenced after the effective date of the special water quality protection designation.

OCEAN WATERS are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.

OUTSTANDING NATIONAL RESOURCE WATERS (ONRW): High quality waters which constitute an outstanding national resource, such as waters of National and State parks, national marine sanctuaries, wildlife refuges and waters of exceptional recreational or ecological significance. Waters of exceptional ecological significance may include water bodies that are important, unique, or sensitive ecologically, but whose water quality, as measured by the traditional parameters such as dissolved oxygen, or pH, may not be particularly high or whose characteristics cannot be adequately described by these parameters (such as wetlands).

OUTSTANDING STATE RESOURCE WATERS (OSRW) High quality waters that meet the definition of ONRW , but that are subject to less stringent requirements than ONRW. In particular, the boundary of an OSRW may be changed, its water quality may be lowered, or its designation as an OSRW may be removed, as provided in Chapter III.F.4. of this Plan.

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.

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.

~~PQL (Practical Quantitation Level) is the lowest concentration of a substance which can be consistently determined within +/- 20% of the true concentration by 75% of the labs tested in a performance evaluation study. Alternatively, if performance data are not available, the PQL* for carcinogens is the MDL* x 5, and for noncarcinogens is the MDL* x 10.~~

SHELLFISH are organisms identified by the California Department of Health Services as shellfish for public health purposes (i.e., mussels, clams and oysters).

SIGNIFICANT difference is defined as a statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

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.

Isomer Group	Toxicity Equivalence Factor
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

WASTE: As used in this Plan, waste includes a discharger's total discharge, of whatever origin, i.e., gross, not net, discharge.

WATER RECLAMATION: The treatment of wastewater to render it suitable for reuse, the transportation of treated wastewater to the place of use, and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.

APPENDIX II

MINIMUM LEVELS

The Minimum Levels identified in this appendix represent the lowest concentration of a pollutant that can be quantitatively measured in a sample given the current state of performance in analytical chemistry methods in California. These Minimum Levels were derived from data provided by state-certified analytical laboratories in 1997 and 1998 for pollutants regulated by the California Ocean Plan and shall be used until new values are adopted by the SWRCB. There are four major chemical groupings: volatile chemicals, semi-volatile chemicals, inorganics, pesticides & PCB's. "No Data" is indicated by "-

TABLE II-1
MINIMUM LEVELS – VOLATILE CHEMICALS

		Minimum Level* (ug/L)	
Volatile Chemicals	**CAS Number**	**GC Method [a]**	**GCMS Method [b]**
Acrolein	107028	2.	5
Acrylonitrile	107131	2.	2
Benzene	71432	0.5	2
Bromoform	75252	0.5	2
Carbon Tetrachloride	56235	0.5	2
Chlorobenzene	108907	0.5	2
Chlorodibromomethane	124481	0.5	2
Chloroform	67663	0.5	2
1,2-Dichlorobenzene (volatile)	95501	0.5	2
1,3-Dichlorobenzene (volatile)	541731	0.5	2
1,4-Dichlorobenzene (volatile)	106467	0.5	2
Dichlorobromomethane	75274	0.5	2
1,1-Dichloroethane	75343	0.5	1
1,2-Dichloroethane	107062	0.5	2
1,1-Dichloroethylene	75354	0.5	2
Dichloromethane	75092	0.5	2
1,3-Dichloropropene (volatile)	542756	0.5	2
Ethyl benzene	100414	0.5	2
Methyl Bromide	74839	1.	2
Methyl Chloride	74873	0.5	2
1,1,2,2-Tetrachloroethane	79345	0.5	2
Tetrachloroethylene	127184	0.5	2
Toluene	108883	0.5	2
1,1,1-Trichloroethane	71556	0.5	2
1,1,2-Trichloroethane	79005	0.5	2
Trichloroethylene	79016	0.5	2
Vinyl Chloride	75014	0.5	2

Table II-1 Notes

a) GC Method = Gas Chromatography

b) GCMS Method = Gas Chromatography / Mass Spectrometry

* To determine the lowest standard concentration in an instrument calibration curve for these techniques, use the given ML (see Chapter III, "Use of Minimum Levels").

TABLE II-2
MINIMUM LEVELS - SEMI VOLATILE CHEMICALS

Semi-Volatile Chemicals	CAS Number	Minimum Level (ug/L) GC Method [a, *]	GCMS Method [b, *]	HPLC Method [c,*]	COLOR Method [d]
Acenapthylene	208968	--	10	0.2	--
Anthracene	120127	--	10	2	--
Benzidine	92875	--	5	--	--
Benzo(a)anthracene	56553	--	10	2	--
Benzo(a)pyrene	50328	--	10	2	--
Benzo(b)fluoranthene	205992	--	10	10	--
Benzo(g,h,i)perylene	191242	--	5	0.1	--
Benzo(k)floranthene	207089	--	10	2	--
Bis 2-(1-Chloroethoxy) methane	111911	--	5	--	--
Bis(2-Chloroethyl)ether	111444	10	1	--	--
Bis(2-Chloroisopropyl)ether	39638329	10	2	--	--
Bis(2-Ethylhexyl) phthalate	117817	10	5	--	--
2-Chlorophenol	95578	2	5	--	--
Chrysene	218019	--	10	5	--
Di-n-butyl phthalate	84742	--	10	--	--
Dibenzo(a,h)anthracene	53703	--	10	0.1	--
1,2-Dichlorobenzene (semivolatile)	95504	2	2	--	--
1,3-Dichlorobenzene (semivolatile)	541731	2	1	--	--
1,4-Dichlorobenzene (semivolatile)	106467	2	1	--	--
3,3-Dichlorobenzidine	91941	--	5	--	--
2,4-Dichlorophenol	120832	1	5	--	--
1,3-Dichloropropene	542756	--	5	--	
Diethyl phthalate	84662	10	2	--	--
Dimethyl phthalate	131113	10	2	--	--
2,4-Dimethylphenol	105679	1	2	--	--
2,4-Dinitrophenol	51285	5	5	--	--
2,4-Dinitrotoluene	121142	10	5	--	--
1,2-Diphenylhydrazine	122667	--	1	--	--
Fluoranthene	206440	10	1	0.05	--
Fluorene	86737	--	10	0.1	--
Hexachlorobenzene	118741	5	1	--	--
Hexachlorobutadiene	87683	5	1	--	--
Hexachlorocyclopentadiene	77474	5	5	--	--

Table II-2 continued on next page…

Table II-2 (Continued)
Minimum Levels – Semi Volatile Chemicals

Semi-Volatile Chemicals	CAS Number	Minimum Level (ug/L) GC Method [a, *]	GCMS Method [b, *]	HPLC Method [c,*]	COLOR Method [d]
Hexachloroethane	67721	5	1	--	--
Indeno(1,2,3-cd)pyrene	193395	--	10	0.05	--
Isophorone	78591	10	1	--	--
2-methyl-4,6-dinitrophenol	534521	10	5	--	--
3-methyl-4-chlorophenol	59507	5	1	--	--
N-nitrosodi-n-propylamine	621647	10	5	--	--
N-nitrosodimethylamine	62759	10	5	--	--
N-nitrosodiphenylamine	86306	10	1	--	--
Nitrobenzene	98953	10	1	--	--
2-Nitrophenol	88755	--	10	--	--
4-Nitrophenol	100027	5	10	--	--
Pentachlorophenol	87865	1	5	--	--
Phenanthrene	85018	--	5	0.05	--
Phenol	108952	1	1	--	50
Pyrene	129000	--	10	0.05	--
2,4,6-Trichlorophenol	88062	10	10	--	--

Table II-2 Notes:

a) GC Method = Gas Chromatography
b) GCMS Method = Gas Chromatography / Mass Spectrometry
c) HPLC Method = High Pressure Liquid Chromatography
d) COLOR Method = Colorimetric

* To determine the lowest standard concentration in an instrument calibration curve for this technique, multiply the given ML by 1000 (see Chapter III, “Use of Minimum Levels”).

TABLE II-3
MINIMUM LEVELS - INORGANICS

Inorganic Substances	CAS Number	Minimum Level* (ug/L)								
		COLOR Method[a]	DCP Method[b]	FAA Method[c]	GFAA Method[d]	HYDRIDE Method[e]	ICP Method[f]	ICPMS Method[g]	SPGFAA Method[h]	CVAA Method[i]
Antimony	7440360	--	1000.	10.	5.	0.5	50.	0.5	5.	--
Arsenic	7440382	20.	1000.	--	2.	1.	10.	2.	2.	--
Beryllium	7440417	--	1000.	20.	0.5	--	2.	0.5	1.	--
Cadmium	7440439	--	1000.	10.	0.5	--	10.	0.2	0.5	--
Chromium (total)	--	--	1000.	50.	2.	--	10.	0.5	1.	--
Chromium (VI)	18540299	10.	--	5.	--	--	--	--	--	--
Copper	7440508	--	1000.	20.	5.	--	10.	0.5	2.	--
Cyanide	57125	5.	--	--	--	--	--	--	--	--
Lead	7439921	--	10000.	20.	5.	--	5.	0.5	2.	--
Mercury	7439976	--	--	--	--	--	--	0.5	--	0.2
Nickel	7440020	--	1000.	50.	5.	--	20.	1.	5.	--
Selenium	7782492	--	1000.	--	5.	1.	10.	2.	5.	--
Silver	7440224	--	1000.	10.	1.	--	10.	0.2	2.	--
Thallium	7440280	--	1000.	10.	2.	--	10.	1.	5.	--
Zinc	7440666	--	1000.	20.	--	--	20.	1.	10.	--

Table II-3 Notes

a) COLOR Method = Colorimetric
b) DCP Method = Direct Current Plasma
c) FAA Method = Flame Atomic Absorption
d) GFAA Method = Graphite Furnace Atomic Absorption
e) HYDRIDE Method = Gaseous Hydride Atomic Absorption
f) ICP Method = Inductively Coupled Plasma
g) ICPMS Method = Inductively Coupled Plasma / Mass Spectrometry
h) SPGFAA Method = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., U.S. EPA 200.9)
i) CVAA Method = Cold Vapor Atomic Absorption

* To determine the lowest standard concentration in an instrument calibration curve for these techniques, use the given ML (see Chapter III, "Use of Minimum Levels").

TABLE II-4
MINIMUM LEVELS – PESTICIDES AND PCB'S

Pesticides - PCB's	CAS Number	Minimum Level (ug/L) GC Method[a,*]
Aldrin	309002	0.005
Chlordane	57749	0.1
4,4'-DDD	72548	0.05
4,4'-DDE	72559	0.05
4,4'-DDT	50293	0.01
Dieldrin	60571	0.01
a-Endosulfan	959988	0.02
b-Endosulfan	33213659	0.01
Endosulfan Sulfate	1031078	0.05
Endrin	72208	0.01
Heptachlor	76448	0.01
Heptachlor Epoxide	1024573	0.01
a-Hexachlorocyclohexane	319846	0.01
b-Hexachlorocyclohexane	319857	0.005
d-Hexachlorocyclohexane	319868	0.005
g-Hexachlorocyclohexane (Lindane)	58899	0.02
PCB 1016	--	0.5
PCB 1221	--	0.5
PCB 1232	--	0.5
PCB 1242	--	0.5
PCB 1248	--	0.5
PCB 1254	--	0.5
PCB 1260	--	0.5
Toxaphene	8001352	0.5

Table II-4 Notes

a) GC Method = Gas Chromatography

* To determine the lowest standard concentration in an instrument calibration curve for this technique, multiply the given ML by 100 (see Chapter III, "Use of Minimum Levels").

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 appendix is organized in the same manner as the Ocean Plan.~~ 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.

Ocean Plan Chapter II. B.~~A~~. Bacterial Standards:

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

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.~~ Table 1A of 40 CFR PART 136, unless alternate methods have been approved in advance by 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.

Ocean Plan Chapter II. ~~IV~~ H 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

* See Appendix I for definition of terms.

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.

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 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.

~~Chapter IV. Compliance with Toxicity~~ Limitations and ~~Objectives:~~

~~Compliance with the acute toxicity objective (TUa) in Table B shall be determined using an established protocol, e.g., American Society for Testing Materials (ASTM), EPA, American Public Health Association, or State Board.~~

Compliance or monitoring for the with acute toxicity objective (TUa) in Table B shall be determined using an 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. ~~For major dischargers scheduled for waste discharge requirements renewal less than one year after the adoption of the toxicity objective, critical life stage bioassay testing shall be included as a monitoring requirement at the same time as the chronic toxicity effluent limits is established in the waste discharge requirements.~~

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.

TABLE III-1
APPROVED TESTS - TOXICITY (TUc)

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

APPENDIX IV

PROCEDURES FOR THE NOMINATION AND DESIGNATION OF AREAS* OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS).

1. Any person may nominate areas of ocean waters for designation as ASBS by the SWRCB. Nominations shall be made to the appropriate RWQCB and shall include:

   (a) Information such as maps, reports, data, statements, and photographs to show that:

      (1) Candidate areas are located in ocean waters as defined in the "Ocean Plan".

      (2) Candidate areas are intrinsically valuable or have recognized value to man for scientific study, commercial use, recreational use, or esthetic reasons.

      (3) Candidate areas need protection beyond that offered by waste discharge restrictions or other administrative and statutory mechanisms.

   (b) Data and information to indicate whether the proposed designation may have a significant effect on the environment.

      (1) If the data or information indicate that the proposed designation will have a significant effect on the environment, the nominee must submit sufficient information and data to identify feasible changes in the designation that will mitigate or avoid the significant environmental effects.

2. The SWRCB or a RWQCB may also nominate areas for designation as ASBS on their own motion.

3. A RWQCB may decide to (a) consider individual ASBS nominations upon receipt, (b) consider several nominations in a consolidated proceeding, or (c) consider nominations in the triennial review of its water quality control plan (basin plan). In no event shall a nomination that meets the requirements of 1. above be considered later than the next scheduled triennial review of the basin plan.

4. After determining that a nomination meets the requirements of paragraph 1. above, the executive officer of the affected RWQCB shall prepare a preliminary report containing the following:

   (a) The area or areas nominated for designation as ASBS.

   (b) A description of each area including a map delineating the boundaries of each proposed area.

   (c) A recommendation for action on the nomination(s) and the rationale for the recommendation. If the preliminary report recommends approval of the proposed designation, the preliminary report shall comply with the CEQA documentation requirements for a water quality control plan amendment in Section 3777, Title 23, California Code of Regulations.

5. The executive officer shall, at a minimum, seek informal comment on the preliminary report from the SWRCB, Department of Fish and Game, other interested state and federal agencies, conservation groups, affected waste dischargers, and other interested parties.

6. (a) If the preliminary report recommends approval of the proposed designation, the executive officer shall ensure that processing of the nomination complies with the CEQA consultation requirements in Section 3778, Title 23, California Code of Regulations and proceed to step 7 below.

   (b) If the preliminary report recommends against approval of the proposed designation, the executive officer shall notify interested parties of the decision. No further action need be taken. The nominating party may seek reconsideration of the decision by the RWQCB itself.

7. The RWQCB shall conduct a public hearing to receive testimony on the proposed designation. Notice of the hearing shall be published three times in a newspaper of general circulation in the vicinity of the proposed area or areas and shall be distributed to all known interested parties 45 days in advance of the hearing. The notice shall describe the location, boundaries, and extent of the area or areas under consideration, as well as proposed restrictions on waste discharges within the area.

8. The RWQCB shall respond to comments as required in Section 3779, Title 23, California Code of Regulations, and 40 C.F.R. Part 25 (July 1, 1999).

9. The RWQCB shall consider the nomination after completing the required public review processes required by CEQA.

   (a) If the RWQCB supports the recommendation for designation, the board shall forward to the SWRCB its recommendation for approving designation of the proposed area or areas and the supporting rationale. The RWQCB submittal shall include a copy of the staff report, hearing transcript, comments, and responses to comments.

   (b) If the RWQCB does not support the recommendation for designation, the executive officer shall notify interested parties of the decision, and no further action need be taken.

10. After considering the RWQCB recommendation and hearing record, the SWRCB may approve or deny the recommendation, refer the matter to the RWQCB for appropriate action, or conduct further hearing itself. If the SWRCB acts to approve a recommended designation, the SWRCB shall amend Appendix VI, Table VI-1, of this Plan. The amendment will go into effect after approval by the Office of Administrative Law and U.S. EPA. In addition, after the effective date of a designation, the affected RWQCB shall revise its water quality control plan in the next triennial review to include the designation.

11. The SWRCB executive officer shall advise other agencies to whom the list of designated areas is to be provided that the basis for an ASBS designation is limited to protection of marine life from wastewater discharges.

APPENDIX V

PROCEDURES FOR THE NOMINATION AND DESIGNATION OF OUTSTANDING* NATIONAL RESOURCE WATERS AND OUTSTANDING* STATE RESOURCE WATERS.

1. Any person may nominate an area of ocean waters for designation as an ONRW or an OSRW. Nominations may be made to the SWRCB or to the appropriate RWQCB and shall include:

   (a) Information such as maps, reports, data, statements, and photographs to show that:

      (1) The candidate area is located in ocean waters as defined in the "Ocean Plan".

      (2) The candidate area meets the definition of an ONRW or OSRW, as appropriate.

   (b) Data and information to indicate whether the proposed designation may have a significant effect on the environment.

      (1) If the data or information indicates that the proposed designation will have a significant effect on the environment, the nominee must submit sufficient information and data to identify feasible changes in the designation that will mitigate or avoid the significant environmental effects.

2. The SWRCB or a RWQCB may also nominate ocean areas for designation as ONRW or OSRW on their own motion.

3. Nominations received by the SWRCB or a RWQCB that fulfill the requirements of paragraph 1. above may be considered at any time, but not later than the next scheduled triennial review of the appropriate Basin Plan or Ocean Plan.

4. RWQCB nominations:

   (a) After determining that a nomination meets the requirements of paragraph 1. above, the executive officer shall prepare a preliminary report containing the following:

      (1) The area or areas nominated for designation as ONRW or OSRW.

      (2) A description of each area including a map delineating the boundaries of each proposed area.

      (3) A recommendation for action on the nomination(s) and the rationale for the recommendation. If the preliminary report recommends approval of the proposed designation, the preliminary report shall comply with the CEQA documentation requirements for a water quality control plan amendment in Section 3777, Title 23, California Code of Regulations.

5. The executive officer shall, at a minimum, seek informal comment on the preliminary report from the SWRCB, the Department of Fish and Game, other interested state and federal agencies, conservation groups, affected waste dischargers, and other interested parties.

6. (a) If the preliminary report recommends approval of the proposed designation, the executive officer shall ensure that processing of the nomination complies with the CEQA consultation requirements in Section 3778, Title 23, California Code of Regulations for consideration of the proposed designation and proceed to step 7.

(b) If the preliminary report recommends against approval of the proposed designation, the executive officer shall notify interested parties of the decision. No further action need be taken. The nominating party may seek reconsideration of the decision by the RWQCB itself.

7. The RWQCB shall conduct a public hearing to receive testimony on the proposed designation. Notice of the hearing shall be published three times in a newspaper of general circulation in the vicinity of the proposed area or areas and shall be distributed to all known interested parties 45 days in advance of the hearing. The notice shall describe the location, boundaries, and extent of the area or areas under consideration, as well as proposed restrictions on waste discharges within the area.

8. The RWQCB shall respond to comments as required in Section 3779, Title 23, California Code of Regulations, and 40 C.F.R. Part 25 (July 1, 1999).

9. The RWQCB shall consider the nomination after completing the required the public review process required by CEQA.

(a) If the RWQCB supports the nomination for designation, the board shall forward to the SWRCB its recommendation for approving designation of the proposed area or areas and the supporting rationale. The RWQCB submittal shall include a copy of the staff report, hearing transcript, comments, and responses to comments.

(b) If the RWQCB does not support the recommendation for designation, the executive officer shall notify interested parties of the decision. No further action need be taken.

10. After considering the RWQCB recommendation and hearing record, the SWRCB may approve or deny the recommendation, refer the matter to the RWQCB for appropriate action, or conduct further hearing itself.

(a) If the SWRCB acts to approve a recommended designation, the SWRCB shall amend Appendix VI, Tables VI-2 or VI-3, as appropriate, of this Plan. The amendment will go into effect after approval by the Office of Administrative Law and U.S. EPA. In addition, after the effective date of a designation, the affected RWQCB shall revise its water quality control plan in the next triennial review to include the designation.

(b) If the SWRCB elects to deny a recommended designation, the executive officer shall notify interested parties of the decision. No further action shall be warranted.

SWRCB Nominations

1. The SWRCB shall prepare a preliminary report meeting the requirements in 4 (a), above, and shall comply with the requirements of 6(a) above.

2. (a) If the preliminary report recommends approval of the proposed designation, the executive officer shall ensure that processing of the nomination complies with the CEQA consultation requirements in Section 3778, Title 23, California Code of

Regulations for consideration of the proposed designation. The SWRCB executive officer shall place consideration of the preliminary report's recommendation on the SWRCB meeting agenda for action by the board.

(b) If the preliminary report recommends against approval of the proposed designation, the executive officer shall notify interested parties of the decision. No further action need be taken. The nominating party may seek reconsideration of the decision by the SWRCB itself.

(c) Except as provided in (b) above, the SWRCB shall conduct a public hearing and shall respond to comments as stipulated in steps 7 and 8 of the RWQCB nomination process.

(d) After considering the evidence in the record, the SWRCB may approve or deny the proposed designation or take other appropriate action. If the SWRCB acts to approve a designation, the SWRCB shall amend Appendix VI, Tables VI-2 or VI-3, as appropriate, of this Plan. The amendment will go into effect after approval by the Office of Administrative Law and U.S. EPA. In addition, after the effective date of the designation, the affected RWQCB shall revise its water quality control plan in the next triennial review to include the designation.

Procedures for Petitions for Change in OSRW Designation

1. Any person may file a petition with the SWRCB or a RWQCB to modify the boundary of, lower the water quality of, or remove the designation for an OSRW. The designation shall include:

   (a) The specific change requested;

   (b) A justification for the proposed change, including a description of any proposed activity that could take place if the petition is granted. The description shall include a list of the other approvals needed and an estimate of the time required for the approvals.

   (c) An analysis demonstrating that the requested change is consistent with all applicable water quality standards, including state and federal antidegradation requirements.

   (d) Data and information to indicate whether the proposed change may have a significant effect on the environment. If the data or information indicate that the proposed change will have a significant effect on the environment, the petitioner must submit sufficient information and data to identify feasible changes in the proposal that will mitigate or avoid the significant environmental effects.

2. Upon a determination that a petition is complete, in accordance with 1. above, the SWRCB or RWQCB, as appropriate, shall process the petition in accordance with the procedures for nomination of an OSRW contained in this Appendix.

APPENDIX VI

AREAS* OF SPECIAL BIOLOGICAL SIGNIFICANCE, OUTSTANDING* NATIONAL RESOURCE WATERS AND OUTSTANDING* STATE RESOURCE WATERS

A. AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE

TABLE VI-1
AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE
(DESIGNATED OR APPROVED BY THE STATE WATER RESOURCES CONTROL BOARD)

No.	ASBS Name	Date Designated	SWRCB Resolution No.	Region No.
1.	Pygmy Forest Ecological Staircase	March 21, 1974,	74-28	1
2.	Del Mar Landing Ecological Reserve	March 21, 1974,	74-28	1
3.	Gerstle Cove	March 21, 1974,	74-28	1
4.	Bodega Marine Life Refuge	March 21, 1974,	74-28	1
5.	Kelp Beds at Saunders Reef	March 21, 1974,	74-28	1
6.	Kelp Beds at Trinidad Head	March 21, 1974,	74-28	1
7.	Kings Range National Conservation Area	March 21, 1974,	74-28	1
8.	Redwoods National Park	March 21, 1974,	74-28	1
9.	James V. Fitzgerald Marine Reserve	March 21, 1974,	74-28	2
10.	Farallon Island	March 21, 1974,	74-28	2
11.	Duxbury Reef Reserve and Extension	March 21, 1974,	74-28	2
12.	Point Reyes Headland Reserve and Extension	March 21, 1974,	74-28	2
13.	Double Point	March 21, 1974,	74-28	2
14.	Bird Rock	March 21, 1974,	74-28	2
15.	Ano Nuevo Point and Island	March 21, 1974,	74-28	3
16.	Point Lobos Ecological Reserve	March 21, 1974,	74-28	3
17.	San Miguel, Santa Rosa, and Santa Cruz Islands	March 21, 1974,	74-28	4
18.	Julia Pfeiffer Burns Underwater Park	March 21, 1974,	74-28	3
19.	Pacific Grove Marine Gardens Fish Refuge and Hopkins Marine Life Refuge	March 21, 1974,	74-28	3
20.	Ocean Area Surrounding the Mouth of Salmon Creek	March 21, 1974,	74-28	3
21.	San Nicolas Island and Begg Rock	March 21, 1974,	74-28	4
22.	Santa Barbara Island, Santa Barbara County and Anacapa Island	March 21, 1974,	74-28	4
23.	San Clemente Island	March 21, 1974,	74-28	4
24.	Mugu Lagoon to Latigo Point	March 21, 1974,	74-28	4

Table VI-6 Continued on next page…

Table VI-1 (Continued)

Areas of Special Biological Significance
(Designated or Approved by the State Water Resources Control Board)

No.	ASBS Name	Date Designated	SWRCB Resolution No.	Region No.
22.	Santa Barbara Island, Santa Barbara County and Anacapa Island	March 21, 1974,	74-28	4
23.	San Clemente Island	March 21, 1974,	74-28	4
24.	Mugu Lagoon to Latigo Point	March 21, 1974,	74-28	4
25.	Santa Catalina Island – Subarea One, Isthmus Cove to Catalina Head	March 21, 1974,	74-28	4
26.	Santa Catalina Island - Subarea Two, North End of Little Harbor to Ben Weston Point	March 21, 1974,	74-28	4
27.	Santa Catalina Island - Subarea Three, Farnsworth Bank Ecological Reserve	March 21, 1974,	74-28	4
28.	Santa Catalina Island - Subarea Four, Binnacle Rock to Jewfish Point	March 21, 1974,	74-28	4
29.	San Diego-La Jolla Ecological Reserve	March 21, 1974,	74-28	9
30.	Heisler Park Ecological Reserve	March 21, 1974,	74-28	9
31.	San Diego Marine Life Refuge	March 21, 1974,	74-28	9
32.	Newport Beach Marine Life Refuge	April 18, 1974	74-32	8
33.	Irvine Coast Marine Life Refuge	April 18, 1974	74-32	8
34.	Carmel Bay	June 19, 1975	75-61	3

B. OUTSTANDING* NATIONAL RESOURCE WATERS

TABLE VI-2
OUTSTANDING NATURAL RESOURCE WATERS
(DESIGNATED OR APPROVED BY THE STATE WATER RESOURCES CONTROL BOARD)

No.	ONRW Name	Date Designated or Approved by SWRCB	SWRCB Resolution No.	Region No.

C. OUTSTANDING* STATE RESOURCE WATERS

TABLE VI-3
OUTSTANDING STATE RESOURCE WATERS
(DESIGNATED OR APPROVED BY THE STATE WATER RESOURCES CONTROL BOARD)

No.	OSRW Name	Date Designated or Approved by SWRCB	SWRCB Resolution No.	Region No.

Appendix C
Environmental Checklist Form

ENVIRONMENTAL CHECKLIST

A. Background

1. Name of Proponent — State Water Resources Control Board

2. Address and Phone Number of Proponent: — Division of Water Quality
Frank Palmer, Chief (916) 657-0797
Ocean Standards Unit
P.O. Box 944213, Sacramento, CA 94244-2130

3. Date Checklist Submitted: — October 16, 1998

4. Agency Requiring Checklist: — Resources Agency of California

5. Name of Proposal, if Applicable: — Proposed amendments for the California Ocean Plan

B. Environmental Impacts
(Explanations are included in comments section immediately following Checklist).

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	LAND USE AND PLANNING.				
	Would the proposal:				
a.	Conflict with general plan designation or zoning?	[ ]	[ ]	[ ]	[X]
b.	Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project?	[ ]	[X]	[ ]	[ ]
c.	Be incompatible with existing land use in the vicinity?	[ ]	[X]	[ ]	[ ]
d.	Affect agriculture resources or operations (e.g. impacts to soils or farmlands or impacts from incompatible land uses)?	[ ]	[ ]	[ ]	[X]
e.	Disrupt or divide the physical arrangement of an established community (including a low- income or minority community)?	[ ]	[X]	[ ]	[ ]
II.	POPULATION AND HOUSING.				
	Would the proposal:				
a.	Cumulatively exceed official regional or local population projections?	[ ]	[ ]	[ ]	[X]
b.	Induce substantial growth in an area either directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	[ ]	[ ]	[ ]	[X]
c.	Displace existing housing especially affordable housing?	[ ]	[ ]	[ ]	[X]

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
III.	GEOLOGIC PROBLEMS				
	Would the proposal result in or expose people to potential impacts involving:				
a.	Fault rupture?	[ ]	[ ]	[ ]	[X]
b.	Seismic ground shaking?	[ ]	[ ]	[ ]	[X]
c.	Seismic ground failure, including liquefaction?	[ ]	[ ]	[ ]	[X]
d.	Seiche, tsunami, or volcanic hazard?	[ ]	[ ]	[ ]	[X]
e.	Landslides or mudflows?	[ ]	[ ]	[ ]	[X]
f.	Erosion, changes in topography or unstable soil conditions from excavation, grading or fill?	[ ]	[ ]	[ ]	[X]
g.	Subsidence of the land?	[ ]	[ ]	[ ]	[X]
h.	Expansive soils?	[ ]	[ ]	[ ]	[X]
i.	Unique geologic or physical features?	[ ]	[ ]	[ ]	[X]
IV.	WATER				
	Would the proposal result in:				
a.	Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	[ ]	[ ]	[ ]	[X]
b.	Exposure of people or property to water related hazards such as flooding?	[ ]	[ ]	[ ]	[X]
c.	Discharge into surface water or other alteration of surface water quality (e.g. temperature, dissolved oxygen or turbidity)?	[ ]	[ ]	[ ]	[X]
d.	Changes in the amount of surface water in any water body?	[ ]	[ ]	[ ]	[X]
e.	Changes in currents or the course or direction of surface water movements?	[ ]	[ ]	[ ]	[X]
f.	Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations or through substantial loss of ground water recharge capability?	[ ]	[ ]	[ ]	[X]
g.	Altered direction or rate of flow of ground water?	[ ]	[ ]	[ ]	[X]
h.	Impacts to ground water quality?	[ ]	[ ]	[ ]	[X]
i.	Substantial reduction in the amount of ground water otherwise available for public water supplies?	[ ]	[ ]	[ ]	[X]

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
V.	AIR QUALITY Would the proposal:				
a.	Violate any air quality standard or contribute to an existing or projected air quality violation?	[ ]	[ ]	[ ]	[X]
b.	Expose sensitive receptors to pollutants?	[ ]	[ ]	[ ]	[X]
c.	Alter air movement, moisture, or temperature, or cause any change in climate?	[ ]	[ ]	[ ]	[X]
d.	Create objectionable odors?	[ ]	[ ]	[ ]	[X]
VI.	TRANSPORTATION/CIRCULATION Would the proposal result in:				
a.	Increased vehicle trips or traffic congestion?	[ ]	[ ]	[ ]	[X]
b.	Hazards to safety from design features (e.g. farm equipment)?	[ ]	[ ]	[ ]	[X]
c.	Inadequate emergency access or access to nearby uses?	[ ]	[ ]	[ ]	[X]
d.	Insufficient parking capacity on- site or off- site?	[ ]	[ ]	[ ]	[X]
e.	Hazards or barriers for pedestrians or bicyclists?	[ ]	[ ]	[ ]	[X]
f.	Rail, waterborne or air traffic impacts?	[ ]	[ ]	[ ]	[X]
g.	Conflicts with adopted policies supporting transportation (e.g., bus turnouts, bicyclists racks)?	[ ]	[ ]	[ ]	[X]
VII.	BIOLOGICAL RESOURCES Would the proposal result in impacts to:				
a.	Endangered, threatened or rare species or their habitats (including but not limited to plants, fish, insects, animals, and birds)?	[ ]	[ ]	[ ]	[X]
b.	Locally designated species?	[ ]	[ ]	[ ]	[X]
c.	Locally designated natural communities (e.g. oak forest, coastal habitat, etc.)?	[ ]	[ ]	[ ]	[X]
d.	Wetland habitat (e.g. marsh, riparian and vernal pool)?	[ ]	[ ]	[ ]	[X]
e.	Wildlife dispersal or migration corridors?	[ ]	[ ]	[ ]	[X]
VIII.	ENERGY AND MINERAL RESOURCES Would the proposal:				
a.	Conflict with adopted energy conservation plans?	[ ]	[ ]	[ ]	[X]
b.	Use non- renewable resources in a wasteful and inefficient manner?	[ ]	[ ]	[ ]	[X]
c.	Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State?	[ ]	[X]	[ ]	[ ]

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
IX.	HAZARDS				
Would the proposal involve:					
a.	A risk of accidental explosion or release of hazardous substances (including, but not limited to: oil, pesticides, chemicals or radiation)?	[ ]	[ ]	[ ]	[X]
b.	Possible interference with an emergency response plan or emergency evacuation plan?	[ ]	[ ]	[ ]	[X]
c.	The creation of any health hazard or potential health hazard?	[ ]	[ ]	[ ]	[X]
d.	Exposure of people to existing sources of potential health hazards?	[ ]	[ ]	[ ]	[X]
e.	Increased fire hazard in areas with flammable brush, grass, or trees?	[ ]	[ ]	[ ]	[X]
X.	NOISE				
Would the proposal result in:					
a.	Increases in existing noise levels?	[ ]	[ ]	[ ]	[X]
b.	Exposure of people to severe noise levels?	[ ]	[ ]	[ ]	[X]
XI.	PUBLIC SERVICES				
	Would the proposal have an effect upon or result in a need for new or altered government services in any of the following areas:				
a.	Fire protection?	[ ]	[ ]	[ ]	[X]
b.	Police protection?	[ ]	[ ]	[ ]	[X]
c.	Schools?	[ ]	[ ]	[ ]	[X]
d.	Maintenance of public facilities, including roads?	[ ]	[X]	[ ]	[ ]
e.	Other governmental services?	[ ]	[ ]	[ ]	[X]
XII.	UTILITIES AND SERVICE SYSTEMS				
	Would the proposal result in a need for new systems or supplies or substantial alterations to the following utilities:				
a.	Power or natural gas?	[ ]	[ ]	[ ]	[X]
b.	Communications systems?	[ ]	[ ]	[ ]	[X]
c.	Local or regional water treatment or distribution facilities?	[ ]	[ ]	[ ]	[X]
d.	Sewer or septic tanks?	[ ]	[X]	[ ]	[ ]

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e.	Storm water drainage?	[ ]	[X]	[ ]	[ ]
f.	Solid waste disposal?	[ ]	[X]	[ ]	[ ]
g.	Local or regional water supplies?	[ ]	[ ]	[ ]	[X]
XIII.	AESTHETICS Would the proposal:				
a.	Affect a scenic vista or scenic highway?	[ ]	[ ]	[ ]	[X]
b.	Have a demonstrable negative aesthetic effect?	[ ]	[ ]	[ ]	[X]
c.	Create light or glare?	[ ]	[ ]	[ ]	[X]
XIV.	CULTURAL RESOURCES Would the proposal:				
a.	Disturb paleontological resources?	[ ]	[ ]	[ ]	[X]
b.	Disturb archaeological resources?	[ ]	[ ]	[ ]	[X]
c.	Affect historical resources?	[ ]	[ ]	[ ]	[X]
d.	Have the potential to cause a physical change which would affect unique ethnic cultural values?	[ ]	[ ]	[ ]	[X]
e.	Restrict existing religious or sacred uses within the potential impact area?	[ ]	[ ]	[ ]	[X]
XV.	RECREATION Would the proposal:				
a.	Increase the demand for neighborhood or regional parks or other recreational facilities?	[ ]	[ ]	[ ]	[X]
b.	Affect existing recreational opportunities?	[ ]	[ ]	[ ]	[X]
XVI.	MANDATORY FINDINGS OF SIGNIFICANCE				
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, threaten to eliminate a plant or animal community. Reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	[ ]	[ ]	[ ]	[X]
b.	Does the project have the potential to achieve short- term, to the disadvantage or long- term, environmental goals?	[ ]	[ ]	[ ]	[X]
	probable future projects).	[ ]	[ ]	[ ]	[X]
c.	Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	[ ]	[ ]	[ ]	[X]

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d.	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	[ ]	[ ]	[ ]	[X]

C. Determination

Based on the evaluation in FED (Environmental Effects Section), I find that the proposed amendments for the California Ocean Plan will not have a significant adverse effect on the environment.

_____

Date 1998 Stan Martinson, Chief
Division of Water Quality
State Water Resources Control Board

ENVIRONMENTAL CHECKLIST

Proposed Amendment #1 proposes to replace the Acute Toxicity Effluent Limitations (ATEL) in Table A with an Acute Toxicity Water Quality Objective.

Amendment #2 proposes to revise 11 water quality objectives and adds one.

Amendment #3 revises the compliance determination section of the Ocean Plan.

Proposed Amendments #4 (Change of Plan Format), and #6 (Administrative changes to the Ocean Plan) do not meet the definition of a "Project" under CEQA. Amendments #4 and #6 are intended to clarify existing language and format of the Ocean Plan. Amendment #5 (Development of Special Protection for National Marine Sanctuaries), would include definitions, procedures and implementation measures for the designation of ASBS and ONRWs that would be based on existing state and federal law and federal guidance [see page 93]. Amendment #5 includes the creation of a new class of protected water, the "OUTSTANDING STATE RESOURCE WATER" (OSRW), which is not included in existing state or federal laws, but is described in federal guidance documents, and has been approved in the water quality standards of several states.

Issue #5 does not require economic analysis for the creation of OSRWs at this preliminary stage, but it does require environmental analysis of potential impacts. The checklist comments in the following section pertain to Amendment #5 only.

General Description: If an area of the ocean waters under state jurisdiction is nominated as an Outstanding State Resource Water (OSRW), it could be considered for designation by a Regional Water Quality Control Board (RWQCB) or the State Water Resources Control Board (SWRCB). If the nominated area is designated by either board, new discharges of waste to the area would be prohibited, and new discharges outside of the area would have to be planned so the discharge would not lower water quality within the area. Existing waste discharges would be reviewed to determine if there is a reasonable potential for causing water quality within the designated area to be lowered. If not, the discharge could continue until the next scheduled review. If so, an

analysis would determine if reasonable measures could be imposed to ensure that water quality in the designated area would not be lowered. If no reasonable measures are found, options include phasing out the discharge, allowing the discharge to continue for some time under conditions, modifying the boundary of the OSRW, and rescinding the designation. There may be other options. Any decision to change the designation would require findings that the action was necessary to accommodate important economic or social development in the region or watershed in which the OSRW is located. The action would require review and approval by the U.S. EPA.

No OSRWs have been nominated and it is not known at this time when, and if, some may be nominated. If an OSRW is nominated, it may not be designated by the RWQCB or SWRCB considering the nomination. Therefore, it is too speculative at this time to define potential OSRW designations or environmental impacts.

B.1.b. Conceivably, an OSRW could be designated which has an existing discharge from a project utilizing a combination waste treatment lagoon and waterfowl habitat area. If it was found at some point in time that the project was causing, or had the potential to cause, a lowering of water quality within the OSRW, it is possible the project would have to be altered.

B.1.c. If land use plans included storm drains, watershed drainage projects or right-of-ways for projects that discharged into an OSRW, and there was a reasonable potential for the land use plans to cause water quality to be lowered in the OSRW, the plans could be found incompatible with the designation. However, if a RWQCB or the SWRCB is considering a nomination for an OSRW, it is assumed the environmental analysis would reveal any potential conflicts and mitigation measures. If an OSRW has been designated and another agency is considering land use plans which might conflict with the purposes of the OSRW, it is assumed also that the environmental analysis for the land use plan would reveal potential conflicts.

B.1.e. If an OSRW is designated and there is an established community which has a community waste disposal facility discharging into the OSRW, it is conceivable that the waste could be found to have a reasonable potential to lower water quality within the OSRW. A situation could exist in which the community would be required to construct collection facilities, or upgrade treatment works, or improve discharge facilities. If any of these measures were a reasonable solution but the community could not finance them, there could be a problem. However, it is possible that local districts could be formed and grants and/or loans could help finance the necessary project.

B.VIII.c. If an OSRW is designated, there could be a situation where undersea exploratory or production drilling for oil would conflict with the purposes of the OSRW. A determination would have to be made concerning potential impacts and mitigation measures with a specific designated area and a specific project proposal.

B.XI.d. If an OSRW is designated, nonpoint source waste discharges will have to be controlled to a reasonable extent to prevent a lowering of water quality within the OSRW. It is possible that road maintenance would have to be increased or improved to achieve appropriate “best

management practices" (BMPs). There could be situations where significant erosion from public lands, drainage courses or highway embankments would be found to be a threat to water quality in the OSRW and improvements would be required.

B.XII.d. As previously described in B.I.e., an existing municipal waste discharge into an OSRW may be found to have a reasonable potential for lowering water quality within the designated area. If so, the collection system, waste treatment facility or discharge facility may be required to change and cause secondary impacts. It is premature to attempt to define potential secondary impacts or mitigation measures at this time. However, the type of secondary impacts could be related to construction of collection systems, enlargement of treatment facilities, or extension or enlargement of waste discharge outfalls.

There may be watersheds tributary to coastal waters where septic tanks are not maintained adequately to prevent bacterial contamination of coastal waters, but the problem has not had sufficient priority to result in correction. If the coastal waters are designated as an OSRW, it may raise the priority for corrective measures required of septic tank owners.

B.XII.e. Existing storm water drainage into a designated OSRW may be found to have a potential for causing unacceptable changes in water quality or biological communities within the OSRW. Corrective measures could include new, more stringent, BMPs for asphalt surfaces, pesticide use, rubbish disposal, industrial yards, land surfaces and drainage ways.

B.XII.f. Solid waste disposal in the form of dredged material, or fill, may not be acceptable within a specific OSRW. However, there is provision for temporary, limited changes in water quality within a designated area, so a particular project could be approved under conditions required for the amount and type of material, the season and length of time of disposal, etc.

GENERAL CHECKLIST COMMENTS

I.a.,b.,c.,e.,d. Land use and planning (e.g., general plans and zoning) delineate those areas that will be developed, and the type and density of development to be allowed. The area affected by this project includes only coastal and ocean waters of California. There is nothing in the proposed amendments that requires property to be used in any way or prohibits property uses.

II.a.,b.,c.;XV.a. Proposed amendments are not expected to cause Growth-Inducing Impacts.

III.a.,b.,d. These geologic actions are not caused by water pollution. However, people could potentially be exposed to such impacts during the construction or operation of new facilities to treat water pollution. Proposed amendments are not expected to cause construction or operation impacts.

III.c. Liquefaction occurs in the subsurface when the mechanical behavior of a granular material is transformed from a solid state to a liquid state due to loss of grain-to-grain contact during earthquake shaking. It occurs most often in areas underlain by saturated, unconsolidated sediments. Seismic ground failure is not caused or affected by water pollution.

III.a.,b.,d.,e.,f.,g.,i.;V.d.;VI.a.,b.,c.,d.,e.,f.,g.;VIII.a.,b.;IX.a.,b.,e.;X.a.,b.;XI.a.,b.,c.,d.,e.;XII.a.,b.,f.;

XIII.a.,b.,c.;XIV.a.,b.,c.,d.,e. Exposure of people to geologic actions, landslides, erosion, impacts to transportation systems, energy impacts, odors, impacts to public services and utilities, impacts to wildlife areas, and impacts to aesthetics or cultural resources could occur during the construction or operation of new facilities to treat water pollution. Proposed amendments are not expected to cause the construction or operation of new facilities.

III.h. Expansion of soils is influenced by amount of moisture change and the type of soil (the amount of clay in the soil, and the type of minerals in the clay). Shrink-swell is measured by the volume change in the soil. Water pollutants do not significantly affect the shrink-swell capacity of soils. The proposed amendments are not expected to affect soils.

IV.a.,b.,d.,e.,f.,g.,i. Proposed amendments to the Ocean Plan are not expected to affect Levels of toxic substances do not affect absorption rates, drainage patterns, surface runoff, flooding, quantity of surface or ground water, surface water currents, or ground water flow or supply.

IV.c. Concerning Amendment #1 , the new water quality-based acute toxicity objective is expected to provide procedures that would serve to better protect ocean waters for identified beneficial uses by more accurately assessing aquatic community responses to ocean waste discharges. For Amendment #2, the new water quality objectives are expected to provide increased protection to marine waters. Amendment #3 is not expected to change existing protections for marine waters. (See pg. 83).

IV.h.;V.a.,b. The proposed amendments are not expected to adversely affect ground water or air quality.

V.c. Proposed amendments to the Ocean Plan are not expected to significantly affect temperature, humidity, precipitation, winds, cloudiness, or other atmospheric conditions.

VII.a.,b.,c.,d.,e.;XVI.a. The proposed amendments are not expected to cause any significant adverse effects to plants and animals, including rare, threatened, or endangered species. Regarding Amendment #1, (the ATEL amendment), the proposed changes will serve to better protect ocean waters for identified beneficial uses because the new water quality-based acute toxicity objective will more accurately assess aquatic community response to ocean waste discharges (See pg. 24). Additionally, Amendments #2 is expected to provide increased protections to marine communities. Amendment #3 (Compliance Determination) is expected to leave current protections for marine communities unchanged.

VIII.c. The proposed amendments do not involve or affect the mining of mineral resources.

IX.c.,d.;XVI.d. The proposed Ocean Plan amendments are not expected to cause adverse effects to human health (See pg. 37).

XII.c.,d.,e.,g. Effects on water utility and service systems could potentially occur if the proposed Amendments would cause dischargers to have to take compliance actions that involved construction or substantial alterations to treatment facilities. However, proposed amendments are not expected to require dischargers to take such compliance actions. For Amendment #1, based on a survey of waste dischargers and private laboratories potentially affected by this proposed amendment, one of eight respondents surveyed indicated potential one-time costs to dilute effluent for toxicity testing for the purchase of a diluter, at between $5,000 to $10,000.00. For Issues #2 and #3, no effects on water utility in service systems expected.

XV.b. Toxic pollutants in water and sediment can affect recreational opportunities such as swimming if water quality criteria/objectives are not achieved in a water body.

Appendix D
List of Preparers

Appendix D List of Preparers

This Functional Equivalent Document was prepared by the following staff members at the State Water Resources Control Board:

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