No. 23-753

IN THE

Supreme Court of the United States

CITY AND COUNTY OF SAN FRANCISCO,

Petitioner,

v.

ENVIRONMENTAL PROTECTION AGENCY,

Respondent.

On Writ of Certiorari to the United States Court of Appeals for the Ninth Circuit

JOINT APPENDIX

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Petition for a Writ of Certiorari Filed January 8, 2024
Petition for a Writ of Certiorari Granted May 28, 2024

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STATE OF CALIFORNIA STATE WATER RESOURCES CONTROL BOARD ORDER GRANTING DISCHARGER'S REQUEST FOR AN EXCEPTION TO THE 1978 WATER QUALITY CONTROL PLAN FOR OCEAN WATERS OF CALIFORNIA (MARCH 23, 1979)

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of the Request for An Exception to the 1978 Water Quality Control Plan for Ocean Waters of California by the City and County of San Francisco for the Richmond Sunset Sewerage Zone Wet Weather Diversion Structures.

Order No. WQ 79-16

BY THE BOARD:

The City and County of San Francisco (dischargers) have a combined storm and wastewater collection system. When rainfall exceeds 0.02 inches per hour, untreated domestic wastewater mixed with stormwater runoff is discharged into the Pacific Ocean through any of eight wet weather diversion structures in the Richmond Sunset Sewerage Zone. These facilities are located on the West or Ocean side of the penninsula.

On March 16, 1976, the California Regional Water Quality Control Board, San Francisco Bay Region

(Regional Board) adopted Order No. 76-23, Waste Discharge Requirements for the wet weather diversion structures. Order No. 76-23 required the discharger to reduce the frequency of discharge from diversion structures from an average of 114 overflow events per year to an average of one overflow event per year and to undertake a study to better define the cost and water quality benefits of facilities designed to achieve various overflow frequencies. Upon completion and submittal of the study on December 15, 1978, the discharger requested the Regional Board to consider an increase in the allowable frequency of the discharge for the wet weather diversion structures from an average of one overflow per year to an average of eight overflows per year.

Broadly speaking, the *1978 Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) prohibits the discharge or by-pass of wastewater to the ocean not conforming to the standards in the Ocean Plan. Exceptions to the standards contained in the Ocean Plan may be granted on a case by case basis. Untreated wet weather diversions require an exception to the Ocean Plan.[1]

On January 16, 1979, the Regional Board adopted Order No. 79-12, amending Order No. 76-23 to allow an average of eight overflows per year. Based on the evidence presented at public hearing, the Regional Board determined that an exception to the Ocean Plan is warranted. By letter dated February 5, 1979, the Regional Board requested the State Water Resources Control Board (State Board) to review and approve

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[1] See discussion under II. Ocean Plan, page 7.

exceptions to the Ocean Plan as recommended by Regional Board Order No. 79-12.

On March 16, 1979, the State Board held a public hearing to receive evidence pertaining to the request for an exception to the Ocean Plan.

I. EXISTING WASTE COLLECTION AND DISPOSAL SYSTEM COMPARED TO THE PROPOSED SYSTEM.

San Francisco is the only city in California with a completely combined sanitary and stormwater system.[2] The City and County of San Francisco is comprised of three hydro-graphic sub-units and the plans for the collection and treatment of wastewater and stormwater runoff correspond to the sub-units. The Richmond Sunset Sewerage Zone corresponds to the most western sub-unit and may be defined, generally, as that portion of the County north of the San Francisco-San Mateo county line and draining the western slope of the coastal hills dividing the County. Currently, all sewered wastes are routed to the waste treatment plant situated in the western end of the Golden Gate Park. The plant provides primary treatment and chlorination to wastewater prior to ocean discharge. As indicated previously, when rainfall exceeds 0.02 inches per hour, untreated domestic wastewater mixed with stormwater runoff is by-passed from the sewer lines carrying wastewater and runoff to the treatment plant into the ocean through any of eight wet weather diversion structures. From south to north, the diversion structures are situated near Lake Merced, Vicente

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2 *Water Quality Control Plan Report, San Francisco Bay Region*, Chapter 16, page 73.

Street, Lincoln Way, Mile Rock and four are grouped on Bakers Beach.

The outfalls range widely in size and discharge onto the Beach at or near the waters edge. For instance, the out-fall at Lake Merced is about ten feet by eleven feet, the out-fall at Vicente Street is two barrels about five feet in diameter and the smallest outfall, near Bakers Beach, is eighteen inches in diameter.

The discharger is proposing to construct storage, pumping, treatment and outfall facilities in the Richmond Sunset Zone to comply with waste discharge requirements including the requirement that (with the exception of an average of eight allowable overflows per year) the discharge of untreated waste is prohibited.[3]

> "The concept which underlies all overflow alternatives in the Great Highway is an "intercepting system" whereby the sewer functions as a storage facility and as a transport conduit. By maximizing the continuous movement of sewage in a storage facility, excessive deposition of solids is prevented. The major storage facility (Westside Transport) is located under the Upper Great Highway between Fulton Street and the Westside

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[3] As amended by Order 79-12, Regional Board Order No. 76-23, Discharge Prohibition A.1 provides in part:

> Discharge of untreated waste to waters of the State is prohibited with the exception of allowable overflows as defined below. The City shall design and construct facilities for diversion structures No. 1-8 to achieve a long term average of 8 overflows per year from these facilities.

Pump Station just south of Sloat Boulevard. The Richmond and Lake Merced area flows will be collected and directed to storage in the Westside Transport via tunnels.[4]

"Storm flows would be by gravity to the Westside Transport for storage and transport to the Westside Pump Station, then pumped to the proposed Southwest Water Pollution Control Plant (SWWPCP) south of the Zoo for treatment. Effluent would be discharged into the ocean two miles offshore via a deep-water outfall. When storage and withdrawal rates are exceeded, by-passing would occur with some control through the Vicente and Lincoln Way Outfalls, Lake Merced and Bakers Beach (Richmond) Outfalls with possible selectivity into the Mile Rock Outfall... The existing Richmond Sunset Water Pollution Control Plant located in Golden Gate Park will be abandoned, thereby returning four acres of park land to recreational uses.

* * *

"The Mile Rock Outfall (shoreline discharge) now functions as both the effluent outfall for the Richmond Sunset plant and as a wet weather overflow discharge for flows originating in the westerly portion of the Richmond Sunset district. Upon relocation of the dry-weather treatment to the Southwest side, dry-weather discharges to Mile Rock would

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[4] *Abstract Report Westside Wet Weather Facility Revised Overflow Control Study*, December 1978, Section IV, page 4.

cease and wet weather discharges would be reduced to the specified frequency."[5]

The proposed Southwest Water Pollution Control Plant referred to in the foregoing quotations would be located immediately south of the grounds of the Fleishhacker Playground and Zoo and Sloat Boulevard. As envisioned, currently, a storage facility designed for a rate of eight overflows/year would consist of a channel seventeen and one-half wide and twelve to forty-five feet deep, running along the Great Highway between Fulton to Lincoln Way. The discharger does not propose to make any physical alterations to the existing wet weather outfalls.

The following table abstracted from Finding 4 of Regional Board Order No. 79-12 provides a comparison between the performance of the existing facilities and the performance anticipated in a system designed for an average of eight overflow incidents annually.

Average Number of Overflows Per Year	Existing 114	Proposed 8
Minimum/maximum number of overflows per year	26/193	1/18
Percent of annual combined wastewater treated (avg.)	74.1	95.9
Percent of annual combined wastewater which overflows (avg.)	25.9	4.1

[5] Section IV, page 5 of report cited previously. (Note 4).

Volume of overflow (Million gallons/year, avg.)	2870	449
Total hours of overflow per year (avg.)	372	32
Minimum/maximum hours of overflow per year	163/617	2/78
Average duration of overflow (hours)	3.3	4
Composition of overflows (avg.)		
Percent sewage	12	6.5
Percent storm water	88	93.5
Percent reduction in BOD_5 and Suspended Solids discharged from existing overflows (avg.)	base	84
Average number of days nearshore water adjacent to discharge points exceed coliform standards for body contact recreation		
days greater than 1000 MPN/100 ml	119	25
days greater than 10,000 MPN/100 ml	70	10

II. THE OCEAN PLAN

The Ocean Plan was adopted to protect a wide range of beneficial uses[6], Order No. 76-23 indicates that to some degree the following beneficial uses are made of the ocean waters in the vicinity of the diversion structures: (1) Water Contact Recreation; (2) Non-contact Water Recreation; (3) Marine Habitat; (4) Commercial and Sport Fishing; (5) Fish Migration; and (6) Wildlife Habitat.[7]

To protect beneficial uses, the Ocean Plan provides for the concurrent application of certain regulatory mechanisms (standards) to discharges into ocean waters. These mechanisms can be broadly identified as including:

1) Water Quality Objectives (Chapter II).

2) General Management Requirements (Chapter III).

3) Effluent Quality Requirements (Chapter IV).

4) Discharge Prohibitions (Chapter V).

Exception to the standards contained in Chapters II through V, is provided for in Section G, Chapter VI., which provides:

> "The State Board may, subsequent to a public hearing, and with the concurrence of the Environmental Protection Agency, grant exceptions to any provision of this Plan where the Board determines:

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[6] Chapter I, Ocean Plan.

[7] For definitions of these uses, see Chapter 4, pages 1-5, *Water Quality Control Plan Report*, *San Francisco Bay Region*.

1) The existence of unusual circumstances not anticipated at the time of the Plan's adoption;

2) The exception will not compromise protection of ocean waters for beneficial uses; and

3) The public interest will be served.

To some degree, authorization of the continued use of the wet weather diversion structures will require an exception to each of these regulatory mechanisms.

A. Circumstances Not Anticipated

Examination of the record in this matter clearly indicates "[t]he existence of unusual circumstances not anticipated at the time of the Plan's adoption." One such circumstance arises out of the Ocean Plan's failure to address, directly, how it would regulate the by-passing of combined waste flows.

Referring to the record pertaining to the State Board's adoption of the 1978 amendments to the Ocean Plan, it is patently clear that it was realized it was inappropriate to apply Ocean Plan standards strictly to combined waste and stormwater discharges. The record indicates, further, that rather than address this problem in the 1978 Ocean Plan amendments, directly, it was decided to deal with such problems on a case-by-case basis via the exception mechanism. Plainly it was not considered possible to anticipate in what manner the Ocean Plan should be modified to deal with the circumstances that would be presented by particular combined wet weather discharges. Additionally, it was realized that the discharges in

question here would, in all probability be the subject of an exception proceeding under the Ocean Plan.[8]

Finally, it should be recognized that, with the exception of the planned eight overflow events, the City will be providing waste treatment to all stormwater runoff contained in the proposed system (about 86 percent). This contrasts, markedly, with the vast majority of communities that collect and discharge stormwater runoff without any treatment because runoff is not comingled with domestic waste flows. We conclude, therefore, that present in this request for an exception are unusual circumstances not anticipated at the time of the Ocean Plan's adoption.

B. Protection of Waters for Beneficial Uses

No exception to the Ocean Plan may be granted if protection of ocean waters for beneficial uses will be compromised. Considering the testimony presented at the March 16, 1979, hearing and reviewing the Regional Board's record on this matter, it appears that those beneficial uses of concern are: contact and non-contact water recreation; marine habitat and sport fishing. The proposed wet weather diversions have three characteristics which may adversely affect these beneficial uses, that is, toxicity, coliform and floatables.

A wet weather diversion may contain toxic components which pose a threat to marine habitat and sport fishing. Table B of the Ocean Plan provides specific limitations for certain toxic materials.[9] Relying

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[8] Position Paper 7, Proposed Amendment of Ocean Plan, December 29, 1977

[9] Chapter IV, Ocean Plan.

upon the discharger's *Abstract Report Westside Wet Weather Facility Revised Overflow Control Study*, December 1978 (Abstract Report) the Department of Fish and Game[10] testified that the discharger's investigation indicated that lead, copper and zinc would be present in the wastewaters by-passed in excess of permissible Table B concentrations.[11]

Although stormwater is initially high in concentrations of toxic materials, the concentrations are rapidly diluted by additional stormwater runoff. Averaging four hours in duration, the discharges are intermittent. Bioassays involving placement of three spine stickleback in undiluted combined effluent for 96 hours resulted in one hundred percent survival of the fish more than fifty percent of the time. Although this fish is more pollutant tolerant, no organisms in the marine environment would ever be exposed to undiluted overflow for more than a few hours.[12] It should be noted, additionally, that the Department indicated it had no specific information showing that marine habitat had been impaired from the many years of by-passing of these metals at high frequencies and concentrations. It is anticipated that the proposed system will provide waste treatment to about eighty-six percent of stormwater runoff. In the long run, therefore, the amount of toxic substances entering the ocean from the proposed system will be substantially less than from other communities that do not have a combined system. Under these circumstances, we do not conclude

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[10] Testimony by Mike Martin, Ph.D.

[11] Table V-3.

[12] Section V, page 4, Abstract Report.

that the marine habitat and sport fishing beneficial uses will be compromised because of toxic concentrations of lead, copper and zinc. However, special provisions to reduce the concentration of toxic materials will be made a condition of the exception granted by this Order.

Coliform are a group of bacteria predominantly inhabiting the intestines of man or animals. Coliform organisms are used as indicators of the possible presence of disease organisms. Of concern, to health officials are the diseases of Shigellosis, Salmonellosis and Hepatitis A. Provision A "Bacteriological Characteristics", Chapter II, of the Ocean Plan contains coliform standards intended to prevent the transmission of disease.

Wet weather discharges may contain coliform in concentrations that would make contact and non-contact recreation uses unsafe. Disease organisms may also contaminate shellfish, making harvesting unsafe for short periods of time. Coliform will be present in the wet weather discharges for which exception is sought due to the comingling of untreated domestic wastewater and stormwater runoff in the combined sewer system. Untreated wastewater will make up about 6.5 percent of the total volume of overflows if San Francisco implements the eight by-pass proposal.

Under current wet weather discharge conditions, the beach areas are posted as being unsafe for contact recreation from about October to April of each year due to high coliform concentrations. Twenty-five years of epidemiological data, however, shows no clinically confirmed cases of enteric disease from either recreational contact with ocean waters or the consumption

of shellfish harvested from those waters.[13] It is estimated that the proposed facilities will result in coliform concentrations requiring posting of the beaches for an average of about twenty-five days per year.[14] In addition, based on data contained in the Abstract Report it is reasonable to conclude that recreational uses of the beach areas and waters will be minimal and that shell fishing will be unlikely to occur during and immediately following the winter storms that will result in an overflow.[15] Given these circumstances, we do not believe that the elevated coliform concentrations for the time in question constitute a compromise of contact and non-contact recreational uses.

Floatables include fecal matter and other organic and inorganic substances. Such materials may shelter coliform and prolong coliform concentrations in the receiving water. Also, for aesthetic reasons, floatables may interfere with contact and non-contact recreation uses. Chapter III, B, requires that "[w]aste discharged to the ocean must be essentially free of: 1. material that is floatable . . . ".

Current wet weather discharges contain substantial quantities of floatables. By installing a baffling system, it is anticipated that the proposed facilities will reduce the discharge of floatables as much as seventy to ninety-five percent from existing levels.[16] In addition, the storage capacity being built into the proposed facility will result in substantial reduction of

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[13] Section V, page 13, Abstract Report.

[14] Plate 7, Reference Plates, Abstract Report.

[15] Plate 6, Reference Plates, Abstract Report.

[16] Section VII, page 2, Abstract Report.

the amount of settleable solids discharged. As noted under our previous discussion regarding coliform, epidemiological data does not indicate the existence of adverse public health problems associated with the current wet weather discharges. Considering the foregoing discussion, we do not conclude that the beneficial uses under consideration will be compromised by the proposed discharges.

C. Public Interest Considerations

Exemptions to the Ocean Plan cannot be granted unless the public interest will be served by granting such exemptions. Analysis of whether the public interest will be served in this matter necessarily involves protection of beneficial uses of ocean waters, the uniqueness of the discharger's sewer system, and economic impacts in terms of capital costs, operation and maintenance costs and user charges.

The discharger's sewer system is a combined system which collects and routes to the treatment plants both sanitary sewage and stormwater. Whenever rainfall exceeds 0.02 inches per hour, this combined wastewater by-passes the treatment plants and discharges to waters of the United States. This occurs on the average of 114 times per year from various overflow structures located throughout the treatment area. This totally combine system is unique and the only major system of its kind in the state of California. Consequently, when the discharger completes the projects and facilities discussed previously in this Order, presuming eight overflows, they will not only be treating ninety-nine percent of sanitary wastewater but will also be treating eighty-six percent of stormwater runoff. This combined treatment will

substantially reduce pollutant loadings to the ocean from urban runoff, an accomplishment unique to the discharger's system. Unquestionably this serves the public interest.

We have previously discussed protection of beneficial uses. This is an integral part of serving the public interest. Further, the Central Coast Regional Coastal Commission (Regional Commission) has denied the discharger a required development permit based on one overflow in part based on the size and location of the transport necessary for a one overflow system. The Regional Commission's concerns related to future beach erosion, sewer exposure and seismic and groundwater problems. An allowance of eight overflows will allow a smaller transport system to be built. The State Commission has now assumed jurisdiction in this matter.

The cost impacts and savings of allowing eight overflows on the westside are enormous. Considerable evidence was introduced in the Regional Board record and at the hearing regarding these costs and savings. Capital costs of the Westside project assuming one overflow are $299,000,000 and $189,000,000 assuming eight overflows. Thus, an increase in the number of overflows from one to eight would result in a $110,000,000 capital cost saving. The annual operation and maintenance cost savings would be $10,000,000. Table IV-1 of the Abstract Report shows detailed cost comparisons for the various parts of the Westside project. Plate 5 of the Abstract Report tabulates the cost of suspended solid, BOD, and coliform benefits for different overflow levels. The testimony presented indicates substantially diminishing benefit returns per dollar spent as the number of overflows diminishes

below eight. This is clearly demonstrated by the Regional Board graph dated January 15, 1979.

Considerable written and oral testimony was presented to the State Board and the Regional Board regarding citizen concern for user charges. This testimony included comments from The West of Twin Peaks Central Council, The Citizens Advisory Committee for Wastewater Management, The Hotel Employers Association, The Sunset Coalition, The Sunset-Parkside Education and Action Committee, Paul D. Berrigan, Brig. Gen. Retd., Descon Corporation, The San Francisco Bay Chapter Sierra Club, and The Parkside District Improvement Club, Inc. The user charge based on eight overflows is more reasonable than for one or zero.

Based upon the factors above, we find the public interest will be served by granting the discharger an exemption to the Ocean Plan to allow an average of eight overflows per year.

III. EXCEPTION SUBJECT TO CONDITIONS

Subject to the following conditions, this Order excepts the proposed by-passes from the terms of the Ocean Plan.

1. The discharger shall perform a self-monitoring program in accordance with the specifications prescribed by the Regional Board as indicated in Provision 12 of Regional Board Order No. 79-12. All beaches affected by the wet weather overflows shall be posted with warning signs for the period of time beginning when the overflow commences and continuing until analysis indicates the water quality of

the affected areas is meeting bacteriological standards for recreation.

At all areas where shellfish may be harvested for human consumption warning signs shall be posted for the period of time beginning when the overflow commences and continuing until the City and County Health Department indicates that no further posting is required.

2. Excepting provision Chapter II. A., to the greatest extent practical, the discharger shall design, construct and operate facilities which will conform to the remaining standards set forth in Chapter II of the Ocean Plan.

3. To the greatest extent practical, the discharger shall design, construct and operate facilities that will comply with the conditions controlled by the requirements provided by Chapter III, Sections A and B of the Ocean Plan.

4. The discharger shall develop the conceptual proposals for the design to be used and the technologies to be installed in the facilities intended to assure compliance with conditions 2 and 3. The proposals shall be submitted to the State Board and the EPA for approval within sixty days following adoption of this Order.

5. Excepting an average of eight overflows per year, the discharger shall design and construct facilities that will contain all other stormwater

runoff.[17] The discharge of all other untreated waste to waters of the state is prohibited.

6. The State Board Division of Water Quality shall critically review the discharger's grant application and subsequent design and construction and the Regional Board shall review operating performance to assure compliance with conditions 1, 2, 3 and 5.

7. The discharger shall fully comply with any federal and state source control program in order to minimize the entry of toxic substances into the waste collection system from industrial dischargers. To the extent that Section 208 studies being conducted by ABAG conclude there are feasible measures for reducing the entry of toxic substances into the collection system from stormwater runoff, the discharger shall implement such measures in accordance with a plan approved by the Regional Board.

8. Notwithstanding this Order, if the Regional Board finds that changes in location, intensity or importance of affected beneficial uses or demonstrated unacceptable adverse impacts as a result of operation of the constructed facilities have occurred, it may

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[17] For the purpose of this Order, allowable overflows are those overflows permitted by Discharge Prohibitions A.1., Order No. 76-23 as amended by Order No. 79-12. In addition, any two overflows within one storm or a series of storms, separated by six or more hours shall be considered two separate overflow events. This requirement for an average of eight overflows is based upon the 62 year period of rainfall record used by the City in developing its facility design.

require the construction of additional facilities or modification of the operation of existing facilities.

As noted earlier, the exception granted by this Order is subject to the concurrence of the EPA. The EPA may attach, independently, other conditions upon the discharger as a condition of granting an exception.

IV. ADDITIONAL CONSIDERATIONS

The discharger completed a final EIR/EIS for the Wastewater Master Plan in May 1974. The discharger completed a final EIR for the Westside Transport facility in July 1977, which addressed overflows from diversion structures Nos. 2 and 3. This EIR identified potential adverse water quality impacts from this project related to seismic activity and the project has been modified to mitigate this potential impact. This EIR will be amended by the discharger following adoption of this Order. The discharger has commenced preparation of a draft EIR for the Richmond Tunnel facility which will address overflows from diversion structures Nos. 4 through 8, and has indicated they will prepare an EIR for the Lake Merced Transport facility which will address overflows from diversion structure No. 1. Upon completion of the amendment to the Westside Transport facility EIR, the final EIR for the Richmond Tunnel facility, and the final EIR for the Lake Merced Transport facility, the State Board will review any adverse impacts identified, and if necessary, make appropriate revisions of this Order.

V. CONCLUSIONS

After review of the record and for the reasons heretofore expressed, we have reached the following conclusions:

1. Subject to the conditions set forth in "III. EXCEPTION SUBJECT TO CONDITIONS," the proposed wet weather discharges by the City and County of San Francisco from the eight diversion structures in the Richmond Sunset Sewerage Zone are excepted from the requirements of the Ocean Plan.

2. Revisions may be made to this Order upon completion of the amendment to the Westside Transport facility EIR, the final EIR for the Richmond Tunnel and the final EIR for the Lake Merced Transport facility.

VI. ORDER

It is hereby ordered that the discharger's request for an exception is granted subject to the conditions contained in "III. EXCEPTION SUBJECT TO CONDITIONS". Revisions may be made to this Order upon completion of additional environmental documents.

/s/ W. Don Maughan
W. Don Maughan, Chairman

/s/ William J. Miller
William J. Miller, Member

/s/ L. L. Mitchell
L. L. Mitchell, Member

Dated: March 23, 1979

STATE OF CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, WATER QUALITY CONTROL PLAN FOR OCEAN WATERS OF CALIFORNIA (ESTABLISHED 1972, 2019 REVISION)

WATER QUALITY CONTROL PLAN
OCEAN WATERS OF CALIFORNIA

Established 1972

Revised 2019

STATE WATER RESOURCES CONTROL BOARD

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

State of California

Gavin Newsom Governor

California Environmental Protection Agency

Jared Blumenfeld, Secretary

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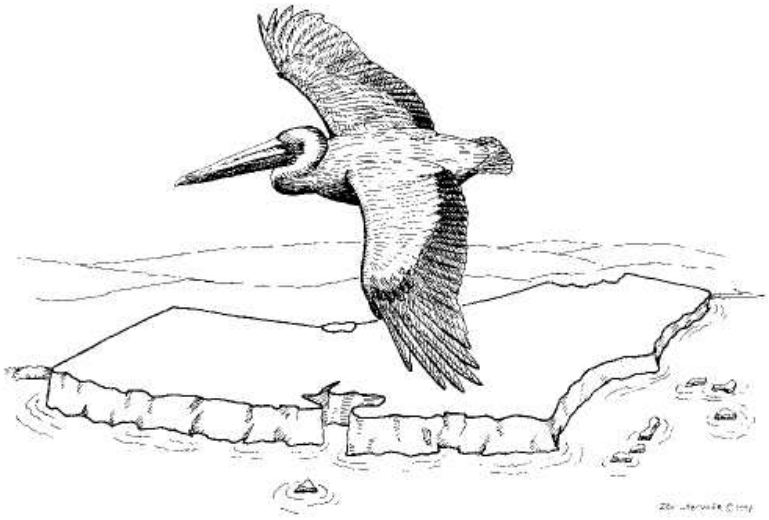

Established 1972
Revised 2019

CALIFORNIA OCEAN PLAN

WATER QUALITY CONTROL PLAN

OCEAN WATERS OF CALIFORNIA

AMENDMENTS TO THE WATER QUALITY CONTROL PLAN FOR OCEAN WATERS OF CALIFORNIA

Name	Amendment to the Water Quality Control Plan for Ocean Waters of California – Bacteria Provisions and a Water Quality Standards Variance Policy	
Date Adopted		8/7/2018
Resolution Number		2018-0038
Effective Date		2/4/2019
Name	Amendment to the statewide Ocean Plan of California addressing desalination facility intakes, brine discharges, and to incorporate other non-substantive changes	
Date Adopted		5/6/2015
Resolution Number		2015-0033
Effective Date		1/28/2016
Name	Amendment to the Water Quality Control Plan for Ocean Waters of California to control trash and part 1 trash provisions of the Water Quality Control Plan for inland surface waters, enclosed bays, and estuaries in California	
Date Adopted		4/7/2015
Resolution Number		2015-0019
Effective Date		1/12/2016

Name	Adoption of the California Ocean Plan Amendments regarding model monitoring, vessel discharges, and non-substantive changes	
Date Adopted		10/16/2012
Resolution Number		2012-0057
Effective Date		7/1/2013
Name	Adopting the California Ocean Plan Amendment implementing State Water Board resolutions 2010-0057 and 2011-013 regarding State Water Quality Protection Areas and Marine Protected Areas	
Date Adopted		10/16/2012
Resolution Number		2012-0056
Effective Date		7/1/2013
Name	Adoption of Proposed Amendments to the California Ocean Plan regarding total recoverable metals, compliance schedules, toxicity definitions, and the list of exceptions	
Date Adopted		9/15/2009
Resolution Number		2009-0072
Effective Date		3/10/2010

Name	Amendment to the California Ocean Plan: (1) Reasonable Potential, Determining When California Ocean Plan Water Quality-Based Effluent Limitations are Required, and (2) Minor Changes to the Areas of Special Biological Significance, and Exception Provisions
Date Adopted	4/21/2005
Resolution Number	2005-0035
Effective Date	10/12/2005
Name	Amendment to California Ocean Plan Water Contact Bacterial Standards
Date Adopted	1/20/2005
Resolution Number	2005-0013
Effective Date	10/12/2005
Name	Adoption of the Proposed Amendments to the California Ocean Plan regarding Table A, chemical water quality objectives, provisions of compliance, special protection for water quality and designated uses, and administrative changes
Date Adopted	11/16/2000
Resolution Number	2000-108
Effective Date	12/3/2001

Name	Adoption of an Amendment to the Water Quality Control Plan for Ocean Waters of California regarding revisions to the list of critical life stage protocols used in testing the toxicity of waste discharges
Date Adopted	3/20/1997
Resolution Number	97-026
Effective Date	7/23/1997

Name	Approval of Amendment to the Water Quality Control Plan for Ocean Waters of California regarding new water quality objectives in Table B
Date Adopted	3/22/1990
Resolution Number	90-027
Effective Date	3/22/1990

Name	Water Quality Control Plan for Ocean Waters of California, California Ocean Plan
Date Adopted	9/22/1988
Resolution Number	88-111
Effective Date	9/22/1988

Name	Water Quality Control Plan for Ocean Waters of California
Date Adopted	11/17/1983
Resolution Number	83-087
Effective Date	11/17/1983

Name	Water Quality Control Plan for Ocean Waters of California	
Date Adopted		1/19/1978
Resolution Number		78-002
Effective Date		1/19/1978
Name	Water Quality Control Plan for Ocean Waters of California	
Date Adopted		7/6/1972
Resolution Number		72-045
Effective Date		7/6/1972

[. . .]

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 (State Water 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 and control of intake seawater* 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.*

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* See Appendix I for definition of terms.

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.J of this Plan, the State Water Board has approved an exception to the Plan requirements, and except in chapter III.M, in which the provisions of this plan shall govern.

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 (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.2, D, E, and I.

2. This plan is not applicable to discharges to enclosed* bays and estuaries* or inland waters or the control of dredged material.*

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. Provisions regulating the intake of seawater* for desalination facilities* are established pursuant to the authority contained in section 13142.5 subdivision

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* See Appendix I for definition of terms.

(b) of the California Water Code (Stats. 1976, Chap. 1330).

5. Within this Plan, references to the State Board or State Water Board shall mean the State Water Resources Control Board. References to a Regional Board or Regional Water Board shall mean a California Regional Water Quality Control Board. References to the Environmental Protection Agency, USEPA, or EPA shall mean the federal Environmental Protection Agency.

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.

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

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* See Appendix I for definition of terms.

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. Bacterial Characteristics

1. Water-Contact Standards

Subsection (a) of this section contains bacteria water quality objectives* adopted by the State Water Board for ocean waters* used for water contact recreation. Subsection (b) describes the beach notification levels for waters adjacent to public beaches and public water contact sports areas in ocean waters*.

a. State Water Board Water-Contact Objectives

(1) 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 Water Board (i.e., waters designated as REC-1), but including all kelp beds*, the following water quality objectives* shall be maintained throughout the water column.

Fecal coliform

A 30-day geometric mean* (GM) of fecal coliform density not to exceed 200 per 100 milliliters (mL),

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* See Appendix I for definition of terms.

calculated based on the five most recent samples from each site, and a single sample maximum* (SSM) not to exceed 400 per 100 mL.

Table 1. Fecal Coliform REC-1 Water Quality Objective for Water-Contact in Ocean Waters*

Indicator	**Magnitude**	**Magnitude**
	30-day GM*	SSM*
Fecal coliform density	200 per 100 mL	400 per 100 mL
GM* = geometric mean SSM* = single sample maximum mL = milliliter		

Enterococci

A six-week rolling GM* of enterococci not to exceed 30 colony forming units (cfu) per 100 milliliters (mL), calculated weekly, and a statistical threshold value* (STV) of 110 cfu/100 mL not to be exceeded by more than 10 percent of the samples collected in a calendar month*, calculated in a static manner. U.S. EPA recommends using U.S. EPA Method 1600 or other equivalent method to measure culturable enterococci.

* See Appendix I for definition of terms.

Table 2. Enterococci REC-1 Water Quality Objective for Water-Contact in Ocean Waters*

Indicator	**Estimated Illness Rate (NGI)**: 32 per 1,000 water contact recreators	
	Magnitude	
	GM* (cfu/100 mL)	STV* (cfu/100 mL)
Enterococci	30	110
The waterbody GM* shall not be greater than the GM* magnitude in any six-week interval, calculated weekly. The STV* shall not be exceeded by more than 10 percent of the samples collected in a calendar month*, calculated in a static manner. NGI = National Epidemiological and Environmental Assessment of Recreational Water gastrointestinal illness rate GM* = geometric mean STV* = statistical threshold value cfu = colony forming units mL = milliliter		

Water Quality Standards Assessment

When applying the listing and delisting factors contained in the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List, the GM*, SSM*, and STV* shall be used as follows, unless a situation-specific weight

* See Appendix I for definition of terms.

of the evidence factor is being applied: Only the GM* value shall be applied based on a statistically sufficient number of samples, which is generally not less than five samples distributed over a six-week period. However, if a statistically sufficient number of samples is not available to calculate the GM*, then attainment of the water quality objective shall be determined based only on the SSM* or STV*. When applying the situation-specific weight of the evidence factor for listing or delisting decisions, any available beach use or beach closure information shall be evaluated.

(2) The "Initial Dilution* Zone" of wastewater outfalls shall be excluded from designation as "kelp beds*" for purposes of bacterial standards, and Regional Water Boards should recommend extension of such exclusion zone where warranted to the State Water Board (for consideration under Chapter III. J.). 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.

b. Beach Notification Levels

Minimum protective bacteriological standards for waters adjacent to public beaches and for public water-contact sports areas in ocean waters* are established in the California Code of Regulations, Title 17 (beginning at div. 1, ch. 5, § 7958 et seq.). When a public beach or public water-contact sports area fails to meet the standards, the California Department of Public Health or the local public

* See Appendix I for definition of terms.

health officer may post with warning signs or otherwise restrict use of the public beach or public water-contact sports area until the standards are met. The regulations impose more frequent monitoring and more stringent posting and closure requirements on certain high-use public beaches that are located adjacent to a storm drain that flows in the summer. The Title 17 bacteriological standards are not water quality objectives.

2. Shellfish* Harvesting Standards

a. At all areas where shellfish* may be harvested for human consumption, as determined by the Regional Water 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

* See Appendix I for definition of terms.

shall not be changed such that benthic communities are degraded.*

5. Trash* shall not be present in ocean waters, along shorelines or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance.

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, Table 3, 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 3 water quality objectives apply to all discharges within the jurisdiction of this Plan. Unless otherwise specified, all metal

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* See Appendix I for definition of terms.

concentrations are expressed as total recoverable concentrations.

b. Table 3 Water Quality Objectives

E. Biological Characteristics

1. Marine communities, including vertebrate, invertebrate, algae, 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.

Table 3 (formerly Table B):
Water Quality Objectives

OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE

		Limiting Concentration		
Units of Measurement		**6-Month Median**	**Daily Maximum**	**Instantaneous Maximum**
Arsenic	µg/L	8.	32.	80.

* See Appendix I for definition of terms.

Cadmium	µg/L	1.	4.	10.
Chromium (Hexavalent) (see below, a)	µg/L	2.	8.	20.
Copper	µg/L	3.	12.	30.
Lead	µg/L	2.	8.	20.
Mercury	µg/L	0.04	0.16	0.4
Nickel	µg/L	5.	20.	50.
Selenium	µg/L	15.	60.	150.
Silver	µg/L	0.7	2.8	7.
Zinc	µg/L	20.	80.	200.
Cyanide (see below, b)	µg/L	1.	4.	10.
Total Chlorine Residual (For intermittent chlorine sources see below, c)	µg/L	2.	8.	60.
Ammonia (expressed as nitrogen)	µg/L	600.	2400.	6000.
Acute* Toxicity	TUa	N/A	0.3	N/A

* See Appendix I for definition of terms.

Chronic* Toxicity	TUc	N/A	1.	N/A
Phenolic Compounds (non-chlorinated)	µg/L	30.	120.	300.
Chlorinated Phenolics	µg/L	1.	4.	10.
Endosulfan*	µg/L	0.0009	0.018	0.027
Endrin	µg/L	0.002	0.004	0.006
HCH*	µg/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 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 3 (formerly Table B): Continued

OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – NONCARCINOGENS

Chemical	30-day Average (µg/L): Decimal Notation	30-day Average (µg/L): Scientific Notation
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
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

* See Appendix I for definition of terms.

hexachloro-cyclopentadiene	58.	5.8×10^{1}
nitrobenzene	4.9	4.9×10^{0}
thallium	2.	$2. \times 10^{0}$
toluene	85,000.	8.5×10^{4}
tributyltin	0.0014	1.4×10^{-3}
1,1,1-trichloroethane	540,000.	5.4×10^{5}

Table 3 (formerly Table B): Continued

OBJECTIVES FOR PROTECTION OF HUMAN HEALTH –CARCINOGENS

Chemical	**30-day Average (µg/L): Decimal Notation**	**30-day Average (µg/L): Scientific Notation**
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}
chlorodibromo-methane	8.6	8.6×10^{0}
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	28.	2.8×10^{1}
1,1-dichloroethylene	0.9	9×10^{-1}
dichlorobromo-methane	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	0.00005	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}

* See Appendix I for definition of terms.

isophorone	730.	7.3×10^{2}
N-nitrosodimethyl-amine	7.3	7.3×10^{0}
N-nitrosodi-N-propylamine	0.38	3.8×10^{-1}
N-nitrosodiphenyl-amine	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-tetrachloro-ethane	2.3	2.3×10^{0}
tetrachloroethylene	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}

Table 3 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 Water Board (subject to EPA approval) that an analytical method is available to reliably distinguish between

* See Appendix I for definition of terms.

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 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 μg/L) to apply when chlorine is being discharged;

x = the duration of uninterrupted chlorine discharge in minutes.

III. PROGRAM OF IMPLEMENTATION

A. General Provisions

1. 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.

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:

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* 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* shall be designated by the State Water Board following the procedures provided in Appendix IV. A list of ASBS* is available in Appendix V.

4. Combined Sewer Overflow: Not withstanding any other provisions in this plan, discharges from the

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* See Appendix I for definition of terms.

City of San Francisco's combined sewer system are subject to the US EPA's Combined Sewer Overflow Policy.

B. Table 4 Effluent Limitation

Table 4 (formerly Table A): Effluent Limitations

		Limiting Concentration		
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	

Table 4 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

* See Appendix I for definition of terms.

> be met shall not be lower than 60 mg/l. Regional Boards may recommend that the State Water Board (chapter III section J), 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 Water 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.

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1. Table 4 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 4 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 State Water Board 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

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* See Appendix I for definition of terms.

Act and administrative procedures pertaining thereto are included in this plan by reference. Compliance with Table 4 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.

4. Compliance with Table 4 effluent limitations for brine discharges from desalination facilities that commingle brine and wastewater prior to discharge to the ocean may be measured after the brine has been commingled with wastewater, provided that the permittee for the commingled discharge accepts responsibly for any exceedances of the Table 4 effluent limitations.

C. Implementation Provisions for Table 3

1. Effluent concentrations calculated from Table 3 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. If the Regional Water Board determines, using the procedures in Appendix VI, that a pollutant is discharged into ocean* waters at levels which will cause, have the reasonable potential to cause, or contribute to an excursion above a Table 3 water quality objective, the Regional Water Board shall incorporate a water quality-based effluent limitation in the Waste Discharge Requirement for the discharge of that pollutant.

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* See Appendix I for definition of terms.

3. Effluent limitations shall be imposed in a manner prescribed by the State Water Board 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.

4. Calculation of Effluent Limitations

a. Effluent limitations for water quality objectives listed in Table 3, 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)

where:

Ce = the effluent concentration limit, μg/L

Co = the concentration (water quality objective) to be met at the completion of initial* dilution, μg/L

Cs = background seawater* concentration (see Table 5 below, with all metals expressed as total recoverable concentrations), μg/L

Dm = minimum probable initial* dilution expressed as parts seawater* per part wastewater.

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* See Appendix I for definition of terms.

Table 5 (formerly Table C): Background Seawater* Concentrations (Cs)

Waste Constituent	Cs (µg/L)
Arsenic	3.
Copper	2.
Mercury	0.0005
Silver	0.16
Zinc	8.
For all other Table 3 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 3 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

* See Appendix I for definition of terms.

wastewater (This equation applies only when Dm > 24).

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 1,000:1 at the edge of the mixing zone.

(2) Dischargers shall conduct either acute or chronic toxicity* testing if the minimum initial* dilution ranges from 350:1 to 1,000:1 depending on the specific discharge conditions. The Regional Water Board 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 350:1. The Regional Water Board 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

* See Appendix I for definition of terms.

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 State Water Board shall identify standard dilution models for use in determining Dm, and shall assist the Regional Board in evaluating Dm for specific waste* discharges. Dischargers may propose alternative methods of calculating Dm, and the Regional Board may accept such methods 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.

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* See Appendix I for definition of terms.

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

where:

Ce = the effluent concentration limit, µg/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.

5. 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

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* See Appendix I for definition of terms.

The Regional Water 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* 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., US EPA methods 1613, 1624, 1625).
6. Use of Minimum* Levels

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* See Appendix I for definition of terms.

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 examples 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	1/2 , 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

* See Appendix I for definition of terms.

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 time is the discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve. In accordance with section 4b, above, the discharger's laboratory may employ a calibration standard lower than the Minimum* Level in Appendix II.

7. Sample Reporting Protocols

a. Dischargers must report with each sample result the reported Minimum* Level (selected in accordance with section 4, 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

* See Appendix I for definition of terms.

"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.

8. 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 7c, 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., PCBs*) 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

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* See Appendix I for definition of terms.

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.

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 3 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 in-plant waste* streams taken together which discharge into the cooling water flow, except that limits for total chlorine residual, acute (if applicable per section (3)(c)) and chronic* toxicity* and instantaneous maximum concentrations in Table 3 shall apply

* See Appendix I for definition of terms.

to, and be measured in, the combined final effluent, as adjusted for dilution with ocean water. The Table 3 objective for radioactivity shall apply to the undiluted combined final effluent.

9. 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

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* See Appendix I for definition of terms.

(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.

c. Regional Water 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 4b, above).

* See Appendix I for definition of terms.

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;

* See Appendix I for definition of terms.

(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.

10. Toxicity Reduction Requirements

a. If a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 3, 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 Characteristics

1. Applicability

a. The bacteria water quality objectives* do not supersede any water quality objective for bacteria established by a Regional Water Board for the REC-1 beneficial use after February 4, 2019.

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* See Appendix I for definition of terms.

b. Total maximum daily loads (TMDLs) established prior to February 4, 2019 to implement numeric water quality objectives for bacteria to support REC-1 are in effect for numerous ocean waters*. Such TMDLs remain in effect where a bacteria water quality objective* supersedes a water quality objective for bacteria for which the TMDL was established. A Regional Water Board may convene a public meeting to evaluate the effectiveness of the TMDL in attaining the bacteria water quality objective*.

c. The bacteria water quality objectives* shall be implemented, where applicable, through National Pollutant Discharge Elimination System (NPDES) permits issued pursuant to section 402 of the Clean Water Act, water quality certifications issued pursuant to section 401 of the Clean Water Act, waste discharge requirements, and waivers of waste discharge requirements.

d. The GM* and the SSM* or STV* contained in the applicable bacteria water quality objective* shall be applied in all circumstances, except in the context of a TMDL or a basin plan* amendment.

In the context of a TMDL or a basin plan* amendment, Regional Water Boards may implement a reference system*/antidegradation approach or natural sources exclusion approach in accordance with Chapter III.D.2.b. A TMDL that implements either approach is subject to U.S. EPA's approval authority under Clean Water Act section 303(d) and such a TMDL or a basin plan* amendment

* See Appendix I for definition of terms.

that implements either approach may be subject to U.S. EPA's approval authority under Clean Water Act section 303(c).

e. The beach notification levels (Chapter II.B.1.b) for waters adjacent to public beaches and for public water-contact sports areas in ocean waters* will continue to be used for public beach notification programs.

2. Natural Sources of Bacteria

a. Applicability

The implementation provisions contained in Chapter III.D.2 apply to municipal stormwater discharges regulated pursuant to Clean Water Act section 402(p) and non-point source discharges except on-site wastewater treatment system discharges. These implementation provisions do not apply to NPDES discharges other than municipal storm water discharges.

b. Reference System*/Antidegradation Approach and Natural Sources Exclusion Approach

TMDLs include waste load allocations for point sources, load allocations for nonpoint sources, and natural background levels to identify and enumerate each individual source.

In the context of a TMDL or a basin plan* amendment developed to implement the applicable bacteria water quality objective*, a reference system*/antidegradation approach may be utilized to ensure: (1) bacteriological water quality is at least as good as that of an applicable reference

* See Appendix I for definition of terms.

system*, and (2) no degradation of existing water quality is allowed when the existing water quality is better than the reference system*. In such circumstances, the TMDL or basin plan* amendment may include a certain frequency of exceedance of the applicable bacteria water quality objective based on the observed exceedance frequency in the applicable reference system* or the targeted waterbody, whichever is less.

In the context of a TMDL or a basin plan* amendment developed to implement the applicable bacteria water quality objective*, a natural source exclusion approach may be utilized after all anthropogenic sources of bacteria are identified, quantified, and controlled. In such circumstances, the TMDL or basin plan* amendment may include a certain frequency of exceedance of the applicable bacteria water quality objective* based on the observed exceedance frequency of the identified and quantified natural sources of bacteria of the targeted waterbody.

E. Implementation Provisions for Marine Managed Areas*

1. Section E addresses the following Marine Managed Areas*:

(a) State Water Quality Protection Areas (SWQPAs)* consisting of:

(1) SWQPA – Areas of Special Biological Significance (ASBS)* designated by the State Water

* See Appendix I for definition of terms.

Board that require special protections as defined under section 4 below.

(2) SWQPA – General Protection (GP) designated by the State Water Board to protect water quality within Marine Protected Areas (MPAs) that require protection under the provisions described under section 5 below.

(b) Marine Protected Areas as defined in the California Public Resources Code as State Marine Reserves, State Marine Parks and State Marine Conservation Areas, established by the Fish and Game Commission, or the Parks and Recreation Commission.

2. The designation of State Marine Parks and State Marine Conservation Areas may not serve as the sole basis for new or modified limitations, substantive conditions, or prohibitions upon existing municipal point source wastewater discharge outfalls. This provision does not apply to State Marine Reserves.

3. The State Water Board may designate SWQPAs* to prevent the undesirable alteration of natural water quality within MPAs. These designations may include either SWQPA-ASBS or SWQPA-GP or in combination. In considering the designation of SWQPAs over MPAs, the State Water Board will consult with the affected Regional Water Quality Control Board, the Department of Fish and Game and the Department of Parks and Recreation, in accordance with the requirements of Appendix IV.

4. Implementation Provisions for SWQPA-ASBS*

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* See Appendix I for definition of terms.

(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.

(b) Regional Water 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.

5. Implementation Provisions for SWQPAs-GP*

(a) Implementation provisions for existing point source wastewater discharges (NPDES)

(1) An SWQPA-GP shall not be designated over existing permitted point source wastewater outfalls or encroach upon the zone of initial dilution* associated with an existing discharge. This requirement does not apply to

* See Appendix I for definition of terms.

discharges less than one million gallons per day.

(2) Designation of an SWQPA-GP shall not include conditions to move existing point source wastewater outfalls.

(3) Where a new SWQPA-GP is established in the vicinity of existing municipal wastewater outfalls, there shall be no new or modified limiting condition or prohibitions for the SWQPA-GP relative to those wastewater outfalls.

(4) Regulatory requirements for discharges from existing treated municipal wastewater outfalls shall be derived from the Chapter II – Water Quality Objectives and Chapter III – Program of Implementation.

(b) Implementation provisions for existing seawater* intakes

(1) Existing permitted seawater* intakes other than those serving desalination facilities* must be controlled to minimize entrainment and impingement by using best technology available. Existing permitted seawater* intakes with a capacity less than one million gallons per day are excluded from this requirement.

(2) Existing permitted seawater* intakes serving desalination facilities are governed by the provisions set forth in chapter III.M of this Plan.

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* See Appendix I for definition of terms.

(c) Implementation provisions for permitted separate storm sewer system (MS4) discharges and nonpoint source discharges.

(1) Existing waste* discharges are allowed, but shall not cause an undesirable alteration in natural water quality. For purposes of SWQPA-GP, an undesirable alteration in natural water quality means that for intermittent (e.g. wet weather) discharges, Table 3 instantaneous maximum concentrations for chemical constituents, and daily maximum concentrations for chronic toxicity,* must not be exceeded in the receiving water.*

(2) An NPDES permitting authority* may authorize NPDES-permitted non-storm water discharges* to an MS4 with a direct discharge to an SWQPA-GP only to the extent the NPDES permitting authority* finds that the discharge does not cause an undesirable alteration in natural water quality in an SWQPA-GP.

(3) Non-storm water (dry weather) flows are effectively prohibited as required by the applicable permit. Where capacity and infrastructure exists, all dry weather flows shall be diverted to municipal sanitary sewer systems. The permitting authority* may allow discharges essential for emergency response purposes, structural stability, and slope stability, which may include but are not limited the following:

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* See Appendix I for definition of terms.

a. Discharges associated with emergency fire fighting operations.

b. Foundation and footing drains

c. Water from crawl space or basement pumps.

d. Hillside dewatering.

(4) The following naturally occurring discharges are allowed:

a. Naturally occurring groundwater seepage via a storm drain

b. Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.

(5) Existing storm water discharges into an SWQPA-GP shall be characterized and assessed to determine what effect if any these inputs are having on natural water quality in the State Water Quality Protection Area. Such assessments shall include an evaluation of cumulative impacts as well as impacts stemming from individual discharges. Information to be considered shall include:

a. Water quality;

b. Flow;

c. Watershed pollutant sources; and

d. Intertidal and/ or subtidal biological surveys.

Within each SWQPA-GP the assessment shall be used to rank these existing

discharges into low, medium and high threat impact categories. Cumulative impacts will be ranked similarly as well.

(6) An initial analysis shall be performed for pre- and post-storm receiving water* quality of Table 3 constituents and chronic toxicity.* If post-storm receiving water* quality has larger concentrations of constituents relative to pre-storm, and Table 3 instantaneous maximum concentrations for chemical constituents, and daily maximum concentrations for chronic toxicity,* are exceeded, then receiving water* shall be re-analyzed along with storm runoff (end of pipe) for the constituents that are exceeded.

(7) If undesirable alterations of natural water quality and/or biological communities are identified, control strategies/measures shall be implemented for those dischargers characterized as a high threat or those contributing to higher threat cumulative impacts first.

(8) If those strategies fail, additional control strategies/measures will be implemented for dischargers characterized as medium impact dischargers. If these strategies do not result in improvement of water quality, those discharges classified as low threat shall also implement control strategies/measures.

d. Implementation Provisions for New Discharges

(1) Point Source Wastewater Outfalls

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* See Appendix I for definition of terms.

No new point source wastewater outfalls shall be established within an SWQPA-GP.

(2) Seawater* intakes

No new surface water seawater* intakes shall be established within an SWQPA-GP. This does not apply to subsurface* intakes where studies are prepared showing there is no predictable entrainment, impingement, or construction-related marine life mortality.

(3) All Other New Discharges

There shall be no increase in nonpoint sources or permitted storm drains directly into an SWQPA-GP.

2. Impaired Tributaries to MPAs, SWQPA-ASBS and SWQPA-GP

All water bodies draining to, or that are designated as, MPAs and SWQPAs that appear on the State's CWA section 303(d) list shall be given a high priority to have a TMDL developed and implemented.

F. Revision of Waste* Discharge Requirements

1. The Regional Water 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.

2. Regional Water Boards may impose alternative less restrictive provisions than those contained

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* See Appendix I for definition of terms.

within Table 3 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;

3. Provided further that:

a. Any alternative water quality objectives shall be below the conservative estimate of chronic toxicity,* as given in Table 4 (with all metal concentrations expressed as total recoverable concentrations), 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 Water Board grants an exception (chapter III.J) to the Table 3 limits as established in the Regional Board findings and alternative limits.

G. Compliance Schedules in National Pollutant Discharge Elimination System (NPDES) Permits

1. Compliance schedules in NPDES permits are authorized in accordance with the provisions of the State Water Board's Policy for Compliance Schedules in [NPDES] Permits (2008).

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* See Appendix I for definition of terms.

Table 6 (formerly Table D):
Conservative Estimates of Chronic* Toxicity

Constituent	**Estimate of Chronic* Toxicity (µg/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 PCBs*	b)

Table 6 Notes:

* See Appendix I for definition of terms.

a) There are 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 PCBs* shall not be modified so that the total of these compounds is increased above the objectives in Table 3.

H. Monitoring Program

1. The Regional Water 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 Water Board to provide monitoring reports. Monitoring provisions contained in waste* discharge requirements shall be in accordance with the Monitoring Procedures provided in Appendices III and VI.

2. The Regional Water Board may require monitoring of bioaccumulation of toxicants in the discharge zone. Organisms and techniques for such monitoring shall be chosen by the Regional Water Board on the

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* See Appendix I for definition of terms.

basis of demonstrated value in waste* discharge monitoring.

I. Discharge Prohibitions

1. Hazardous Substances

a. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste* into the ocean* is prohibited.

2. Areas Designated for Special Water Quality Protection

a. Waste* shall not be discharged to designated Areas* of Special Biological Significance except as provided in chapter III.E Implementation Provisions for Marine Managed 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 State Water Board 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

* See Appendix I for definition of terms.

affect California waters, the State Water Board may consider requests for exceptions to this section under Chapter III.J 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. By-Passing

a. The by-passing of untreated wastes* containing concentrations of pollutants in excess of those of Table 4 or Table 3 to the ocean* is prohibited.

5. Vessels

a. Discharges of hazardous waste (as defined in California Health and Safety Code § 25117 et seq. [but not including sewage]), oily bilge water,* medical waste (as defined in § 117600 et seq. of the California Health and Safety Code) dry-cleaning waste, and film-processing waste from large passenger vessels* and oceangoing vessels* are prohibited.

b. Discharges of graywater* and sewage* from large passenger vessels* are prohibited.

c. Discharges of sewage and sewage sludge from vessels are prohibited in No Discharge Zones* promulgated by U.S. EPA.

6. Trash*

The discharge of Trash* to surface waters of the State or the deposition of Trash* where it may be

* See Appendix I for definition of terms.

discharged into surface waters of the State is prohibited. Compliance with this prohibition of discharge shall be achieved as follows:

a. Dischargers with NPDES permits that contain specific requirements for the control of Trash* that are consistent with these Trash Provisions* shall be determined to be in compliance with this prohibition if the dischargers are in full compliance with such requirements.

b. Dischargers with non-NPDES waste discharge requirements (WDRs) or waivers of WDRs that contain specific requirements for the control of Trash* shall be determined to be in compliance with this prohibition if the dischargers are in full compliance with such requirements.

c. Dischargers with NPDES permits, WDRs, or waivers of WDRs that do not contain specific requirements for the control of Trash* are exempt from these Trash Provisions*.

d. Dischargers without NPDES permits, WDRs, or waivers of WDRs must comply with this prohibition of discharge.

e. Chapter III.I.6.b and Chapter III.L.3 notwithstanding, this prohibition of discharge applies to the discharge of preproduction plastic* by manufacturers of preproduction plastics*, transporters of preproduction plastics*, and manufacturers that use preproduction plastics* in the manufacture of other products to surface waters of the State, or the deposition of preproduction plastic*

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* See Appendix I for definition of terms.

where it may be discharged into surface waters of the State, unless the discharger is subject to a NPDES permit for discharges of storm water* associated with industrial activity.

J. State Board Exceptions to Plan Requirements

1. The State Water 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. The exception will not compromise protection of ocean* waters for beneficial uses, and,

b. The public interest will be served.

2. All exceptions issued by the State Water Board and in effect at the time of the Triennial Review will be reviewed at that time. If there is sufficient cause to reopen or revoke any exception, the State Water Board may direct staff to prepare a report and to schedule a public hearing. If after the public hearing the State Water Board decides to re-open, revoke, or re-issue a particular exception, it may do so at that time.

K. Implementation Provisions for Vessel Discharges

1. Vessel discharges must comply with State Lands Commission (SLC) requirements for ballast water discharges and hull fouling to control and prevent the introduction of non-indigenous species, found in the Public Resources Code sections 71200 et

* See Appendix I for definition of terms.

seq. and title 2, California Code of Regulations, section 22700 et. seq.

2. Discharges incidental to the normal operation large passenger vessels* and ocean- going vessels must be covered and comply with an individual or general NPDES permit.

3. Vessel discharges must not result in violations of water quality objectives in this plan.

4. Vessels subject to the federal NPDES Vessel General Permit (VGP) which are not large passenger vessels* must follow the best management practices for graywater* as required in the VGP, including the use of only those cleaning agents (e.g., soaps and detergents) that are phosphate-free, non-toxic, and nonbioaccumulative.

L. Implementation Provisions for Trash* [effective January 12, 2016 (only Section L)]

1. Applicability

a. These Trash Provisions* shall be implemented through a prohibition of discharge (Chapter III.I.6) and through NPDES permits issued pursuant to section 402(p) of the Federal Clean Water Act, waste discharge requirements (WDRs), or waivers of WDRs (as set forth in Chapter III.L.2 and Chapter III.L.3 below).

b. These Trash Provisions* apply to all surface waters of the State, with the exception of those waters within the jurisdiction of the Los Angeles Regional Water Quality Control Board (Los Angeles Water Board) for which trash Total

* See Appendix I for definition of terms.

Maximum Daily Loads (TMDLs) are in effect prior to the effective date of these Trash Provisions*[1]; provided, however, that:

(1) Upon the effective date of these Trash Provisions*, the Los Angeles Water Board shall cease its full capture system* certification process and provide that any new full capture systems* shall be certified by the State Water Board in accordance with these Trash Provisions*.

(2) Within one year of the effective date of these Trash Provisions*, the Los Angeles Water Board shall convene a public meeting to reconsider the scope of its trash TMDLs, with the exception of those for the Los Angeles River and Ballona Creek watersheds, to particularly consider an approach that would focus MS4* permittees' trash-control efforts on high-trash generation areas within their jurisdictions.

2. Dischargers Permitted Pursuant to Federal Clean Water Act Section 402(p)

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[1] In the Los Angeles Region, there are fifteen (15) trash TMDLs for the following watersheds and water bodies: Los Angeles River Watershed, Ballona Creek, Malibu Creek Watershed, Santa Monica Bay Nearshore and Offshore, San Gabriel River East Fork, Revolon Slough and Beardsley Wash, Ventura River Estuary, Machado Lake, Lake Elizabeth, Lake Hughes, Munz Lake, Peck Road Park Lake, Echo Park Lake, Lincoln Park Lake and Legg Lake. Three of these were established by the U.S. EPA: Peck Road Park Lake, Echo Park Lake and Lincoln Park Lake.

* See Appendix I for definition of terms.

Permitting authorities* shall include the following requirements in NPDES permits issued pursuant to Federal Clean Water Act section 402(p):

a. MS4* permittees with regulatory authority over priority land uses* shall be required to comply with the prohibition of discharge in Chapter III.I.6.a herein by either of the following measures:

(1) Track 1: Install, operate, and maintain full capture systems* for all storm drains that captures runoff from the priority land uses* in their jurisdictions; or

(2) Track 2: Install, operate, and maintain any combination of full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* within either the jurisdiction of the MS4* permittee or within the jurisdiction of the MS4* permittee and contiguous MS4* permittees. The MS4* permittee may determine the locations or land uses within its jurisdiction to implement any combination of controls. The MS4* permittee shall demonstrate that such combination achieves full capture system equivalency*. The MS4* permittee may determine which controls to implement to achieve compliance with full capture system equivalency*. It is, however, the State Water Board's expectation that the MS4* permittee will elect to install full capture systems* where such installation is not cost-prohibitive.

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* See Appendix I for definition of terms.

b. The California Department of Transportation (Department) shall be required to comply with the prohibition of discharge in Chapter III.I.6.a herein in all significant trash generating areas* by installing, operating, and maintaining any combination of full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* for all storm drains that captures runoff from significant trash generating areas*. The Department shall demonstrate that such combination achieves full capture system equivalency*. In furtherance of this provision, the Department and MS4* permittees that are subject to the provisions of Chapter III.L.2.a herein shall coordinate their efforts to install, operate, and maintain full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* in significant trash generating areas* and/or priority land uses*.

c. Dischargers that are subject to NPDES permits for discharges of storm water* associated with industrial activity (including construction activity) shall be required to comply with the prohibition of discharge in Chapter III.I.6.a herein by eliminating Trash* from all storm water* and authorized non-storm water* discharges consistent with an outright prohibition of the discharge of Trash* contained within the applicable NPDES permit regulating the industrial or construction facility. If the discharger can satisfactorily demonstrate to the permitting authority* its inability to comply with the outright prohibition of the dis-

* See Appendix I for definition of terms.

charge of Trash* contained within the applicable NPDES permit, then the permitting authority* may require the discharger to either:

(1) Install, operate, and maintain full capture systems* for all storm drains that captures runoff from the facility or site regulated by the NPDES permit; or,

(2) Install, operate, and maintain any combination of full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* for the facility or site regulated by the NPDES permit. The discharger shall demonstrate that such combination achieves full capture system equivalency*.

Termination of permit coverage for industrial and construction storm water* dischargers shall be conditioned upon the proper operation and maintenance of all controls (e.g., full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls*) used at their facility(ies).

d. A permitting authority* may determine that specific land uses or locations (e.g., parks, stadia, schools, campuses, or roads leading to landfills) generate substantial amounts of Trash*. In the event that the permitting authority* makes that determination, the permitting authority* may require the MS4* to comply with Chapter III.L.2.a.1 or Chapter III.L.2.a.2, as determined by the

* See Appendix I for definition of terms.

permitting authority*, with respect to such land uses or locations.

3. Other Dischargers

A permitting authority* may require dischargers, described in Chapter III.I.6.c or Chapter III.I.6.d, that are not subject to Chapter III.L.2 herein, to implement any appropriate Trash* controls in areas or facilities that may generate Trash*. Such areas or facilities may include (but are not limited to) high usage campgrounds, picnic areas, beach recreation areas, parks not subject to an MS4* permit, or marinas.

4. Time Schedule

The permitting authority* shall modify, re-issue, or newly adopt NPDES permits issued pursuant to section 402(p) of the Federal Clean Water Act that are subject to the provisions of Chapter III.L.2 herein to include requirements consistent with these Trash Provisions*. The permitting authorities* shall abide by the following time schedules:

a. NPDES Permits Regulating MS4* Permittees that have Regulatory Authority over Priority Land Uses*.[2]

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* See Appendix I for definition of terms.

[2] The time schedule requirement in Chapter III.L.4.a.1 requiring MS4* permittees to elect Chapter III.L.2.a.1 (Track 1) or Chapter III.L.2.a.2 (Track 2) does not apply to MS4* permittees subject to the Municipal Regional Stormwater NPDES Permit (MRP) issued by the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay Water Board) or the East Contra Costa Municipal Storm Water Permit issued by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) because those permits already require control requirements substantially equivalent to Track 2. The time schedule

(1) Within eighteen (18) months of the effective date of these Trash Provisions*, for each permittee, each permitting authority* shall either:

A. Modify, re-issue, or adopt the applicable MS4* permit to add requirements to implement these Trash Provisions*. The implementing permit shall require written notice from each MS4* permittee stating whether it has elected to comply under Chapter III.L.2.a.1 (Track 1) or Chapter III.L.2.a.2 (Track 2) and such notice shall be submitted to the permitting authority* no later than three (3) months from the effective date of the implementing permit, or for MS4s* designated after the effective date of these Trash Provisions*, three (3) months from the effective date of that designation. The implementing permit shall also require that within eighteen (18) months of the effective date of the implementing permit or new designation, MS4* permittees that have elected to comply with

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requirement in Chapter III.L.4.a.1 requiring MS4* permittees to submit an implementation plan does not apply to the above permittees if the pertinent permitting authority* determines that such permittee has already submitted an implementation plan prior to the effective date of the Trash Provisions* that is equivalent to the implementation plan required by Chapter III.L.4.a.1. In the aforementioned permits, the pertinent permitting authority* may establish an earlier full compliance deadline than that specified in Chapter III.L.4.a.3.

* See Appendix I for definition of terms.

Track 2 shall submit an implementation plan to the permitting authority*. The implementation plan shall describe: (i) the combination of controls selected by the MS4* permittee and the rationale for the selection, (ii) how the combination of controls is designed to achieve full capture system equivalency*, and (iii) how full capture system equivalency* will be demonstrated. The implementation plan is subject to approval by the permitting authority*.

B. Issue an order pursuant to Water Code section 13267 or 13383 requiring the MS4* permittee to submit, within three (3) months from receipt of the order, written notice to the permitting authority* stating whether such MS4* permittee will comply with the prohibition of discharge under Chapter III.L.2.a.1 (Track 1) or Chapter III.L.2.a.2 (Track 2). For MS4s* designated after the effective date of these Trash Provisions*, the order pursuant to Water Code section 13267 or 13383 shall be issued at the time of designation. Within eighteen (18) months of the receipt of the Water Code section 13267 or 13383 order, MS4* permittees that have elected to comply with Track 2 shall submit an implementation plan to the permitting authority* that describes: (i) the combin-

* See Appendix I for definition of terms.

ation of controls selected by the MS4* permittee and the rationale for the selection, (ii) how the combination of controls is designed to achieve full capture system equivalency*, and (iii) how full capture system equivalency* will be demonstrated. The implementation plan is subject to approval by the permitting authority*.

(2) For MS4* permittees that elect to comply with Chapter III.L.2.a.1 (Track1), the implementing permit shall state that full compliance shall occur within ten (10) years of the effective date of the first implementing permit except as specified in Chapter III.L.4.a.5. The permit shall also require these permittees to demonstrate achievement of interim milestones such as average load reductions of ten percent (10%) per year or other progress to full implementation. In no case may the final compliance date be later than fifteen (15) years from the effective date of these Trash Provisions*.

(3) For MS4* permittees that elect to comply with Chapter III.L.2.a.2 (Track 2), the implementing permit shall state that full compliance shall occur within ten (10) years of the effective date of the first implementing permit except as specified in Chapter III.L. 4.a.5. The permit shall also require these permittees to demonstrate achievement of interim milestones such as average load

* See Appendix I for definition of terms.

reductions of ten percent (10%) per year or other progress to full implementation. In no case may the final compliance date be later than fifteen (15) years from the effective date of these Trash Provisions*.

(4) The implementing permit shall state that for MS4* permittees designated after the effective date of the implementing permit, full compliance shall occur within ten (10) years of the effective date of the designation. The permit shall also require such designations to demonstrate achievement of interim milestones such as average load reductions of ten percent (10%) per year or other progress to full implementation.

(5) Where a permitting authority* makes a determination pursuant to Chapter III.L.2.d that a specific land use generates a substantial amount of Trash*, that permitting authority* has discretion to determine the time schedule for full compliance. In no case may the final compliance date be later than ten (10) years from the determination.

b. NPDES Permits Regulating the Department.

(1) Within eighteen (18) months of the effective date of these Trash Provisions*, the State Water Board shall issue an order pursuant to Water Code section 13267 or 13383 requiring the Department to submit an implementation plan to the Executive Director of the State Water Board that: (i) describes the specific

* See Appendix I for definition of terms.

locations of its significant trash generating areas*, (ii) the combination of controls selected by the Department and the rationale for the selections, and (iii) how it will demonstrate full capture system equivalency*.

(2) The Department must demonstrate full compliance with Chapter III.L.2.b herein within ten (10) years of the effective date of the first implementing NPDES permit, along with achievements of interim milestones such as average load reductions of ten percent (10%) per year. In no case may the final compliance date be later than fifteen (15) years from the effective date of these Trash Provisions*.

c. NPDES Permits Regulating the Discharges of Storm Water* Associated with Industrial Activity (Including Construction Activity). Dischargers that are subject to the provisions of Chapter III.L.2.c herein must demonstrate full compliance in accordance with the deadlines contained in the first implementing NPDES permits. Such deadlines may not exceed the terms of the first implementing permits.

5. Monitoring and Reporting

The permitting authority* must include monitoring and reporting requirements in its implementing permits. The following monitoring and reporting provisions are the minimum requirements that must be included within the implementing permits:

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* See Appendix I for definition of terms.

a. MS4* permittees that elect to comply with Chapter III.L.2.a.1 (Track 1) shall provide a report to the applicable permitting authority* demonstrating installation, operation, maintenance, and the Geographic Information System- (GIS-) mapped location and drainage area served by its full capture systems* on an annual basis.

b. MS4* permittees that elect to comply with Chapter III.L.2.b.2 (Track 2) shall develop and implement monitoring plans that demonstrate the effectiveness of the full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* and compliance with full capture system equivalency*. Monitoring reports shall be provided to the applicable permitting authority* on an annual basis, and shall include GIS-mapped locations and drainage area served for each of the full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* installed or utilized by the MS4* permittee. In developing the monitoring reports the MS4* permittee should consider the following questions:

(1) What type of and how many treatment controls*, institutional controls*, and/or multi-benefit projects* have been used and in what locations?

(2) How many full capture systems* have been installed (if any), in what locations have they been installed, and what is the individual and cumulative area served by them?

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* See Appendix I for definition of terms.

(3) What is the effectiveness of the total combination of treatment controls*, institutional controls*, and multi-benefit projects* employed by the MS4* permittee?

(4) Has the amount of Trash* discharged from the MS4* decreased from the previous year? If so, by how much? If not, explain why.

(5) Has the amount of Trash* in the MS4's* receiving water(s) decreased from the previous year? If so, by how much? If not, explain why.

c. The Department, as subject to the provisions of Chapter III.L.2.b, shall develop and implement monitoring plans that demonstrate the effectiveness of the controls and compliance with full capture system equivalency*. Monitoring reports shall be provided to the State Water Board on an annual basis, and shall include GIS-mapped locations and drainage area served for each of the full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* installed or utilized by the Department. In developing the monitoring report, the Department should consider the following questions:

(1) What type of and how many treatment controls* institutional controls*, and/or multi-benefit projects* have been used and in what locations?

(2) How many full capture systems* have been installed (if any), in what locations have they

* See Appendix I for definition of terms.

been installed, and what is the individual and cumulative area served by them?

(3) What is the effectiveness of the total combination of treatment controls*, institutional controls*, and multi-benefit projects* employed by the Department?

(4) Has the amount of Trash* discharged from the Department's MS4* decreased from the previous year? If so, by how much? If not, explain why.

(5) Has the amount of Trash* in the receiving waters decreased from the previous year? If so, by how much? If not, explain why.

d. Dischargers that are subject to the provisions of Chapter III.L.2.c herein shall be required to report the measures used to comply with Chapter III.L.2.c.

M. Implementation Provisions for Desalination Facilities*

1. Applicability and General Provisions

a. Chapter III.M applies to desalination facilities* using seawater.* Chapter III.M.2 does not apply to desalination facilities* operated by a federal agency. Chapter III.M.2, M.3, and M.4 do not apply to portable desalination facilities* that withdraw less than 0.10 million gallons per day (MGD) of seawater* and are operated by a governmental agency. These standards do not alter or limit in any way the authority of any public agency to implement its statutory obligations.

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* See Appendix I for definition of terms.

The Executive Director of the State Water Board may temporarily waive the application of chapter III.M to desalination facilities* that are operating to serve as a critical short-term water supply during a state of emergency as declared by the Governor.

b. Definitions of New, Expanded, and Existing Facilities:

(1) For purposes of chapter III.M, "existing facilities" means desalination facilities* that have been issued an NPDES permit and all building permits and other governmental approvals necessary to commence construction for which the owner or operator has relied in good faith on those previously-issued permits and approvals and commenced construction of the facility beyond site grading prior to January 28, 2016.

(2) For purposes of chapter III.M, "expanded facilities" means existing facilities for which, after January 28, 2016, the owner or operator does either of the following in a manner that could increase intake or mortality of all forms of marine life* beyond that which was originally approved in any NPDES permit or Water Code section 13142.5, subdivision (b) (hereafter Water Code section 13142.5(b)) determination: 1) increases the amount of seawater* used either exclusively by the facility or used by the facility in conjunction with other facilities or uses, or 2) changes the

* See Appendix I for definition of terms.

design or operation of the facility. To the extent that the desalination facility* is co-located with another facility that withdraws water for a different purpose and that other facility reduces the volume of water withdrawn to a level less than the desalination facility's* volume of water withdrawn, the desalination facility* is considered to be an expanded facility.

(3) For purposes of chapter III.M, "new facilities" means desalination facilities* that are not existing facilities or expanded facilities.

c. Chapter III.M.2 (Water Code §13142.5(b) Determinations for New and Expanded Facilities: Site, Design, Technology, and Mitigation Measures) applies to new and expanded desalination facilities* withdrawing seawater.*

d. Chapter III.M.3 (Receiving Water Limitation for Salinity*) applies to all desalination facilities* that discharge into ocean waters* and wastewater facilities that receive brine* from seawater* desalination facilities* and discharge into ocean waters.*

e. Chapter III.M.4 (Monitoring and Reporting Programs) applies to all desalination facilities* that discharge into ocean waters.* Chapter III.M.4 shall not apply to a wastewater facility that receives brine* from a seawater* desalination facility* and discharges a positively buoyant commingled effluent through an existing wastewater outfall that is covered under an existing NPDES permit, as

* See Appendix I for definition of terms.

long as the owner or operator monitors for compliance with the receiving water limitation set forth in chapter III.M.3. For the purposes of chapter III.M.4, a positively buoyant commingled effluent shall mean that the commingled plume rises when it enters the receiving water body due to salinity* levels in the commingled discharge being lower than the natural background salinity.*

f. References to the regional water board include the regional water board acting under delegated authority. For provisions that require consultation between regional water board and State Water Board staff, the regional water board shall notify and consult with the State Water Board staff prior to making a final determination on the item requiring consultation.

g. All desalination facilities must comply with all other applicable sections of the Ocean Plan.

2. Water Code section 13142.5(b) Determinations for New and Expanded Facilities: Site, Design, Technology, and Mitigation Measures Feasibility Considerations

a. General Considerations

(1) The owner or operator shall submit a request for a Water Code section 13142.5(b) determination to the appropriate regional water board as early as practicable. This request shall include sufficient information for the regional water board to conduct the analyses described below. The regional water board in

* See Appendix I for definition of terms.

consultation with the State Water Board staff may require an owner or operator to provide additional studies or information if needed, including any information necessary to identify and assess other potential sources of mortality to all forms of marine life. All studies and models are subject to the approval of the regional water board in consultation with State Water Board staff. The regional water board may require an owner or operator to hire a neutral third party entity to review studies and models and make recommendations to the regional water board.

(2) The regional water board shall conduct a Water Code section 13142.5(b) analysis of all new and expanded desalination facilities.* A Water Code section 13142.5(b) analysis may include future expansions at the facility. The regional water board shall first analyze separately as independent considerations a range of feasible* alternatives for the best available site, the best available design, the best available technology, and the best available mitigation measures to minimize intake and mortality of all forms of marine life.* Then, the regional water board shall consider all four factors collectively and determine the best combination of feasible* alternatives to minimize intake and mortality of all forms of marine life.* The best combination of alternatives may not always include the best alternative under each individual factor because

* See Appendix I for definition of terms.

some alternatives may be mutually exclusive, redundant, or not feasible* in combination.

(3) The regional water board's Water Code section 13142.5(b) analysis for expanded facilities may be limited to those expansions or other changes that result in the increased intake or mortality of all forms of marine life,* unless the regional water board determines that additional measures that minimize intake and mortality of all forms of marine life* are feasible* for the existing portions of the facility.

(4) In conducting the Water Code section 13142 .5(b) determination, the regional water boards shall consult with other state agencies involved in the permitting of that facility, including, but not limited to: California Coastal Commission, California State Lands Commission, and California Department of Fish and Wildlife. The regional water board shall consider project-specific decisions made by other state agencies; however, the regional water board is not limited to project-specific requirements set forth by other agencies and may include additional requirements in a Water Code section 13142.5(b) determination.

(5) A regional water board may expressly condition a Water Code section 13142.5(b) determination based on the expectation of the occurrence of a future event. Such future events may include, but are not limited to, the permanent shutdown of a co-located power

* See Appendix I for definition of terms.

plant with intake structures shared with the desalination facility,* or a reduction in the volume of wastewater available for the dilution of brine.* The regional water board must make a new Water Code section 13142.5(b) determination if the foreseeable future event occurs.

(a) The owner or operator shall provide notice to the regional water board as soon as it becomes aware that the expected future event will occur, and shall submit a new request for a Water Code section 13142 .5(b) determination to the regional water board at least one year prior to the event occurring. If the owner or operator does not become aware that the event will occur at least one year prior to the event occurring, the owner or operator shall submit the request as soon as possible.

(b) The regional water board may allow up to five years from the date of the event for the owner or operator to make modifications to the facility required by a new Water Code section 13142.5(b) determination, provided that the regional water board finds that 1) any water supply interruption resulting from the facility modifications requires additional time for water users to obtain a temporary replacement supply, or 2) such a compliance period is otherwise in the public interest and reasonably required for mod-

* See Appendix I for definition of terms.

ification of the facility to comply with the determination.

(c) If the regional water board makes a Water Code section 13142.5(b) determination for a desalination facility* that will be co-located with a power plant, the regional water board shall condition its determination on the power plant remaining in compliance with the Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling.

b. Site is the general onshore and offshore location of a new or expanded facility. There may be multiple potential facility design configurations within any given site. The regional water board shall require that the owner or operator evaluate a reasonable range of nearby sites, including sites that would likely support subsurface intakes. For each potential site, in order to determine whether a proposed facility site is the best available site feasible* to minimize intake and mortality of all forms of marine life,* the regional water board shall require the owner or operator to:

(1) Consider whether subsurface intakes* are feasible.*

(2) Consider whether the identified need for desalinated* water is consistent with an applicable adopted urban water management plan prepared in accordance with Water Code section 10631, or if no urban water

* See Appendix I for definition of terms.

management plan is available, other water planning documents such as a county general plan or integrated regional water management plan.

(3) Analyze the feasibility of placing intake, discharge, and other facility infrastructure in a location that avoid impacts to sensitive habitats* and sensitive species.

(4) Analyze the direct and indirect effects on all forms of marine life* resulting from facility construction and operation, individually and in combination with potential anthropogenic effects on all forms of marine life* resulting from other past, present, and reasonably foreseeable future activities within the area affected by the facility.

(5) Analyze oceanographic geologic, hydrogeologic, and seafloor topographic conditions at the site, so that the siting of a facility, including the intakes and discharges, minimizes the intake and mortality of all forms of marine life.*

(6) Analyze the presence of existing discharge infrastructure, and the availability of wastewater to dilute the facility's brine* discharge.

(7) Ensure that the intake and discharge structures are not located within a MPA or SWQPA* with the exception of intake structures that do not have marine life mortality associated with the construction, operation,

* See Appendix I for definition of terms.

and maintenance of the intake structures (e.g. slant wells). Discharges shall be sited at a sufficient distance from a MPA or SWQPA* so that the salinity* within the boundaries of a MPA or SWQPA* does not exceed natural background salinity.* To the extent feasible,* surface intakes shall be sited so as to maximize the distance from a MPA or SWQPA.*

c. Design is the size, layout, form, and function of a facility, including the intake capacity and the configuration and type of infrastructure, including intake and outfall structures. The regional water board shall require that the owner or operator perform the following in determining whether a proposed facility design is the best available design feasible* to minimize intake and mortality of all forms of marine life:*

(1) For each potential site, analyze the potential design configurations of the intake, discharge, and other facility infrastructure to avoid impacts to sensitive habitats* and sensitive species.

(2) If the regional water board determines that subsurface intakes* are not feasible* and surface water intakes are proposed instead, analyze potential designs for those intakes in order to minimize the intake and mortality of all forms of marine life.*

* See Appendix I for definition of terms.

(3) Design the outfall so that the brine mixing zone* does not encompass or otherwise adversely affect existing sensitive habitat.*

(4) Design the outfall so that discharges do not result in dense, negatively-buoyant plumes that result in adverse effects due to elevated salinity* or hypoxic conditions occurring outside the brine mixing zone.* An owner or operator must demonstrate that the outfall meets this requirement through plume modeling and/or field studies. Modeling and field studies shall be approved by the regional water board in consultation with State Water Board staff.

(5) Design outfall structures to minimize the suspension of benthic sediments.

d. Technology is the type of equipment, materials,* and methods that are used to construct and operate the design components of the desalination facility.* The regional water board shall apply the following considerations in determining whether a proposed technology is the best available technology feasible* to minimize intake and mortality of all forms of marine life:*

(1) Considerations for Intake Technology:

(a) Subject to chapter M.2.a.(2), the regional water board in consultation with State Water Board staff shall require subsurface intakes* unless it determines that subsurface intakes* are not feasible*

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* See Appendix I for definition of terms.

based upon a comparative analysis of the factors listed below for surface and subsurface intakes.* A design capacity in excess of the need for desalinated* water as identified in chapter III.M. 2.b.(2) shall not be used by itself to declare subsurface intakes* as not feasible.*

i. The regional water board shall consider the following factors in determining feasibility of subsurface intakes:* geotechnical data, hydrogeology, benthic topography, oceanographic conditions, presence of sensitive habitats,* presence of sensitive species, energy use for the entire facility; design constraints (engineering, constructability), and project life cycle cost. Project life cycle cost shall be determined by evaluating the total cost of planning, design, land acquisition, construction, operations, maintenance, mitigation, equipment replacement and disposal over the lifetime of the facility, in addition to the cost of decommissioning the facility. Subsurface intakes* shall not be determined to be economically infeasible solely because subsurface intakes* may be more expensive than surface intakes. Subsurface intakes* may be determined to be economically

* See Appendix I for definition of terms.

infeasible if the additional costs or lost profitability associated with subsurface intakes,* as compared to surface intakes, would render the desalination facility* not economically viable. In addition, the regional water board may evaluate other site- and facility-specific factors.

ii. If the regional water board determines that subsurface intakes* are not feasible* for the proposed intake design capacity, it shall determine whether subsurface intakes* are feasible* for a reasonable range of alternative intake design capacities. The regional water board may find that a combination of subsurface* and surface intakes is the best feasible* alternative to minimize intake and mortality of marine life and meet the identified need for desalinated water as described in chapter III.M.2.b.(2).

(b) Installation and maintenance of a subsurface intake* shall avoid, to the maximum extent feasible,* the disturbance of sensitive habitats* and sensitive species.

(c) If subsurface intakes* are not feasible,* the regional water board may approve a surface water intake, subject to the following conditions:

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* See Appendix I for definition of terms.

i. The regional water board shall require that surface water intakes be screened. Screens must be functional while the facility is withdrawing seawater.*

ii. In order to reduce entrainment, all surface water intakes must be screened with a 1.0 mm (0.04 in) or smaller slot size screen when the desalination facility* is withdrawing seawater.*

iii. An owner or operator may use an alternative method of preventing entrainment so long as the alternative method results in intake and mortality of eggs, larvae, and juvenile organisms that is less than or equivalent to a 1.0 mm (0.04 in) slot size screen. The owner or operator must demonstrate the effectiveness of the alternative method to the regional water board. The owner or operator must conduct a study to demonstrate the effectiveness of the alternative method, and use an Empirical Transport Model* (ETM)/ Area of Production Forgone* (APF) approach* to estimate entrainment. The study period shall be at least 12 consecutive months. Sampling for environmental studies shall be designed to account for variation in

* See Appendix I for definition of terms.

oceanographic or hydrologic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate. Samples must be collected using a mesh size no larger than 335 microns and individuals collected shall be identified to the lowest taxonomical level practicable. The ETM/APF analysis* shall evaluate entrainment for a broad range of species, species morphologies, and sizes under the environmental and operational conditions that are representative of the entrained species and the conditions at the full-scale desalination facility.* At their discretion, the regional water boards may permit the use of existing entrainment data to meet this requirement.

iv. In order to minimize impingement, through-screen velocity at the surface water intake shall not exceed 0.15 meters per second (0.5 feet per second).

(2) Considerations for Brine* Discharge Technology:

(a) The preferred technology for minimizing intake and mortality of all forms of marine life* resulting from brine* discharge is to commingle brine* with

* See Appendix I for definition of terms.

wastewater (e.g., agricultural, municipal, industrial, power plant cooling water, etc.) that would otherwise be discharged to the ocean. The wastewater must provide adequate dilution to ensure salinity* of the commingled discharge meets the receiving water limitation for salinity* in chapter III.M.3. Nothing in this section shall preclude future recycling of the wastewater.

(b) Multiport diffusers* are the next best method for disposing of brine* when the brine* cannot be diluted by wastewater and when there are no live organisms in the discharge. Multiport diffusers* shall be engineered to maximize dilution, minimize the size of the brine mixing zone,* minimize the suspension of benthic sediments, and minimize mortality of all forms of marine life.*

(c) Brine* discharge technologies other than wastewater dilution and multiport diffusers,* may be used if an owner or operator can demonstrate to the regional water board that the technology provides a comparable level of intake and mortality of all forms of marine life* as wastewater dilution if wastewater is available, or multiport diffusers* if wastewater is unavailable. The owner or operator must evaluate all of the individual and cumulative effects of the proposed alter-

* See Appendix I for definition of terms.

native discharge method on the intake and mortality of all forms of marine life,* including (where applicable); intake-related entrainment, osmotic stress, turbulence that occurs during water conveyance and mixing, and shearing stress at the point of discharge. When determining the intake and mortality associated with a brine* discharge technology or combination of technologies, the regional water board shall require the owner or operator to use empirical studies or modeling to:

i. Estimate intake entrainment impacts using an ETM/APF approach.*

ii. Estimate degradation of all forms of marine life* from elevated salinity* within the brine mixing zone,* including osmotic stresses, the size of impacted area, and the duration that all forms of marine life* are exposed to the toxic conditions. Considerations shall be given to the most sensitive species, and community structure and function.

iii. Estimate the intake and mortality of all forms of marine life* that occurs as a result of water conveyance, in-plant turbulence or mixing, and waste* discharge.

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* See Appendix I for definition of terms.

iv. Within 18 months of beginning operation, submit to the regional water board an empirical study that evaluates intake and mortality of all forms of marine life* associated with the alternative brine* discharge technology. The study must evaluate impacts caused by any augmented intake volume, intake and pump technology, water conveyance, waste brine* mixing, and effluent discharge. Unless demonstrated otherwise, organisms entrained by the alternative brine* discharge technology are assumed to have a mortality rate of 100 percent. The study period shall be at least 12 consecutive months. If the regional water board requires a study period longer than 12 months, the final report must be submitted to the regional water board within 6 months of the completion of the empirical study.

v. If the empirical study shows that the alternative brine* discharge technology results in more intake and mortality of all forms of marine life* than a facility using wastewater dilution or multiport diffusers,* then the facility must either: (1) cease using the alternative brine* discharge technology and install and

* See Appendix I for definition of terms.

use wastewater dilution or multiport diffusers* to discharge brine* waste, or (2) re-design the alternative brine* discharge technology system to minimize intake and mortality of all forms of marine life* to a level that is comparable with wastewater dilution if wastewater is available, or multiport diffusers* if wastewater is unavailable,* subject to regional water board approval.

(d) Flow augmentation* as an alternative brine* discharge technology is prohibited with the following exceptions:

i. At facilities that use subsurface intakes* to supply augmented flow water for dilution. Facilities that use subsurface intakes* to supply augmented flow water for dilution are exempt from the requirements of chapter III.M.2.d.(2)(c) if the facility meets the receiving water limitation for salinity* in chapter III.M.3.

ii. At a facility that has received a conditional Water Code section 13142.5(b) determination and is over 80 percent constructed by January 28, 2016. If the owner or operator of the facility proposes to use flow augmentation* as an alternative

* See Appendix I for definition of terms.

brine* discharge technology, the facility must: use low turbulence intakes (e.g., screw centrifugal pumps or axial flow pumps) and conveyance pipes; convey and mix dilution water in a manner that limits thermal stress, osmotic stress, turbulent shear stress, and other factors that could cause intake and mortality of all forms of marine life*; comply with chapter III.M.2.d.(1); and not discharge through multiport diffusers.*

e. Mitigation for the purposes of this section is the replacement of all forms of marine life* or habitat that is lost due to the construction and operation of a desalination facility* after minimizing intake and mortality of all forms of marine life* through best available site, design, and technology. The regional water board shall ensure an owner or operator fully mitigates for the operational lifetime of the facility and uses the best available mitigation measures feasible* to minimize intake and mortality of all forms of marine life.* The owner or operator may choose whether to satisfy a facility's mitigation measures pursuant to chapter III.M.2.e.(3) or, if available, M.2.e.(4), or a combination of the two.

(1) *Marine Life Mortality Report.* The owner or operator of a facility shall submit a report to the regional water board estimating the marine life mortality resulting from construction and operation of the facility after imple-

* See Appendix I for definition of terms.

mentation of the facility's required site, design, and technology measures.

(a) For operational mortality related to intakes, the report shall include a detailed entrainment study. The entrainment study period shall be at least 12 consecutive months and sampling shall be designed to account for variation in oceanographic or hydrologic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate. At their discretion, the regional water boards may permit the use of existing entrainment data from the facility to meet this requirement. Samples must be collected using a mesh size no larger than 335 microns and individuals collected shall be identified to the lowest taxonomical level practicable. The ETM/APF analysis* shall be representative of the entrained species collected using the 335 micron net. The APF* shall be calculated using a one-sided, upper 95 percent confidence bound for the 95th percentile of the APF distribution. An owner or operator with subsurface intakes* is not required to do an ETM/APF analysis* for their intakes and is not required to mitigate for intake-related operational mortality. The regional water board may apply a one percent reduction to the APF* acreage calculated in the Marine Life

* See Appendix I for definition of terms.

Mortality Report to account for the reduction in entrainment of all forms of marine life* when using a 1.0 mm slot size screen.

(b) For operational mortality related to discharges, the report shall estimate the area in which salinity* exceeds 2.0 parts per thousand above natural background salinity* or a facility-specific alternative receiving water limitation (see chapter III.M.3). The area in excess of the receiving water limitation for salinity* shall be determined by modeling and confirmed with monitoring. The report shall use any acceptable approach approved by the regional water board for evaluating mortality that occurs due to shearing stress resulting from the facility's discharge, including any incremental increase in mortality resulting from a commingled discharge.

(c) For construction-related mortality, the report shall use any acceptable approach approved by the regional water board for evaluating the mortality that occurs within the area disturbed by the facility's construction. The regional water board may determine that the construction-related disturbance does not require mitigation because the disturbance is

* See Appendix I for definition of terms.

temporary and the habitat is naturally restored.

(d) Upon approval of the report by the regional water board in consultation with State Water Board staff, the calculated marine life mortality shall form the basis for the mitigation provided pursuant to this section.

(2) The owner or operator shall mitigate for the mortality of all forms of marine life* determined in the report above by choosing to either complete a mitigation project as described in chapter III.M.2.e.(3) or, if an appropriate fee-based mitigation program is available, provide funding for the program as described in chapter III.M.2.e.(4). The mitigation project or the use of a fee-based mitigation program and the amount of the fee that the owner or operator must pay is subject to regional water board approval.

(3) *Mitigation Option 1: Complete a Mitigation Project.* The mitigation project must satisfy the following provisions:

(a) The owner or operator shall submit a Mitigation Plan. Mitigation Plans shall include: project objectives, site selection, site protection instrument (the legal arrangement or instrument that will be used to ensure the long-term protection of the compensatory mitigation project site), baseline site conditions, a miti-

* See Appendix I for definition of terms.

gation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards and success criteria, monitoring requirements, and financial assurances.

(b) The mitigation project must meet the following requirements:

i. Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds,* estuaries,* coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board that will mitigate for intake and mortality of all forms of marine life* associated with the facility.

ii. The owner or operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF* acreage calculated in the Marine Life Mortality Report above. The owner or operator using surface water intakes shall do modeling to evaluate the areal extent of the mitigation project's production area to confirm that it overlaps the facility's source water body.* Impacts on the mitigation

* See Appendix I for definition of terms.

project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.

iii. The owner or operator shall demonstrate that the project also fully mitigates for the discharge-related marine life mortality projected in the Marine Life Mortality Report above.

iv. The owner or operator shall demonstrate that the project also fully mitigates for the construction-related marine life mortality identified in the Marine Life Mortality Report above.

v. The regional water board may permit out-of-kind mitigation* for mitigation of open water or soft-bottom species. In-kind mitigation* shall be done for all other species whenever feasible.*

vi. For out-of-kind mitigation,* an owner or operator shall evaluate the biological productivity of the impacted open water or soft-bottom habitat calculated in the Marine Life Mortality Report and the proposed mitigation habitat. If the mitigation habitat is a more biologically productive habitat (e.g. wetlands, estu-

* See Appendix I for definition of terms.

aries,* rocky reefs, kelp beds,* eelgrass beds,* surfgrass beds*), the regional water boards may apply a mitigation ratio based on the relative biological productivity of the impacted open water or soft-bottom habitat and the mitigation habitat. The mitigation ratio shall not be less than one acre of mitigation habitat for every ten acres of impacted open water or soft-bottom habitat.

vii. For in-kind mitigation,* the mitigation ratio shall not be less than one acre of mitigation habitat for every one acre of impacted habitat.

viii. For both in-kind* and out-of-kind mitigation,* the regional water boards may increase the required mitigation ratio for any species and impacted natural habitat calculated in the Marine Life Mortality Report when appropriate to account for imprecisions associated with mitigation including, but not limited to, the likelihood of success, temporal delays in productivity, and the difficulty of restoring or establishing the desired productivity functions.

ix. The rationale for the mitigation ratios must be documented in the

* See Appendix I for definition of terms.

administrative record for the permit action.

(c) The Mitigation Plan is subject to approval by the regional water board in consultation with State Water Board staff and with other agencies having authority to condition approval of the project and require mitigation.

(4) *Mitigation Option 2: Fee-based Mitigation Program*. If the regional water board determines that an appropriate fee-based mitigation program has been established by a public agency, and that payment of a fee to the mitigation program will result in the creation and ongoing implementation of a mitigation project that meets the requirements of chapter M.2.e.(3), the owner or operator may pay a fee to the mitigation program in lieu of completing a mitigation project.

(a) The agency that manages the fee-based mitigation program must have legal and budgetary authority to accept and spend mitigation funds, a history of successful mitigation projects documented by having set and met performance standards for past projects, and stable financial backing in order to manage mitigation sites for the operational life of the facility.

(b) The amount of the fee shall be based on the cost of the mitigation project, or if the project is designed to mitigate cumulative impacts from multiple desal-

ination facilities or other development projects, the amount of the fee shall be based on the desalination facility's* fair share of the cost of the mitigation project.

(c) The manager of the fee-based mitigation program must consult with the California Department of Fish and Wildlife, Ocean Protection Council, Coastal Commission, State Lands Commission, and State and regional water boards to develop mitigation projects that will best compensate for intake and mortality of all forms of marine life* caused by the desalination facility.* Mitigation projects that increase or enhance the viability and sustainability of all forms of marine life* in Marine Protected Areas are preferred, if feasible.*

(5) California Department of Fish and Wildlife, the regional water board, and State Water Board may perform audits or site inspections of any mitigation project.

(6) An owner or operator, or a manager of a fee-based mitigation program, must submit a mitigation project performance report to the regional water board 180 days prior to the expiration date of their NPDES permit.

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* See Appendix I for definition of terms.

(7) For conditionally permitted facilities or expanded facilities, the regional water boards may:

(a) Account for previously-approved mitigation projects associated with a facility when making a new Water Code section 13142.5(b) determination.

(b) Require additional mitigation when making a new Water Code section 13142.5(b) determination for any additional mortality of all forms of marine life resulting from the occurrence of the conditional event or the expansion of the facility. The additional mitigation must be to compensate for any additional construction, discharge, or other increases in intake or impacts or an increase in intake and mortality of all forms of marine life.*

3. Receiving Water Limitation for Salinity*

a. Chapter III.M.3 is applicable to all desalination facilities discharging brine* into ocean waters,* including facilities that commingle brine* and wastewater.

b. The receiving water limitation for salinity* shall be established as described below:

(1) Discharges shall not exceed a daily maximum of 2.0 parts per thousand (ppt) above natural background salinity* measured no further than 100 meters (328 ft) horizontally

* See Appendix I for definition of terms.

from each discharge point. There is no vertical limit to this zone.

(2) In determining an effluent limit necessary to meet this receiving water limitation, permit writers shall use the formula in chapter III.C.4 that has been modified for brine* discharges as follows:

Equation 1: Ce= Co + Dm(2.0 ppt)
Ce= (2.0 ppt + Cs) + Dm(2.0 ppt)

Where:

Ce= the effluent concentration limit, ppt

Co= the salinity* concentration to be met at the completion of initial* dilution= 2.0 ppt + Cs

Cs= the natural background salinity,* ppt

Dm= minimum probable initial dilution* expressed as parts seawater* per part brine* discharge

(a) The fixed distance referenced in the initial dilution* definition shall be no more than 100 meters (328 feet).

(b) In addition, the owner or operator shall develop a dilution factor (Dm) based on the distance of 100 meters (328 feet) or initial dilution,* whichever is smaller. The dilution factor (Dm) shall be developed within the brine mixing zone* using applicable water quality models that have been approved by the regional

* See Appendix I for definition of terms.

water boards in consultation with State Water Board staff.

(c) The value 2.0 ppt in Equation 1 is the maximum incremental increase above natural background salinity* (Cs) allowed at the edge of the brine mixing zone.* A regional water board may substitute an alternative numeric value for 2.0 ppt in Equation 1 based upon the results of a facility-specific alternative salinity* receiving water limitation study, as described in chapter III.M.3.c below.

c. An owner or operator may submit a proposal to the regional water board for approval of an alternative (other than 2 ppt) salinity* receiving water limitation to be met no further than 100 meters horizontally from the discharge. There is no vertical limit to this zone.

(1) To determine whether a proposed facility-specific alternative receiving water limitation is adequately protective of beneficial uses, an owner or operator shall:

(a) Establish baseline biological conditions at the discharge location and at reference locations over a 12-month period prior to commencing brine* discharge. The biologic surveys must characterize the ecologic composition of habitat and marine life using measures established by the regional water board. At their discretion, the regional water boards may

* See Appendix I for definition of terms.

permit the use of existing data to meet this requirement.

(b) Conduct at least the following chronic toxicity* Whole Effluent Toxicity (WET) tests: germination and growth for giant kelp (*Macrocystis pyrifera)*; development for red abalone (*Haliotis refescens)*; development and fertilization for purple urchin (*Strongleocentrotus purpuratus)*; development and fertilization for sand dollar (*Dendraster excentricus)*; larval growth rate for topsmelt (*Atherniops affinis)*. WET tests shall be performed by an Environmental Laboratory Accreditation Program (ELAP) certified laboratory.

(c) The regional water board in consultation with State Water Board staff may require an owner or operator to do additional toxicity studies if needed.

(2) The regional water board in consultation with the State Water Board staff may require an owner or operator to provide additional studies or information in order to approve a facility-specific alternative receiving water limitation for salinity.*

(3) The facility-specific alternative receiving water limitation shall be based on the lowest observed effect concentration (LOEC)* for the most sensitive species and toxicity endpoint as determined in the chronic toxicity*

* See Appendix I for definition of terms.

studies. The regional water board in consultation with State Water Board staff has discretion to approve the proposed facility-specific alternative receiving water limitation for salinity.*

(4) The regional water board shall review a facility's monitoring data, the studies as required in chapter III.M.4 below, or any other information that the regional water board deems to be relevant to periodically assess whether the facility-specific alternative receiving water limitation for salinity* is adequately protective of beneficial uses. The regional water board may eliminate or revise a facility-specific alternative receiving water limitation for salinity* based on its assessment of the data.

d. The owner or operator of a facility that has received a conditional Water Code section 13142.5 (b) determination and is over 80 percent constructed by January 28, 2016 that proposes flow augmentation* using a surface water intake may submit a proposal to the regional water board in consultation with the State Water Board staff for approval of an alternative brine mixing zone* not to exceed 200 meters laterally from the discharge point and throughout the water column. The owner or operator of such a facility must demonstrate, in accordance with chapter III.M.2.d.(2)(c), that the combination of the alternative brine mixing zone* and flow augmentation* using a surface water intake provide a comparable level

* See Appendix I for definition of terms.

of intake and mortality of all forms of marine life* as the combination of the standard brine mixing zone* and wastewater dilution if wastewater is available, or multiport diffusers* if wastewater is unavailable. In addition to the analysis of the effects required by chapter III.M.2.d.(2)(c), the owner or operator must also evaluate the individual and cumulative effects of the alternative brine mixing zone* on the intake and mortality of all forms of marine life.* In no case may the discharge result in hypoxic conditions outside of the alternative brine mixing zone.* If an alternative brine mixing zone* is approved, the alternative distance and the areal extent of the alternative brine mixing zone* shall be used in lieu of the standard brine mixing zone* for all purposes, including establishing an effluent limitation and a receiving water limitation for salinity, in chapter III.M.

e. Existing facilities that do not meet the receiving water limitation at the edge of the brine mixing zone* and throughout the water column by January 28, 2016 must either: 1) establish a facility-specific alternative receiving water limitation for salinity* as described in chapter III.M.3.c; or, 2) upgrade the facility's brine* discharge method in order to meet the receiving water limitation in chapter III.M.3.b in accordance with the State Water Board's Compliance Schedule Policy, as set forth in chapter III.M.3.f below. An owner or operator that chooses to upgrade the facility's method of brine* discharge:

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* See Appendix I for definition of terms.

(1) Must demonstrate to the regional water board that the brine* discharge does not negatively impact sensitive habitats,* sensitive species, MPAs, or SWQPAs.*

(2) Is subject to the Considerations for Brine* Discharge Technology described in chapter III.M.2.d.(2).

f. The regional water board may grant compliance schedules for the requirements for brine* waste discharges for desalination facilities.* All compliance schedules shall be in accordance with the State Water Board's Compliance Schedule Policy, except that the salinity* receiving water limitation set forth in chapters III.M.3.b and III.M.3.c shall be considered to be a "new water quality objective" as used in the Compliance Schedule Policy.

g. The regional water board in consultation with the State Water Board staff may require an owner or operator to provide additional studies or information if needed. All studies and models are subject to the approval of the regional water board in consultation with State Water Board staff. The regional water board may require an owner or operator to hire a neutral third party entity to review studies and models and make recommendations to the regional water board.

4. Monitoring and Reporting Programs

a. The owner or operator of a desalination facility* must submit a Monitoring and Reporting Plan to

* See Appendix I for definition of terms.

the regional water board for approval. The Monitoring and Reporting Plan shall include monitoring of effluent and receiving water characteristics and impacts to all forms of marine life.* The Monitoring and Reporting Plan shall, at a minimum, include monitoring for benthic community health, aquatic life toxicity, hypoxia, and receiving water characteristics consistent with Appendix III of this Plan and for compliance with the receiving water limitation in chapter III.M.3. Receiving water monitoring for salinity* shall be conducted at times when the monitoring locations are most likely affected by the discharge. For new or expanded facilities the following additional requirements apply:

(1) An owner or operator must perform facility-specific monitoring to demonstrate compliance with the receiving water limitation for salinity,* and evaluate the potential effects of the discharge within the water column, bottom sediments, and the benthic communities. Facility-specific monitoring is required until the regional water board determines that a regional monitoring program is adequate to ensure compliance with the receiving water limitation. The monitoring and reporting plan shall be reviewed, and revised if necessary, upon NPDES permit renewal.

(2) Baseline biological conditions shall be established at the discharge location and at a reference location prior to commencement of construction. The owner or operator is

* See Appendix I for definition of terms.

> required to conduct biological surveys (e.g., Before-After Control-Impact study), that will evaluate the differences between biological communities at a reference site and at the discharge location before and after the discharge commences. The regional water board will use the data and results from the surveys and any other applicable data for evaluating and renewing the requirements set forth in a facility's NPDES permit.

N. Water Quality Standards Variance

Federal regulations establish an explicit regulatory framework for the adoption of a water quality standards variance (WQS Variance*) that states may use to implement adaptive management approaches to improve water quality (40 C.F.R. § 131.14 (herein referred to as the federal rule)). The State Water Board and Regional Water Boards are not required to adopt specific authorizing provisions into state law before establishing a WQS Variance* consistent with the federal rule. The following explains the existing requirements that a water board must follow to establish a WQS Variance* consistent with the federal rule.

Under the federal rule, a WQS Variance* may be adopted for one or more NPDES dischargers or for a water body or waterbody segment, but the WQS Variance* only applies to the discharger(s) or the water body or waterbody segment specified in the WQS Variance*.

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* See Appendix I for definition of terms.

The federal rule specifies that any WQS Variance* is not effective unless and until it is approved by U.S. EPA. The federal rule also specifies that a WQS Variance* is subject to the public participation requirements at 40 Code of Federal Regulations section 131.20(b), which requires that one or more public hearings be held in accordance with state law and U.S. EPA's public participation regulation (40 C.F.R. part 25).

Where a discharger-specific WQS Variance* is established by a single permit, including an individual permit or a general permit, or other order, the federal rule's public participation requirements must be satisfied, and the provisions in the permit or other order that rely upon the discharger-specific WQS Variance* must be conditioned upon U.S. EPA approval. Because the establishment of a discharger-specific WQS Variance* in such a permit or other order is not the establishment or revision of a rule, the permit action need not be accompanied by a rule-making action. The applicable hearing requirement for any other WQS Variance* would be subject to the hearing requirement and other procedures applicable to revising a water quality control plan, which are consistent with the federal rule's public participation requirements.

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* See Appendix I for definition of terms.

APPENDIX I
DEFINITION OF TERMS

ACUTE TOXICITY

a. Acute Toxicity (TUa)

Expressed in Toxic Units Acute (TUa)

$$TUa = \frac{100}{96\text{–hr LC } 50\%}$$

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. 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.

ALL FORMS OF MARINE LIFE includes all life stages of all marine species.

AREA PRODUCTION FOREGONE (APF), also known as habitat production foregone, is an estimate of the area that is required to produce (replace) the same amount of larvae or propagules* that are removed via entrainment at a desalination facilities* intakes. APF is calculated by multiplying the proportional mortality* by the source water body,* which are both determined using an empirical transport model.*

AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS) are those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that maintenance of natural water quality is assured. All Areas of Special Biological Significance are also classified as a subset of STATE WATER QUALITY PROTECTION AREAS.* ASBS are also referred to as State Water Quality Protection Areas* – Areas of Special Biological Significance (SWQPA-ASBS).

BACTERIA WATER QUALITY OBJECTIVE(S) are the bacteria water quality objectives set forth in Chapter II.B.1.a.(1).

BASIN PLAN is a water quality control plan that consists of a designation or establishment for the waters within a specified area of all of the following: (1) Beneficial uses to be protected, (2) Water quality objectives, (3) A program of implementation needed for achieving water quality objectives.

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* See Appendix I for definition of terms.

BRINE is the byproduct of desalinated* water having a salinity* concentration greater than a desalination facility's* intake source water.

BRINE MIXING ZONE is the area where salinity* may exceed 2.0 parts per thousand above natural background salinity,* or the concentration of salinity* approved as part of an alternative receiving water limitation. The standard brine mixing zone shall not exceed 100 meters (328 feet) laterally from the points of discharge and throughout the water column. An alternative brine mixing zone, if approved as described in chapter III.M.3.d, shall not exceed 200 meters (656 feet) laterally from the points of discharge and throughout the water column. The brine mixing zone is an allocated impact zone where there may be toxic effects on marine life due to elevated salinity.

CALENDAR MONTH(S) is a period of time from a day of one month to the day before the corresponding day of the next month if the corresponding day exists, or if not to the last day of the next month (e.g. from January 1 to January 31, from June 15 to July 14, or from January 31 to February 28).

CHLORDANE shall mean the sum of chlordane-alpha, chlordane-gamma, chlordenealpha, 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.

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* See Appendix I for definition of terms.

a. Chronic Toxicity (TUc)

Expressed as Toxic Units Chronic (TUc)

$$\text{TUc} = \frac{100}{\text{NOEL}}$$

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 III, Table III-1.

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.

DESALINATION FACILITY is an industrial facility that processes water to remove salts and other components from the source water to produce water that is less saline than the source water.

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* See Appendix I for definition of terms.

DICHLOROBENZENES shall mean the sum of 1,2- and 1,3-dichlorobenzene.

DOWNSTREAM OCEAN WATERS shall mean waters downstream with respect to ocean currents.

DREDGED MATERIAL: Any material* excavated or dredged from the navigable waters of the United States, including material* otherwise referred to as "spoil".

EELGRASS BEDS are aggregations of the aquatic plant species of the genus *Zostera*.

EMPIRICAL TRANSPORT MODEL (ETM) is a methodology for determining the spatial area known as the source water body* that contains the source water population, which are the organisms that are at risk of entrainment as determined by factors that may include but are not limited to biological, hydrodynamic, and oceanographic data. ETM can also be used to estimate proportional mortality,* P_m.

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.

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* See Appendix I for definition of terms.

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.

ETM/APF APPROACH OR ANALYSIS. For guidance on how to perform an ETM/APF analysis please see Appendix E of the Staff Report for Amendment to the Water Quality Control Plan For Ocean Waters of California Addressing Desalination Facility Intakes, Brine Discharges, And The Incorporation Of Other Non-substantive Changes.

FEASIBLE for the purposes of chapter III.M, shall mean capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

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* See Appendix I for definition of terms.

FLOW AUGMENTATION is a type of in-plant dilution and occurs when a desalination facility* withdraws additional source water for the specific purpose of diluting brine* prior to discharge.

FULL CAPTURE SYSTEM is a treatment control*, or series of treatment controls*, including but not limited to, a multi-benefit project* or a low-impact development control* that traps all particles that are 5 mm or greater, and has a design treatment capacity that is either: a) of not less than the peak flow rate, Q, resulting from a one-year, one-hour, storm in the subdrainage area, or b) appropriately sized to, and designed to carry at least the same flows as, the corresponding storm drain.

[Rational equation is used to compute the peak flow rate: $Q = C \cdot I \cdot A$, where Q = design flow rate (cubic feet per second, cfs); C = runoff coefficient (dimensionless); I = design rainfall intensity (inches per hour, as determined per the rainfall isohyetal map specific to each region, and A = subdrainage area (acres).]

Prior to installation, full capture systems must be certified by the Executive Director, or designee, of the State Water Board. Uncertified full capture systems* will not satisfy the requirements of these Trash Provisions*. To request certification, a permittee shall submit a certification request letter that includes all relevant supporting documentation to the State Water Board's Executive Director. The Executive Director, or designee, shall issue a written determination approving or denying the certification of the proposed

* See Appendix I for definition of terms.

full capture system* or conditions of approval, including a schedule to review and reconsider the certification. Full capture systems* certified by the Los Angeles Regional Water Board prior to the effective date of these Trash Provisions* and full capture systems* listed in Appendix I of the Bay Area-wide Trash Capture Demonstration Project, Final Project Report (May 8, 2014) will satisfy the requirements of these Trash Provisions*, unless the Executive Director, or designee, of the State Water Board determines otherwise.

FULL CAPTURE SYSTEM EQUIVALENCY is the Trash* load that would be reduced if full capture systems* were installed, operated, and maintained for all storm drains that capture runoff from the relevant areas of land (priority land uses*, significant trash generating areas*, facilities or sites regulated by NPDES permits for discharges of storm water* associated with industrial activity, or specific land uses or areas that generate substantial amounts of Trash*, as applicable). The full capture system equivalency* is a Trash* load reduction target that the permittee quantifies by using an approach, and technically acceptable and defensible assumptions and methods for applying the approach, subject to the approval of permitting authority*. Examples of such approaches include, but are not limited to, the following:

(1) Trash Capture Rate Approach. Directly measure or otherwise determine the amount of Trash* captured by full capture systems* for representative samples of all similar types of land uses, facilities, or areas within

* See Appendix I for definition of terms.

the relevant areas of land over time to identify specific trash capture rates. Apply each specific Trash* capture rate across all similar types of land uses, facilities, or areas to determine full capture system equivalency*. Trash* capture rates may be determined either through a pilot study or literature review. Full capture systems* selected to evaluate Trash* capture rates may cover entire types of land uses, facilities, or areas, or a representative subset of types of land uses, facilities, or areas. With this approach, full capture system equivalency* is the sum of the products of each type of land use, facility, or area multiplied by Trash* capture rates for that type of land use, facility, or area.

(2) Reference Approach. Determine the amount of Trash* in a reference receiving water in a reference watershed where full capture systems* have been installed for all storm drains that capture runoff from all relevant areas of land. The reference watershed must be comprised of similar types and extent of sources of trash* and land uses (including priority land uses* and all other land uses), facilities, or areas as the permittee's watershed. With this approach, full capture system equivalency* would be demonstrated when the amount of Trash* in the receiving water is equivalent to the amount of Trash* in the reference receiving water.

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* See Appendix I for definition of terms.

GEOMETRIC MEAN (GM) is a type of mean or average that indicates the central tendency or typical value of a set of numbers by using the product of their values (as opposed to the arithmetic mean which uses their sum). The geometric mean is defined as the nth root of the product of n numbers. The formula is expressed as: $\mathrm{GM} = \sqrt[n]{(x_1)(x_2)(x_3)\ldots(x_n)}$, where x is the sample value and n is the number of samples taken.

GRAYWATER is drainage from galley, dishwasher, shower, laundry, bath, and lavatory wash basin sinks, and water fountains, but does not include drainage from toilets, urinals, hospitals, or cargo spaces.

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

HCH shall mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.

INDICATOR BACTERIA includes total coliform bacteria, fecal coliform bacteria (or *E. coli*), and/or Enterococcus bacteria.

IN-KIND MITIGATION is when the habitat or species lost is the same as what is replaced through mitigation.

INSTITUTIONAL CONTROLS are non-structural best management practices (i.e., no structures are involved) that may include, but not be limited to, street sweeping, sidewalk Trash* bins, collection of the

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* See Appendix I for definition of terms.

Trash, anti-litter educational and outreach programs, producer take-back for packaging, and ordinances.

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, are aggregations of marine algae of the order Laminariales, including species in the genera *Macrocystis, Nereocystis, and Pelagophycus*. Kelp beds include the total foliage canopy throughout the water column.

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* See Appendix I for definition of terms.

LARGE PASSENGER VESSELS are vessels of 300 gross registered tons or greater engaged in carrying passengers for hire. The following vessels are not large passenger vessels:

(1) Vessels without berths or overnight accommodations for passengers;

(2) Noncommercial vessels, warships, vessels operated by nonprofit entities as determined by the Internal Revenue Service, and vessels operated by the state, the United States, or a foreign government;

(3) Oceangoing vessels,* as defined below (e.g. those used to transport cargo).

LOW-IMPACT DEVELOPMENT CONTROLS are treatment controls* that employ natural and constructed features that reduce the rate of storm water* runoff, filter out pollutants, facilitate storm water* storage onsite, infiltrate storm water* into the ground to replenish groundwater supplies, or improve the quality of receiving groundwater and surface water. (See Water Code § 10564.)

LOEC is the lowest observed effect concentration or the lowest concentration of effluent that causes observable adverse effects in exposed test organisms.

MARICULTURE is the culture of algae, plants, and animals in marine waters independent of any pollution source.

MARINE MANAGED AREAS are named, discrete geographic marine or estuarine areas along the California coast designated by law or administrative

* See Appendix I for definition of terms.

action, and intended to protect, conserve, or otherwise manage a variety of resources and their uses. According to the California Public Resources Code (§§ 36600 et seq.) there are six classifications of marine managed areas, including State Marine Reserves, State Marine Parks and State Marine Conservation Areas, State Marine Cultural Preservation Areas, State Marine Recreational Management Areas, and State Water Quality Protection Areas.*

MARKET SQUID NURSURIES are comprised of numerous egg capsules, each containing approximately 200 developing embryos, attached in clusters or mops to sandy substrate with moderate water flow. Market squid (*Doryteuthis opalescens*) nurseries occur at a wide range of depths; however, mop densities are greatest in shallow, nearshore waters between ten and 100 meters (328 feet) deep.

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.* For the purposes of chapter III.M.2.d, materials relates to the common usage in (a).

METHOD DETECTION LIMIT (MDL) is the minimum concentration of a substance that can be measured and reported with 99% confidence that the

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* See Appendix I for definition of terms.

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.

MULTI-BENEFIT PROJECT is a treatment control* project designed to achieve any of the benefits set forth in section 10562, subdivision (d) of the Water Code. Examples include projects designed to: infiltrate, recharge or store storm water* for beneficial reuse; develop or enhance habitat and open space through storm water* and non-storm water management; and/or reduce storm water* and non-storm water runoff volume.

MULTIPORT DIFFUSERS are linear structures consisting of spaced ports or nozzles that are installed on submerged marine outfalls. For the purposes of chapter III.M, multiport diffusers discharge brine* waste into an ambient receiving water body and enable rapid mixing, dispersal, and dilution of brine* within a relatively small area.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) has the same meaning set forth in 40 Code of Federal Regulations section 122.26(b)(8).

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* See Appendix I for definition of terms.

NATURAL BACKGROUND SALINITY is the salinity* at a location that results from naturally occurring processes and is without apparent human influence. For purposes of determining natural background salinity, the regional water board may approve the use of:

(1) the mean monthly natural background salinity. Mean monthly natural background salinity shall be determined by averaging 20 years of historical salinity* data in the proximity of the proposed discharge location and at the depth of the proposed discharge, when feasible.* For historical data not recorded in parts per thousand, the regional water boards may accept converted data at their discretion. When historical data are not available, natural background salinity shall be determined by measuring salinity* at depth of proposed discharge for three years, on a weekly basis prior to a desalination facility* discharging brine,* and the mean monthly natural salinity* shall be used to determine natural background salinity; or

(2) the actual salinity at a reference location, or reference locations, that is representative of natural background salinity at the discharge location. The reference locations shall be without apparent human influence, including wastewater outfalls and brine discharges.

Either method to establish natural background salinity may be used for the purpose of determining

* See Appendix I for definition of terms.

compliance with the receiving water limitation or an effluent limitation for salinity. If a reference location(s) is used for compliance monitoring, the permit should specify that historical data shall be used if reference location data becomes unavailable. An owner or operator shall submit to the regional water board all necessary information to establish natural background salinity.

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.

NO DISCHARGE ZONE (NDZ) is an area in which both treated and untreated sewage discharges from vessels are prohibited. Within NDZ boundaries, vessel operators are required to retain their sewage discharges onboard for disposal at sea (beyond three miles from shore) or onshore at a pump-out facility.

NON-STORM WATER DISCHARGE is any runoff that is not the result of a precipitation event. This is often referred to as "dry weather flow."

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.

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* See Appendix I for definition of terms.

OCEANGOING VESSELS (i.e., oceangoing ships) means commercial vessels of 300 gross registered tons or more calling on California ports or places, excluding active military vessels.

OILY BILGE WATER includes bilge water that contains used lubrication oils, oil sludge and slops, fuel and oil sludge, used oil, used fuel and fuel filters, and oily waste.

OUT-OF-KIND MITIGATION is when the habitat or species lost is different than what is replaced through mitigation.

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.

PERMITTING AUTHORITY means the State Water Board or Regional Water Board, whichever issues the permit.

PREPRODUCTION PLASTIC has the same meaning set forth in section 13367(a) of the Water Code.

PRIORITY LAND USES are those developed sites, facilities, or land uses (i.e., not simply zoned land uses) within the MS4 permittee's jurisdiction

from which discharges of Trash* are regulated by this Ocean Plan as follows:

(1) **High-density residential:** all land uses with at least ten (10) developed dwelling units/acre.

(2) Industrial: land uses where the primary activities on the developed parcels involve product manufacture, storage, or distribution (e.g., manufacturing businesses, warehouses, equipment storage lots, junkyards, wholesale businesses, distribution centers, or building material sales yards).

(3) Commercial: land uses where the primary activities on the developed parcels involve the sale or transfer of goods or services to consumers (e.g., business or professional buildings, shops, restaurants, theaters, vehicle repair shops, etc.)

(4) Mixed urban: land uses where high-density residential, industrial, and/or commercial land uses predominate collectively (i.e., are intermixed).

(5) Public transportation stations: facilities or sites where public transit agencies' vehicles load or unload passengers or goods (e.g., bus stations and stops).

Equivalent alternate land uses: An MS4* permittee with regulatory authority over priority land uses* may issue a request to the applicable permitting authority* that the MS4* permittee be allowed to

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* See Appendix I for definition of terms.

substitute one or more land uses identified above with alternates land use within the MS4* permittee's jurisdiction that generates rates of Trash* that are equivalent to or greater than the priority land use(s)* being substituted. The land use area requested to substitute for a priority land use* need not be an acre-for-acre substitution but may involve one or more priority land uses*, or a fraction of a priority land use*, or both, provided the total trash* generated in the equivalent alternative land use is equivalent to or greater than the total Trash* generated from the priority land use(s)* for which substitution is requested. Comparative Trash* generation rates shall be established through the reporting of quantification measures such as street sweeping and catch basin cleanup records; mapping; visual trash presence surveys, such as the "Keep America Beautiful Visible Litter Survey"; or other information as required by the permitting authority*.

PROPAGULES are structures that are capable of propagating an organism to the next stage in its life cycle via dispersal. Dispersal is the movement of individuals from their birth site to their reproductive grounds.

PROPORTIONAL MORTALITY, Pm, is percentage of larval organisms or propagules* in the source water body* that is expected to be entrained at a desalination facility's* intake. It is assumed that all entrained larvae or propagules* die as a result of entrainment.

RECEIVING WATER, for permitted storm water discharges and nonpoint sources, should be measured

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* See Appendix I for definition of terms.

at the point of discharge(s), in the surf zone immediately where runoff from an outfall meets the ocean water (a.k.a., at point zero).

REFERENCE SYSTEM is a watershed or waterbody segment determined by the Water Board to be minimally disturbed by anthropogenic stresses but otherwise is representative of conditions of the assessed site, watershed, or water body segment.

SALINITY is a measure of the dissolved salts in a volume of water. For the purposes of this Plan, salinity shall be measured using a standard method approved by the regional water board (e.g. Standard Method 2520 B, EPA Method 120.1, EPA Method 160.1) and reported in parts per thousand (ppt). For historical salinity data not recorded in parts per thousand, the regional water boards may accept converted data at their discretion.

SEAWATER is salt water that is in or from the ocean. For the purposes chapter III.M, seawater includes tidally influenced waters in coastal estuaries and coastal lagoons* and underground salt water beneath the seafloor, beach, or other contiguous land with hydrologic connectivity to the ocean.

SENSITIVE HABITATS, for the purposes of this Plan, are kelp beds,* rocky substrate, surfgrass beds,* eelgrass beds,* oyster beds, spawning grounds for state or federally managed species, market squid nurseries,* or other habitats in need of special protection as determined by the Water Boards.

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* See Appendix I for definition of terms.

SHELLFISH are organisms identified by the California Department of Public Health 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.

SIGNIFICANT TRASH GENERATING AREAS means all locations or facilities within the Department's jurisdiction where Trash* accumulates in substantial amounts, such as:

(1) Highway on- and off-ramps in high density residential, commercial, and industrial land uses (as such land uses are defined under priority land uses* herein).

(2) Rest areas and park-and-rides.

(3) State highways in commercial and industrial land uses (as such land uses are defined under priority land uses* herein).

(4) Mainline highway segments to be identified by the Department through pilot studies and/or surveys.

SINGLE SAMPLE MAXIMUM (SSM) is a maximum value not to be exceeded in any single sample.

SOURCE WATER BODY is the spatial area that contains the organisms that are at risk of entrainment at a desalination facility* as determined by factors

* See Appendix I for definition of terms.

that may include, but are not limited to, biological, hydrodynamic, and oceanographic data.

STATE WATER QUALITY PROTECTION AREAS (SWQPAs) are nonterrestrial marine or estuarine areas designated to protect marine species or biological communities from an undesirable alteration in natural water quality. All Areas of Special Biological Significance (ASBS)* that were previously designated by the State Water Board in Resolutions 74-28, 74-32, and 75-61 are now also classified as a subset of State Water Quality Protection Areas and require special protections afforded by this Plan.

STATE WATER QUALITY PROTECTION AREAS – GENERAL PROTECTION (SWQPA-GP) designated by the State Water Board to protect marine species and biological communities from an undesirable alteration in natural water quality within State Marine Parks and State Marine Conservation Areas.

STATISTICAL THRESHOLD VALUE (STV) for the bacteria water quality objective* is a set value that approximates the 90th percentile of the water quality distribution of a bacterial population. The STV* for the bacteria water quality objective* is 110 cfu/100mL.

STORM WATER has the same meaning set forth in 40 Code of Federal Regulations section 122.26 (b)(13) (Nov. 16, 1990).

SUBSURFACE INTAKE, for the purposes of chapter III.M, is an intake withdrawing seawater*

* See Appendix I for definition of terms.

from the area beneath the ocean floor or beneath the surface of the earth inland from the ocean.

SURFGRASS BEDS are aggregations of marine flowering plants of the genus *Phyllospadix*.

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

TRASH means all improperly discarded solid material from any production, manufacturing, or processing operation including, but not limited to, products, product packaging, or containers constructed

of plastic, steel, aluminum, glass, paper, or other synthetic or natural materials.

TRASH PROVISIONS are the water quality objective for Trash*, as well as the prohibition of discharge set forth in Chapter III.I and implementation requirements set forth in Chapter III.L herein.

TREATMENT CONTROLS are structural best management practices to either (a) remove pollutants and/or solids from storm water* runoff, wastewater, or effluent, or (b) capture, infiltrate or reuse storm water* runoff, wastewater, or effluent. Treatment controls include full capture systems* and low-impact development controls*.

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.

WQS VARIANCE: A water quality standards variance**,** as defined by 40 Code of Federal Regulations section 131.3(o), is a time-limited designated use and criterion for a specific pollutant(s) or water quality parameter(s) that reflect the highest attainable condition during the term of the water quality standards variance.

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* See Appendix I for definition of terms.

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 State Water Board. There are four major chemical groupings: volatile chemicals, semi-volatile chemicals, inorganics, pesticides & PCBs.* "No Data" is indicated by "--".

Table II-1
Minimum* Levels – Volatile Chemicals

		Minimum Level* (µg/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

* See Appendix I for definition of terms.

Chlorodibromo-methane	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
Dichlorobromo-methane	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-Tetrachloro-ethane	79345	0.5	2
Tetrachloro-ethylene	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* (µg/L): Method			
		GC [a, *]	GCMS [b, *]	HPLC [c, *]	Color [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-Chloro-ethyl) ether	111444	10	1	--	--
Bis (2-Chloroi-sopropyl)ether	39638329	10	2	--	--

* See Appendix I for definition of terms.

Bis (2-Ethylhexyl) phthalate	117817	10	5	--	--
2-Chloro-phenol	95578	2	5	--	--
Chrysene	218019	--	10	5	--
Di-n-butyl phthalate	84742	--	10	--	--
Dibenzo (a,h) anthracene	53703	--	10	0.1	--
1,2-Dichloro-benzene (semivolatile)	95504	2	2	--	--
1,4-Dichlo-robenzene (semi-volatile)	106467	2	1	--	--
3,3-Dichloro-benzidine	91941	--	5	--	--
2,4-Dichlo-rophenol	120832	1	5	--	--
1,3-Dichlo-ropropene	542756	--	5	--	
Diethyl phthalate	84662	10	2	--	--
Dimethyl phthalate	131113	10	2	--	--
2,4-Dimethyl-phenol	105679	1	2	--	--

2,4-Dinitro-phenol	51285	5	5	--	--
2,4-Dinitro-toluene	121142	10	5	--	--
1,2-Diphenyl-hydrazine	122667	--	1	--	--
Fluoranthene	206440	10	1	0.05	--
Fluorene	86737	--	10	0.1	--
Hexachloro-benzene	118741	5	1	--	--
Hexachloro-butadiene	87683	5	1	--	--
Hexachloro-cyclopenta-diene	77474	5	5	--	--
Hexachloro-ethane	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-nitroso-dimethyl-amine	62759	10	5	--	--
N-nitrosodi-phenylamine	86306	10	1	--	--
Nitrobenzene	98953	10	1	--	--
2-Nitrophenol	88755	--	10	--	--
4-Nitrophenol	100027	5	10	--	--
Pentachloro-phenol	87865	1	5	--	--
Phenanthrene	85018	--	5	0.05	--
Phenol	108952	1	1	--	50
Pyrene	129000	--	10	0.05	--
2,4,6-Tri-chlorophenol	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

Minimum* Level (µg/L):

Inorganic Substances

Antimony

CAS Number	7440360
Color Method[a]	--
DCP Method[b]	1000.
FAA Method[c]	10.
GFAA Method[d]	5.
HYDRIDE Method[e]	0.5
ICP Method[f]	50.
ICPMS Method[g]	0.5
SPGFAA Method[h]	5.
CVAA Method[i]	--

Arsenic

CAS Number	7440382
Color Method[a]	20.
DCP Method[b]	1000.
FAA Method[c]	--
GFAA Method[d]	2.
HYDRIDE Method[e]	1.
ICP Method[f]	10.
ICPMS Method[g]	2.
SPGFAA Method[h]	2.
CVAA Method[i]	--

* See Appendix I for definition of terms.

* See Appendix I for definition of terms.

Beryllium

CAS Number	7440417
Color Method[a]	--
DCP Method[b]	1000.
FAA Method[c]	20.
GFAA Method[d]	0.5.
HYDRIDE Method[e]	--
ICP Method[f]	2.
ICPMS Method[g]	0.5.
SPGFAA Method[h]	1.
CVAA Method[i]	--

Cadmium

CAS Number	7440439
Color Method[a]	--
DCP Method[b]	1000.
FAA Method[c]	10.
GFAA Method[d]	0.5.
HYDRIDE Method[e]	--
ICP Method[f]	10.
ICPMS Method[g]	0.2.
SPGFAA Method[h]	0.5.
CVAA Method[i]	--

Chromium (total)

CAS Number	--
Color Method[a]	--
DCP Method[b]	1000.
FAA Method[c]	50.
GFAA Method[d]	2.
HYDRIDE Method[e]	--
ICP Method[f]	10.
ICPMS Method[g]	0.5.
SPGFAA Method[h]	1.
CVAA Method[i]	--

Chromium (VI)

CAS Number	18540299
Color Method[a]	10.
DCP Method[b]	--
FAA Method[c]	5.
GFAA Method[d]	--
HYDRIDE Method[e]	--
ICP Method[f]	--
ICPMS Method[g]	--
SPGFAA Method[h]	--
CVAA Method[i]	--

Copper

CAS Number	7440508
Color Method[a]	--
DCP Method[b]	1000.
FAA Method[c]	20.
GFAA Method[d]	5.
HYDRIDE Method[e]	--
ICP Method[f]	10.
ICPMS Method[g]	0.5.
SPGFAA Method[h]	2.
CVAA Method[i]	--

Cyanide

CAS Number	57125
Color Method[a]	5.
DCP Method[b]	--
FAA Method[c]	--
GFAA Method[d]	--
HYDRIDE Method[e]	--
ICP Method[f]	--
ICPMS Method[g]	--
SPGFAA Method[h]	--
CVAA Method[i]	--

Lead

CAS Number	7439921
Color Method[a]	--
DCP Method[b]	10000.
FAA Method[c]	20.
GFAA Method[d]	5.
HYDRIDE Method[e]	--
ICP Method[f]	5.
ICPMS Method[g]	0.5
SPGFAA Method[h]	2.
CVAA Method[i]	--

Mercury

CAS Number	7439976
Color Method[a]	--
DCP Method[b]	--
FAA Method[c]	--
GFAA Method[d]	--
HYDRIDE Method[e]	--
ICP Method[f]	--
ICPMS Method[g]	0.5
SPGFAA Method[h]	--
CVAA Method[i]	0.2.

Nickel

CAS Number	7440020
Color Method[a]	--
DCP Method[b]	1000.
FAA Method[c]	50.
GFAA Method[d]	5.
HYDRIDE Method[e]	--
ICP Method[f]	20.
ICPMS Method[g]	1.
SPGFAA Method[h]	5.
CVAA Method[i]	--

Selenium

CAS Number	7782492
Color Method[a]	--
DCP Method[b]	1000.
FAA Method[c]	--
GFAA Method[d]	5.
HYDRIDE Method[e]	1.
ICP Method[f]	10.
ICPMS Method[g]	2.
SPGFAA Method[h]	5.
CVAA Method[i]	--

Silver

CAS Number	7440224
Color Method[a]	--
DCP Method[b]	1000.
FAA Method[c]	10.
GFAA Method[d]	1.
HYDRIDE Method[e]	--
ICP Method[f]	10.
ICPMS Method[g]	0.2.
SPGFAA Method[h]	2.
CVAA Method[i]	--

Thallium

CAS Number	7440280
Color Method[a]	--
DCP Method[b]	1000.
FAA Method[c]	10.
GFAA Method[d]	2.
HYDRIDE Method[e]	--
ICP Method[f]	10.
ICPMS Method[g]	1.
SPGFAA Method[h]	5.
CVAA Method[i]	--

Zinc

CAS Number	7440666
Color Method[a]	--
DCP Method[b]	1000.
FAA Method[c]	20.
GFAA Method[d]	--
HYDRIDE Method[e]	--
ICP Method[f]	20.
ICPMS Method[g]	1.
SPGFAA Method[h]	10.
CVAA Method[i]	--

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., US 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 PCBs*

Pesticides – PCBs	CAS Number	Minimum* Level (µg/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

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* See Appendix I for definition of terms.

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

1. INTRODUCTION

The purpose of this appendix is to provide guidance to the Regional Water Boards on implementing the Ocean Plan and to ensure the reporting of useful information. Monitoring should be question driven rather than just gathering data and should be focused on assuring compliance with narrative and numeric water quality standards, the status and attainment of beneficial uses, and identifying sources of pollution.

It is not feasible to prescribe requirements in the Ocean Plan that encompass all circumstances and conditions that could be encountered by all dischargers, nor is it desirable to limit the flexibility of the Regional Water Boards in the monitoring of ocean* waters. This appendix should therefore be considered the basic framework for the design of an ocean discharger monitoring program. The Regional Water Boards are responsible for issuing monitoring and reporting programs (MRPs) that will implement this monitoring guidance. Regional Water Boards can deviate from the procedures required in the appendix only with the approval of the State Water Resources Control Board.

This monitoring guidance utilizes a model monitoring framework. The model monitoring framework has three components that comprise a range of spatial and

* See Appendix I for definition of terms.

temporal scales: (1) core monitoring, (2) regional monitoring, and (3) special studies.

(1) Core monitoring consists of the basic site-specific monitoring necessary to measure compliance with individual effluent limits and/or impacts to receiving water* quality. Core monitoring is typically conducted in the immediate vicinity of the discharge by examining local scale spatial effects.

(2) Regional monitoring provides information necessary to make assessments over large areas and serves to evaluate cumulative effects of all anthropogenic inputs. Regional monitoring data also assists in the interpretation of core monitoring studies. It is recommended that the Regional Water Boards require participation by the discharger in an approved regional monitoring program, if available, for the receiving water.* In the event that a regional monitoring effort takes place during a permit cycle in which the MRP does not specifically address regional monitoring, a Regional Water Board may allow relief from aspects of core monitoring components in order to encourage participation.

(3) Special studies are directed monitoring efforts designed in response to specific management or research questions identified through either core or regional monitoring programs. Often they are used to help understand core or regional monitoring results, where a specific

* See Appendix I for definition of terms.

> environmental process is not well understood, or to address unique issues of local importance. Regional Water Boards may require special studies as appropriate. Special studies are not addressed further in this guidance because they are beyond its scope.

The Ocean Plan does not address all site-specific monitoring issues and allows the Regional Water Boards to select alternative protocols with the approval of the State Water Board. If no direction is given in this appendix for a specific provision of the Ocean Plan, it is within the discretion of the Regional Water Boards to establish the monitoring requirements for that provision.

2. QUALITY ASSURANCE

All receiving* and ambient water monitoring conducted in compliance with MRPs must be comparable with the Quality Assurance requirements of the Surface Water Ambient Monitoring Program (SWAMP).

SWAMP comparable means all sample collection and analyses shall meet or exceed the measurement quality objectives (MQOs) – including all sample types, frequencies, control limits and holding time requirements – as specified in the SWAMP Quality Assurance Project Plan (QAPrP)

The SWAMP QAPrP is located at:

http://www.waterboards.ca.gov/water_issues/programs/swamp/tools.shtml#qa.

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* See Appendix I for definition of terms.

For those measurements that do not have SWAMP MQOs available, then MQOs shall be at the discretion of the Regional Water Board. Refer to the USEPA guidance document (EPA QA/G-4) for selecting data quality objectives, located at http://www.epa.gov/quality/qs-docs/g4-final.pdf.

Water Quality data must be reported according to the California Environmental Data Exchange Network (CEDEN) "Data Template" format for all constituents that are monitored in receiving and ambient water. CEDEN Data Template are available at: http://ceden.org.

3. TYPE OF WASTE DISCHARGE SOURCES

Discharges to ocean waters* are highly diverse and variable, exhibiting a wide range of constituents, effluent quality and quantity, location and frequency of discharge. Different types of discharges will require different approaches. This Appendix provides specific direction for three broad types of discharges: (1) Point Sources, (2) Storm Water Point Sources and (3) Non-point Sources.

3.1. Point Sources

Industrial, municipal, marine laboratory and other traditional point sources of pollution that discharge wastewater directly to surface waters and are required to obtain NPDES permits.

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* See Appendix I for definition of terms.

3.2. Storm Water Point Sources

Storm Water Point Sources, hereafter referred to as Storm Water Sources, are those NPDES permitted discharges regulated by Construction or Industrial Storm Water General Permits or municipal separate storm sewer system (MS4s) Permits. MS4 Permits are further divided into Phase I and II Permits. A Phase I MS4 Permit is issued by a Regional Water Board for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 or more people) municipalities. A Phase II MS4 General Permit is issued by the State Water Resources Control Board for the discharge of storm water for smaller municipalities, and includes nontraditional Small MS4s, which are governmental facilities such as military bases, public campuses, prison and hospital complexes.

3.3. Non-point Sources

A Non-point Source is any source of pollutants that is not a Point Source described in section 3.1 or a Storm Water Source as described in section 3.2. Land use categories contributing to non-point sources include but are not limited to:

a. Agriculture

b. Grazing

c. Forestry/timber harvest

d. Urban not covered under an NPDES permit

e. Marinas and mooring fields

f. Golf Courses not covered under an NPDES Permit

Only agricultural and golf course related non-point source discharge monitoring is addressed in this Appendix, but Regional Water Boards may issue MRPs for other non-point sources at their discretion. Agriculture includes irrigated lands. Irrigated lands are where water is applied for the purpose of producing crops, including, but not limited to, row and field crop, orchards, vineyard, rice production, nurseries, irrigated pastures, and managed wetlands.

4. INDICATOR BACTERIA*

4.1. Point Sources

Primary questions to be addressed:

1. Does the effluent comply with the water quality standards in the receiving water*?
2. Does the sewage effluent reach water contact zones or commercial shellfish* beds?

To answer these questions, core monitoring shall be conducted in receiving water* on the shoreline for the indicator bacteria* at a minimum weekly for any point sources discharging treated sewage effluent:

a. within one nautical mile of shore, or

b. within one nautical mile of a commercial shellfish* bed, or

c. if the discharge is in excess of 10 million gallons per day (MGD).

Alternatively, these requirements may be met through participation in a regional monitoring program to assess the status of marine contact recreation water

* See Appendix I for definition of terms.

quality. If the permittee participates in a regional monitoring program, in conjunction with local health organization(s), core monitoring may be suspended for that period at the discretion of the Regional Water Board. Regional monitoring should be used to answer the above questions, and may be used to answer additional questions. These additional questions may include, but are not limited to, questions regarding the extent and magnitude of current or potential receiving water* indicator bacteria* problems, or the sources of indicator bacteria.*

4.2. Storm Water

Primary questions to be addressed:

1. Does the receiving water* comply with water quality standards?
2. Is the condition of the receiving water* protective of contact recreation and shellfish* harvesting beneficial uses?
3. Are the indicator bacteria* levels in receiving water* getting better or worse?
4. What is the relative contribution of indicator bacteria* to the receiving water* from storm water runoff?

To answer these questions, core monitoring for indicator bacteria* shall be required periodically for storm water discharges representative of the area of concern. At a minimum, for municipal storm water discharges, all receiving water* at outfalls greater than

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* See Appendix I for definition of terms.

36 inches in diameter or width must be monitored (ankle depth, point zero) at the following frequencies:

a. During wet weather with a minimum of three storms per year, and

b. When non-storm water discharges* occur (flowing during dry weather), and if located at an AB 411 beach, at least weekly. (An AB 411 Beach is defined as a beach visited by more than 50,000 people annually and located on an area adjacent to a storm drain that flows in the summer. (Health & Saf. Code § 115880.)).

Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled indicator bacteria.*

Alternatively, these requirements may be met through participation in a regional monitoring program to assess the status of marine contact recreation water quality. If the permittee participates in a regional monitoring program, in conjunction with local health organization(s), core monitoring may be suspended for that period at the discretion of the Regional Water Board. Regional monitoring should be used to answer the above questions, and may be used to answer additional questions. These additional questions may include, but are not limited to, questions regarding the extent and magnitude of current or potential receiving water* indicator bacteria* problems, or the sources of indicator bacteria.*

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* See Appendix I for definition of terms.

4.3. Non-point Sources

Primary questions to be addressed:

1. Does the receiving water* comply with water quality standards?
2. Do agricultural and golf course non-point source discharges reach water contact or shellfish* harvesting zones?
3. Are the indicator bacteria* levels in receiving water* getting better or worse?
4. What is the relative contribution of indicator bacteria* to the receiving water* from agricultural and golf course non-point sources?

To answer these questions, core monitoring of representative agricultural irrigation tail water and storm water runoff, at a minimum, will be conducted in receiving water* (ankle depth, point zero) for indicator bacteria*:

a. During wet weather, at a minimum of two storm events per year, and

b. When non-storm water discharges* occur (flowing during dry weather), and if located at an AB 411 beach or within one nautical mile of shellfish* bed, at least weekly.

Alternatively, these requirements may be met through participation in a regional monitoring program to assess the status of marine contact recreation water quality. If the discharger participates in a regional monitoring program, in conjunction with local health organization(s), core monitoring may be suspended for

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* See Appendix I for definition of terms.

that period at the discretion of the Regional Water Board. Regional monitoring should be used to answer the above questions, and may be used to answer additional questions. These additional questions may include, but are not limited to, questions regarding the extent and magnitude of current or potential receiving water* indicator bacteria* problems, or the sources of indicator bacteria.*

5. CHEMICAL CONSTITUENTS

5.1. Point Sources

Primary questions addressed:

1. Does the effluent meet permit effluent limits thereby ensuring that water quality standards are achieved in the receiving water*?
2. What is the mass of the constituents that are discharged annually?
3. Is the effluent concentration or mass changing over time?

Consistent with Appendix VI, the core monitoring for the substances in Table 3 and Table 4 shall be required periodically. For discharges less than 10 MGD, the monitoring frequency shall be at least one complete scan of the Table 3 substances annually. Discharges greater than 10 MGD shall be required to monitor at least semiannually.

5.2. Storm Water

Primary questions addressed:

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* See Appendix I for definition of terms.

1. Does the receiving water* meet the water quality standards?
2. Are the conditions in receiving water* getting better or worse?
3. What is the relative runoff contribution to pollution in the receiving water*?

For Phase I and Phase II MS4 dischargers, core receiving water* monitoring will be required at a minimum for 10 percent of all outfalls greater than 36 inches in diameter or width once per year. If a discharger has less than five outfalls exceeding 36 inches in diameter or width, they shall conduct monitoring at a minimum of only once per outfall during a five year period. Monitoring shall be for total suspended solids, oil & grease, total organic carbon, pH, temperature, biochemical oxygen demand, turbidity, Table 3 metals, PAHs, and pesticides determined by the Regional Water Boards. Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled pollutants.

For industrial storm water discharges, runoff monitoring must be conducted at all outfalls at least two storm events per year. In addition, at least one representative receiving water* sample must be collected per industrial storm water permittee during two storm events per year. Monitoring shall be conducted for total suspended solids, oil & grease, total organic carbon, pH, temperature, biochemical oxygen demand, turbidity, and Table 3 metals and PAHs.*

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* See Appendix I for definition of terms.

The requirements for individual core monitoring for Table 3 metals, PAHs* and pesticides may be waived at the discretion of the Regional Water Board, if the permittee participates in a regional program for monitoring runoff and/or receiving water* to answer the above questions as well as additional questions. Additional questions may include, but are not limited to, questions regarding the extent and magnitude of current or potential receiving water* problems from storm water runoff, or sources of any runoff pollutants.

5.3. Non-point Sources

The primary questions are:

1. Does the agricultural or golf course runoff meet water quality standards in the receiving water*?
2. Are nutrients present that would contribute to objectionable aquatic algal blooms or degrade* indigenous biota?
3. Are the conditions in receiving water* getting better or worse?
4. What is the relative agricultural runoff or golf course contribution to pollution in the receiving water*?

To answer these questions, a statistically representative sample (determined by the Regional Water Board) of receiving water* at the sites of agricultural irrigation tail water and storm water runoff, and golf course runoff in each watershed will be monitored for Ocean Plan Table 3 metals, ammonia as N, nitrate as

* See Appendix I for definition of terms.

N, phosphate as P, and pesticides determined by the Regional Board:

a. During wet weather, at a minimum of two storm events per year, and

b. During dry weather, when flowing, at a frequency determined by the Regional Boards.

This requirement may be satisfied by core monitoring individually, or through participation in a regional program for monitoring runoff and receiving water* at the discretion of the Regional Water Board to answer the above questions as well as additional questions. Additional questions may include, but are not limited to, questions regarding the sources of agricultural pollutants.

6. SEDIMENT MONITORING

All Sources:

1. Is the dissolved sulfide concentration of waters in sediments significantly* increased above that present under natural conditions?

2. Is the concentration of substances set forth in Table 3, for protection of marine aquatic life, in marine sediments at levels which would degrade* the benthic community?

3. Is the concentration of organic pollutants in marine sediments at levels that would degrade* the benthic community?

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* See Appendix I for definition of terms.

6.1. Point Sources

For discharges greater than 10 MGD, acid volatile sulfides, OP Pesticides, Table 3 metals, ammonia N, PAHs,* and chlorinated hydrocarbons will be measured in sediments annually in a core monitoring program approved by the Regional Water Board. Sediment sample locations will be determined by the Regional Water Board. If sufficient data exists from previous water column monitoring for these parameters, the Regional Water Board at its discretion may reduce the frequency of monitoring, or may allow this requirement to be satisfied through participation in a regional monitoring program.

6.2. Storm Water

For Phase I MS4 permittees, discharges greater than 72 inches in diameter or width discharging to low energy coastal environments with the likelihood of sediment deposition, acid volatile sulfides, OP Pesticides, Ocean Plan Table 3 metals, ammonia N, PAHs,* and chlorinated hydrocarbons will be measured in sediments once per permit cycle.

Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled pollutants.

This requirement may be satisfied by core monitoring individually or through participation in a regional monitoring program at the discretion of the Regional Water Board. Sediment sample locations will be determined by the Regional Water Board.

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* See Appendix I for definition of terms.

7. AQUATIC LIFE TOXICITY

Toxicity tests are another method used to assess risk to aquatic life. These tests assess the overall toxicity of the effluent, including the toxicity of unmeasured constituents and/or synergistic effects of multiple constituents.

7.1. Point Sources

1. Does the effluent meet permit effluent limits for toxicity thereby ensuring that water quality standards are achieved in the receiving water*?
2. If not:
    a. Are unmeasured pollutants causing risk to aquatic life?
    b. Are pollutants in combinations causing risk to aquatic life?

Core monitoring for Table 3 effluent toxicity shall be required periodically. For discharges less than 0.1 MGD the monitoring frequency for acute and/or chronic toxicity* shall be twice per permit cycle. For discharges between 0.1 and 10 MGD, the monitoring frequency for acute and/or chronic toxicity* of the effluent should be at least annually. For discharges greater than 10 MGD, the monitoring frequency for acute and/or chronic toxicity* of the effluent should be at least semiannually.

For discharges greater than 10 MGD in a low energy coastal environment with the likelihood of sediment deposition, Core monitoring for acute sediment toxicity is required and will utilize alternative amphipod

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* See Appendix I for definition of terms.

species (*Eohaustorius estuarius, Leptocheirus plumulosus, Rhepoxynius abronius*).

If an exceedance is detected, six additional toxicity tests are required within a 12-week period. If an additional exceedance is detected within the 12-week period, a toxicity reduction evaluation (TRE) is required, consistent with chapter III.C.10 that requires a TRE if a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 3.

7.2. Storm Water

1. Does the runoff meet objectives for toxicity in the receiving water*?
2. Are the conditions in receiving water* getting better or worse with regard to toxicity
3. What is the relative runoff contribution to the receiving water* toxicity?
4. What are the causes of the toxicity and the sources of the constituents responsible?

For Phase I MS4, Phase II MS4, and industrial storm water discharges, core toxicity monitoring will be required at a minimum for 10 percent of all outfalls greater than 36 inches in diameter or width at a minimum of once per year. Receiving water* monitoring shall be for Table 3 critical life stage chronic toxicity* for a minimum of one invertebrate species.

For storm water discharges greater than 72 inches in diameter or width in a low energy coastal environment with the likelihood of sediment deposition,

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* See Appendix I for definition of terms.

core sediment monitoring for acute sediment toxicity is required and will utilize alternative amphipod species (*Eohaustorius estuarius, Leptocheirus plumulosus, Rhepoxynius abronius*).

Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled toxicity.

If an exceedence is detected, an additional toxicity test is required during the subsequent storm event. If an additional exceedance is detected at that time, a TRE is required, consistent with chapter III.C.10 that requires a TRE if a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 3. A sufficient volume must be collected to conduct a TIE, if necessary, as a part of a TRE.

The requirement for core toxicity monitoring may be waived at the discretion of the Regional Water Board, if the permittee participates in a regional monitoring program to answer the above questions, as well as any other additional questions that may be developed by the regional monitoring program.

7.3. Non-point Sources

1. Does the agricultural and golf course runoff meet water quality standards for toxicity in the receiving water*?
2. Are the conditions in receiving water* getting better or worse with regard to toxicity?

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* See Appendix I for definition of terms.

3. What is the relative agricultural and golf course runoff contribution to receiving water* toxicity?

4. What are the causes of the toxicity, and the sources of the constituents responsible?

To answer these questions, a statistically representative sample (determined by the Regional Water Board) of receiving water* at the sites of agricultural irrigation tail water and storm water runoff, and golf course runoff, in each watershed will be monitored:

a. During wet weather, at a minimum of two storm events per year, and

b. During dry weather, when flowing, at a frequency determined by the Regional Boards.

Core receiving water* monitoring shall include Table 3 critical life stage chronic toxicity* for a minimum of one invertebrate species.

For runoff in a low energy coastal environment with the likelihood of sediment deposition, core sediment monitoring shall include acute sediment toxicity utilizing alternative amphipod species (*Eohaustorius estuarius, Leptocheirus plumulosus, Rhepoxynius abronius*) at a minimum once per year.

If an exceedence is detected, an additional toxicity test is required during the subsequent storm event. If an additional exceedance is detected, a TRE is required, consistent with chapter III.C.10 that requires a TRE if a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 3. A

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* See Appendix I for definition of terms.

sufficient volume must be collected to conduct a TIE, if necessary, as a part of a TRE.

The requirement for core monitoring may be waived at the discretion of the Regional Water Board, if the permittee participates in a regional monitoring program to answer the above questions, as well as any other additional questions that may be developed by the regional monitoring program.

8. BENTHIC COMMUNITY HEALTH

8.1. Point Sources

1. Are benthic communities degraded* as a result of the discharge?

To answer this question, benthic community monitoring shall be conducted

a. for all discharges greater than 10 MGD, or

b. those discharges greater than 0.1 MGD and one nautical mile or less from shore, or

c. discharges greater than 0.1 MGD and one nautical mile or less from a State Water Quality Protection Area* or a State Marine Reserve.

The minimum frequency shall be once per permit cycle, except for discharges greater than 100 MGD the minimum frequency shall be at least twice per permit cycle.

This requirement may be satisfied by core monitoring individually or through participation in a

* See Appendix I for definition of terms.

regional monitoring program at the discretion of the Regional Board.

9. BIOACCUMULATION

9.1. Point Sources

1. Does the concentration of pollutants in fish, shellfish,* or other marine resources used for human consumption bioaccumulate to levels that are harmful to human health?

2. Does the concentration of pollutants in marine life bioaccumulate to levels that degrade* marine communities?

To answer these questions, bioaccumulation monitoring shall be conducted, at a minimum, once per permit cycle for:

a. discharges greater than 10 MGD, or

b. those discharges greater than 0.1 MGD and one nautical mile or less from shore, or

c. discharges greater than 0.1 MGD and one nautical mile or less from a State Water Quality Protection Area* or a State Marine Reserve, Park or Conservation Area.

Constituents to be monitored must include pesticides (at the discretion of the Regional Board), Table 3 metals, and PAHs.* Bioaccumulation may be monitored by a mussel watch program or a fish tissue program. Resident mussels are preferred over transplanted mussels. Sand crabs and/or fish may be added

* See Appendix I for definition of terms.

or substituted for mussels at the discretion of the Regional Water Board.

This requirement may be satisfied individually as core monitoring or through participation in a regional monitoring program at the discretion of the Regional Water Board.

9.2. Storm Water

1. Does the concentration of pollutants in fish, shellfish,* or other marine resources used for human consumption bioaccumulate to levels that are harmful to human health?

2. Does the concentration of pollutants in marine life bioaccumulate to levels that degrade* marine communities?

For Phase I MS4 dischargers, bioaccumulation monitoring shall be conducted, at a minimum, once per permit cycle. Constituents to be monitored must include OP Pesticides, Ocean Plan Table 3 metals, Table 3 PAHs,* Table 3 chlorinated hydrocarbons, and pyrethroids. Bioaccumulation may be monitored by a mussel watch program or a fish tissue program. Sand crabs, fish, and/or Solid Phase Microextraction may be added or substituted for mussels at the discretion of the Regional Water Board.

This requirement may be satisfied individually as core monitoring or through participation in a regional monitoring program at the discretion of the Regional Water Board.

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* See Appendix I for definition of terms.

10. RECEIVING WATER* CHARACTERISTICS

All Sources:

1. Is natural light* significantly* reduced at any point outside the zone of initial dilution* as the result of the discharge of waste*?
2. Does the discharge of waste* cause a discoloration of the ocean surface?
3. Does the discharge of oxygen demanding waste* cause the dissolved oxygen concentration to be depressed at any time more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding* waste* materials*?
4. Does the discharge of waste* cause the pH to change at any time more than 0.2 units from that which occurs naturally?
5. Does the discharge of waste* cause the salinity* to become elevated in the receiving water*?
6. Do nutrients cause objectionable aquatic growth or degrade* indigenous biota?

10.1. Point Sources

For discharges greater than 10 MGD, turbidity (alternatively light transmissivity or surface water transparency), color [Chlorophyll-A and/or color dissolved organic matter (CDOM)], dissolved oxygen and pH shall be measured in the receiving water* seasonally, at a minimum, in a core monitoring program

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* See Appendix I for definition of terms.

approved by the Regional Water Board. If sufficient data exists from previous water column monitoring for these parameters, the Regional Water Board, at its discretion, may reduce the frequency of water column monitoring, or may allow this requirement to be satisfied through participation in a regional monitoring program. Use of regional ocean observing programs, such as the Southern California Coastal Ocean Observing System (SCCOOS) and the Central and Northern California Ocean Observing System (CeNCCOOS) is encouraged.

Salinity* must also be monitored by all point sources discharging brine* as part of their core monitoring program. Seawater desalination facilities* discharging brine* into ocean waters* and wastewater facilities that receive brine from seawater desalination facilities and discharge into ocean waters shall monitor salinity as described in chapter III.M.4.

10.2. Storm Water

At a minimum, 10 percent of Phase I MS4 discharges greater than 36 inches, receiving water* turbidity, color, dissolved oxygen, pH, nitrate, phosphate, and ammonia shall be measured annually in a core monitoring program approved by the Regional Water Board.

Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled pollutants. The Regional Water Board, at its discretion, may also allow this requirement to be

* See Appendix I for definition of terms.

satisfied through participation in a regional monitoring program.

10.3. Non-point Sources

Representative agricultural and golf course discharges shall be measured, at a minimum twice annually (during two storm season and irrigation season) for receiving water* turbidity, color, dissolved oxygen, pH, nitrate, phosphate, ammonia in a core monitoring program approved by the Regional Water Board. The Regional Water Board, at its discretion, may allow this requirement to be satisfied through participation in a regional monitoring program.

11. ANALYTICAL REQUIREMENTS

Procedures, calibration techniques, and instrument /reagent specifications shall conform to the requirements of 40 CFR PART 136. Compliance monitoring shall be determined using an US EPA approved protocol as provided in 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 Water 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 California Department of Public Health, in accordance with the provisions of Water Code

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* See Appendix I for definition of terms.

section 13176, and must include quality assurance quality control data with their reports.

Sample dilutions for total and fecal coliform bacterial analyses shall range from 2 to 16,000. Sample dilutions for enterococcus bacterial analyses shall range from 1 to 10,000 per 100 mL. Each test method number or name (e.g., EPA 600/4-85/076, Test Methods for *Escherichia coli* and *Enterococci* in Water by Membrane Filter Procedure) used for each analysis shall be specified and reported with the results.

Test 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 U.S. EPA pursuant to 40 CFR PART 136.

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

The State or Regional Water Board may, subject to U.S. EPA approval, specify test methods which are more sensitive than those specified in 40 CFR PART 136. Because storm water and non-point sources are not assigned a dilution factor, sufficient sampling and analysis shall be required to determine compliance with Table 3 Water Quality Objectives. 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 µg/L.

Toxicity monitoring requirements in permits prepared by the Regional Water Boards shall use marine test species instead of freshwater species when measuring compliance. The Regional Water Board shall require the use of critical life stage toxicity tests specified in this Appendix to measure TUc. For Point Sources, 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 Point Source discharges greater than 100 MGD

Procedures and methods used to determine compliance with benthic monitoring should use the following federal guidelines when applicable: Macroinvertebrate Field and Laboratory Methods for Evaluating the Biological Integrity of Surface Waters (1990) — EPA/600/4-90/030 (PB91-171363). This manual describes guidelines and standardized procedures for the

* See Appendix I for definition of terms.

use of macroinvertebrates in evaluating the biological integrity of surface waters.

Procedures used to determine compliance with bioaccumulation monitoring should use the U.S. EPA Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories (November 2000, EPA 823-B-00-007), NOAA Technical Memorandum NOS ORCA 130, Sampling and Analytical Methods of the National Status and Trends Program Mussel Watch Project (1998 update), and/or State Mussel Watch Program, 1987-1993 Data Report, State Water Resources Control Board 94-1WQ.

Table III-1
Approved Tests – Chronic Toxicity* (TUc)

Species	**Effect**	**Tier**	**Ref.**
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, Strong-ylocentrotus purpuratus; sand dollar, Dendraster excentricus	Percent normal development	1	1,3

* See Appendix I for definition of terms.

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	topsmelt, Atherinops affinis	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 Water 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.

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* See Appendix I for definition of terms.

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 STATE WATER QUALITY PROTECTION AREAS.*

1. Any person may nominate areas of ocean* waters for designation as SWQPA-ASBS or SWQPA-GP by the State Water Board. Nominations shall be made to the appropriate Regional Water Board 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

* See Appendix I for definition of terms.

that will mitigate or avoid the significant* environmental effects.

2. The State Water Board or a Regional Water Board may also nominate areas for designation as SWQPA-ASBS or SWQPA-GP on their own motion.

3. A Regional Water Board may decide to (a) consider individual SWQPA-ASBS or SWQPA-GP 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). A nomination that meets the requirements of 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. After determining that a nomination meets the requirements of paragraph 1. above, the Executive Officer of the affected Regional Water Board shall prepare a Draft Nomination Report containing the following:

(a) The area or areas nominated for designation as SWQPA-ASBS or SWQPA-GP.

(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 Draft Nomination Report recommends approval of the proposed designation, the Draft Nomination Report shall comply with the CEQA documentation requirements for a water quality

* See Appendix I for definition of terms.

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 Draft Nomination Report from the State Water Board, Department of Fish and Game, other interested state and federal agencies, conservation groups, affected waste dischargers, and other interested parties. Upon incorporation of responses from the consulted agencies, the Draft Nomination Report shall become the Final Nomination Report.

6.

(a) If the Final Nomination 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 Final Nomination 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 Regional Water Board itself.

7. The Regional Water Board 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 Regional Water Board 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 Regional Water Board shall consider the nomination after completing the required public review processes required by CEQA.

(a) If the Regional Water Board supports the recommendation for designation, the board shall forward to the State Water Board its recommendation for approving designation of the proposed area or areas and the supporting rationale. The Regional Water Board submittal shall include a copy of the staff report, hearing transcript, comments, and responses to comments.

(b) If the Regional Water Board 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 Regional Water Board recommendation and hearing record, the State Water Board may approve or deny the recommendation, refer the matter to the Regional Water Board for appropriate action, or conduct further hearing itself. If the State Water Board acts to approve a recommended designation, the State Water Board shall amend Appendix V, Table V-1, of this Plan. The amendment will go into effect after approval by the Office of

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* See Appendix I for definition of terms.

Administrative Law and US EPA. In addition, after the effective date of a designation, the affected Regional Water Board shall revise its water quality control plan in the next triennial review to include the designation.

11. The State Water Board Executive Director shall advise other agencies to whom the list of designated areas is to be provided that the basis for an SWQPA-ASBS or SWQPA-GP designation is limited to protection of marine life from waste* discharges.

* See Appendix I for definition of terms.

APPENDIX V
STATE WATER QUALITY PROTECTION AREAS* OF SPECIAL BIOLOGICAL SIGNIFICANCE*

Table V-1
State Water Quality Protection Areas*
Areas of Special Biological Significance*
(Designated or Approved by the State Water Resources Control Board)

No.	ASBS Name	Date Designated	State Water Board Resolution No.	Region No.
1	Jughandle Cove	March 21, 1974	74-28	1
2	Del Mar Landing	March 21, 1974	74-28	1
3	Gerstle Cove	March 21, 1974	74-28	1
4	Bodega	March 21, 1974	74-28	1
5	Saunders Reef	March 21, 1974	74-28	1
6	Trinidad Head	March 21, 1974	74-28	1
7	King Range	March 21, 1974	74-28	1

* See Appendix I for definition of terms.

8	Redwoods National Park	March 21, 1974	74-28	1
9	James V. Fitzgerald	March 21, 1974	74-28	2
10	Farallon Islands	March 21, 1974	74-28	2
11	Duxbury Reef	March 21, 1974	74-28	2
12	Point Reyes Headlands	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	Año Nuevo	March 21, 1974	74-28	3
16	Point Lobos	March 21, 1974	74-28	3
17	San Miguel, Santa Rosa, and Santa Cruz Islands	March 21, 1974	74-28	3
18	Julia Pfeiffer Burns	March 21, 1974	74-28	3
19	Pacific Grove	March 21, 1974	74-28	3
20	Salmon Creek Coast	March 21, 1974	74-28	3
21	San Nicolas Island and Begg Rock	March 21, 1974	74-28	4

22	Santa Barbara and Anacapa Islands	March 21, 1974	74-28	4
23	San Clemente Island	March 21, 1974	74-28	4
24	Laguna Point to Latigo Point	March 21, 1974	74-28	4
25	Northwest Santa Cata-lina Island	March 21, 1974	74-28	4
26	Western Santa Cata-lina Island	March 21, 1974	74-28	4
27	Farnsworth Bank	March 21, 1974	74-28	4
28	Southeast Santa Catalina	March 21, 1974	74-28	4
29	La Jolla	March 21, 1974	74-28	9
30	Heisler Park	March 21, 1974	74-28	9
31	San Diego-Scripps	March 21, 1974	74-28	9
32	Robert E. Badham	April 18, 1974	74-32	8
33	Irvine Coast	April 18, 1974	74-32	8,9
34	Carmel Bay	June 19, 1975	75-61	3

APPENDIX VI
REASONABLE POTENTIAL ANALYSIS PROCEDURE FOR DETERMINING WHICH TABLE 3 OBJECTIVES REQUIRE EFFLUENT LIMITATIONS

In determining the need for an effluent limitation, the Regional Water Board shall use all representative information to characterize the pollutant discharge using a scientifically defensible statistical method that accounts for the averaging period of the water quality objective, accounts for and captures the long-term variability of the pollutant in the effluent, accounts for limitations associated with sparse data sets, accounts for uncertainty associated with censored data sets, and (unless otherwise demonstrated) assumes a lognormal distribution of the facility-specific effluent data.

The purpose of the following procedure (see also Figure VI-1) is to provide direction to the Regional Water Boards for determining if a pollutant discharge causes, has the reasonable potential to cause, or contributes to an excursion above Table 3 water quality objectives in accordance with 40 CFR 122.44 (d)(1)(iii). The Regional Water Board may use an alternative approach for assessing reasonable potential such as an appropriate stochastic dilution model that incorporates both ambient and effluent variability. The permit fact sheet or statement of basis will document the justification or basis for the conclusions of the reasonable potential assessment. This appendix does not apply to permits or any portion of a permit where the discharge is regulated through best management practices (BMP) unless such discharge is also subject to numeric effluent limitations.

Step 1: Identify C_o, the applicable water quality objective from Table 3 for the pollutant.

Step 2: Does information about the receiving water* body or the discharge support a reasonable potential assessment (RPA) without characterizing facility-specific effluent monitoring data? If yes, go to *Step 13* to conduct an RPA based on best professional judgment (BPJ). Otherwise, proceed to *Step 3*.

Step 3: Is facility-specific effluent monitoring data available? If yes, proceed to *Step 4*. Otherwise, go to *Step 13*.

Step 4: Adjust all effluent monitoring data Ce, including censored (ND or DNQ) values to the concentration X expected after complete mixing. For Table 3 pollutants use $X = (C_e + D_m C_s) / (D_m + 1)$; for acute toxicity* use $X = C_e / (0.1 D_m + 1)$; where D_m is the minimum probable initial dilution* expressed as parts seawater* per part wastewater and C_s is the background seawater* concentration from Table 5. For ND values, Ce is replaced with "<MDL*;" for DNQ values C_e is replaced with "<ML.*" Go to *Step 5*.

Step 5: Count the total number of samples n, the number of censored (ND or DNQ) values, c and the number of detected values, d, *such that* $n = c + d$.

Is any *detected* pollutant concentration after complete mixing greater than C_o? If yes, the discharge causes an excursion of C_o; go to *Endpoint 1*. Otherwise, proceed to *Step 6*.

Step 6: Does the effluent monitoring data contain three or more detected observations ($d \geq 3$)? If yes,

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* See Appendix I for definition of terms.

proceed to *Step 7* to conduct a parametric RPA. Otherwise, go to *Step11* to conduct a nonparametric RPA.

Step 7: Conduct a parametric RPA. Assume data are lognormally distributed, unless otherwise demonstrated. Does the data consist entirely of detected values ($c/n = 0$)? If yes,

- calculate summary statistics ML and SL, the mean and standard deviation of the natural logarithm transformed effluent data expected after complete mixing, ln(X),
- go to *Step 9*.

Otherwise, proceed to *Step 8*.

Step 8: Is the data censored by 80% or less ($c/n \leq 0.8$)? If yes,

- calculate summary statistics ML and SL using the censored data analysis method of Helsel and Cohn (1988),
- go to *Step 9*. Otherwise, go to Step 11.

Step 9: Calculate the UCB i.e., the one-sided, upper 95 percent confidence bound for the 95th percentile of the effluent distribution after complete mixing. For lognormal distributions, use $UCBL_{(.95,.95)} = \exp(M_L + S_L\ g'_{(.95,.95,n)})$, where g' is a normal tolerance factor obtained from the table below (Table VI-1). Proceed to *Step 10*.

Step 10: Is the UCB greater than C_o? If yes, the discharge has a reasonable potential to cause an excursion of C_o; go to *Endpoint 1*. Otherwise, the discharge has no reasonable potential to cause an excursion of C_o; go to *Endpoint 2*.

Step 11: Conduct a non-parametric RPA. Compare each data value X to C_o. Reduce the sample size n by 1 for each tie (i.e., inconclusive censored value result) present. An adjusted ND value having $C_o < MDL^*$ is a tie. An adjusted DNQ value having $C_o < ML^*$ is also a tie.

Step 12: Is the adjusted $n > 15$? If yes, the discharge has no reasonable potential to cause an excursion of C_o; go to *Endpoint 2*. Otherwise, go to *Endpoint 3*.

Step 13: Conduct an RPA based on BPJ. Review all available information to determine if a water quality-based effluent limitation is required, notwithstanding the above analysis in *Steps 1* through *12*, to protect beneficial uses. Information that may be used includes: the facility type, the discharge type, solids loading analysis, lack of dilution, history of compliance problems, potential toxic impact of discharge, fish tissue residue data, water quality and beneficial uses of the receiving water,* CWA 303(d) listing for the pollutant, the presence of endangered or threatened species or critical habitat, and other information.

Is data or other information unavailable or insufficient to determine if a water quality-based effluent limitation is required? If yes, go to *Endpoint 3*. Otherwise, go to either *Endpoint 1* or *Endpoint 2* based on BPJ.

Endpoint 1: An effluent limitation must be developed for the pollutant. Effluent monitoring for

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* See Appendix I for definition of terms.

the pollutant, consistent with the monitoring frequency in Appendix III, is required.

Endpoint 2: An effluent limitation is not required for the pollutant. Appendix III effluent monitoring is not required for the pollutant; the Regional Board, however, may require occasional monitoring for the pollutant or for whole effluent toxicity as appropriate.

Endpoint 3: The RPA is inconclusive. Monitoring for the pollutant or whole effluent toxicity testing, consistent with the monitoring frequency in Appendix III, is required. An existing effluent limitation for the pollutant shall remain in the permit, otherwise the permit shall include a reopener clause to allow for subsequent modification of the permit to include an effluent limitation if the monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an excursion above a Table 3 water quality objective.

Appendix VI References:

Helsel D. R. and T. A. Cohn. 1988. Estimation of descriptive statistics for multiply censored water quality data. Water Resources Research, Vol 24(12):1977-2004.

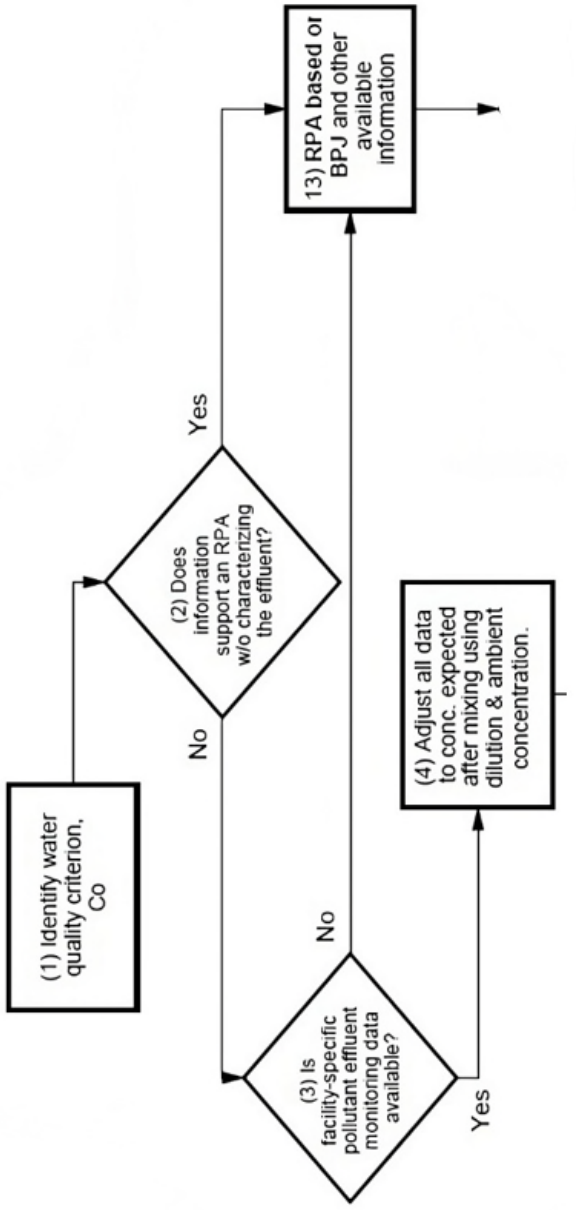
Hahn J. H. and W. Q. Meeker. 1991. Statistical Intervals, A guide for practitioners. J. Wiley & Sons, NY.

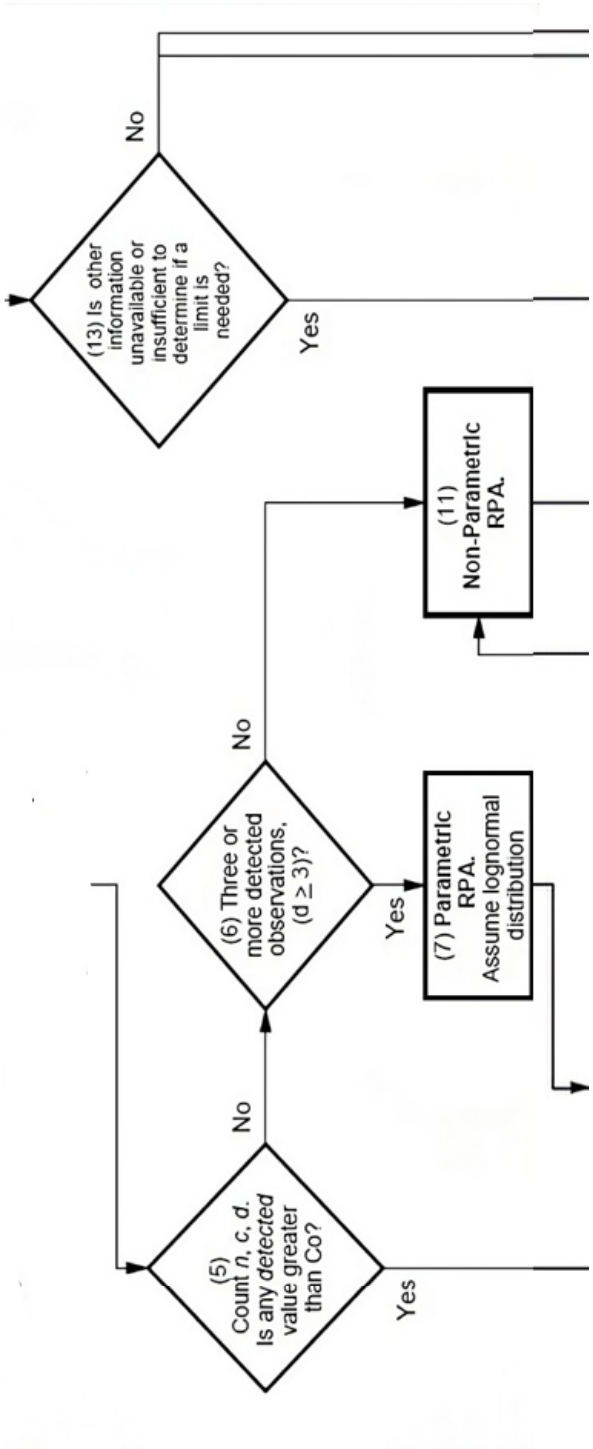
Table VI-1: Tolerance Factors $g'_{(.95,.95,n)}$ for calculating normal distribution one-side upper 95 percent tolerance bounds for the 95th percentile (Hahn & Meeker 1991)

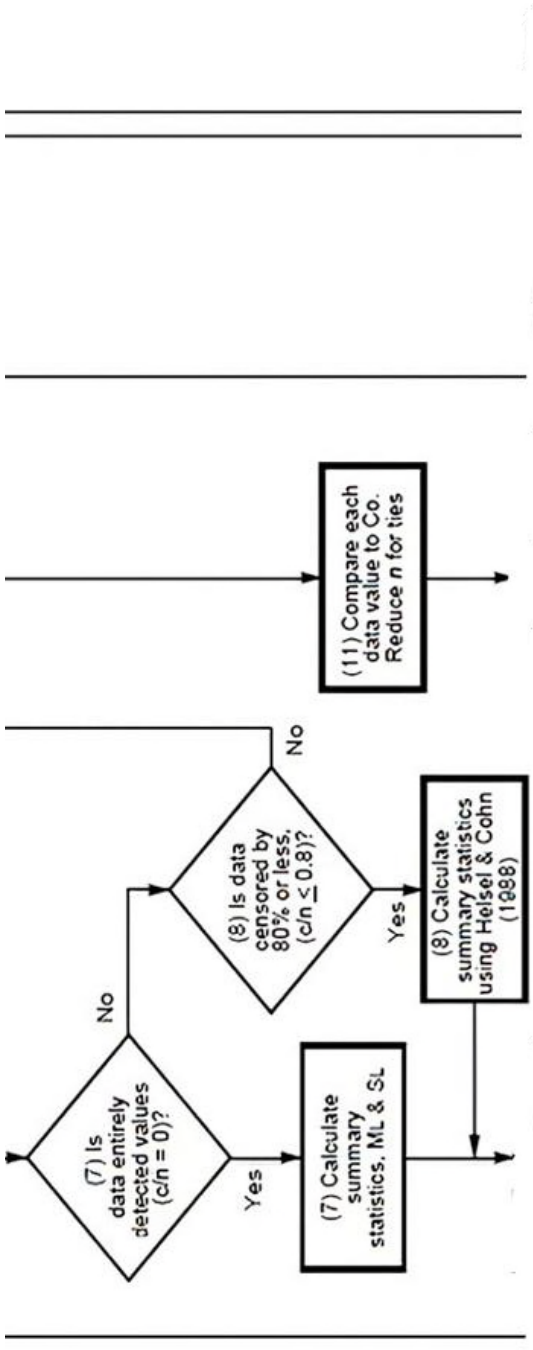
n	$g'_{(.95,.95,n)}$
2	26.260
3	7.656
4	5.144
5	4.203
6	3.708
7	3.399
8	3.187
9	3.031
10	2.911
11	2.815
12	2.736
13	2.671
14	2.614
15	2.566
16	2.524
17	2.486
18	2.453
19	2.423
20	2.396
21	2.371
22	2.349
23	2.328
24	2.309
25	2.292
26	2.275
27	2.260
28	2.246
29	2.232
30	2.220
35	2.167

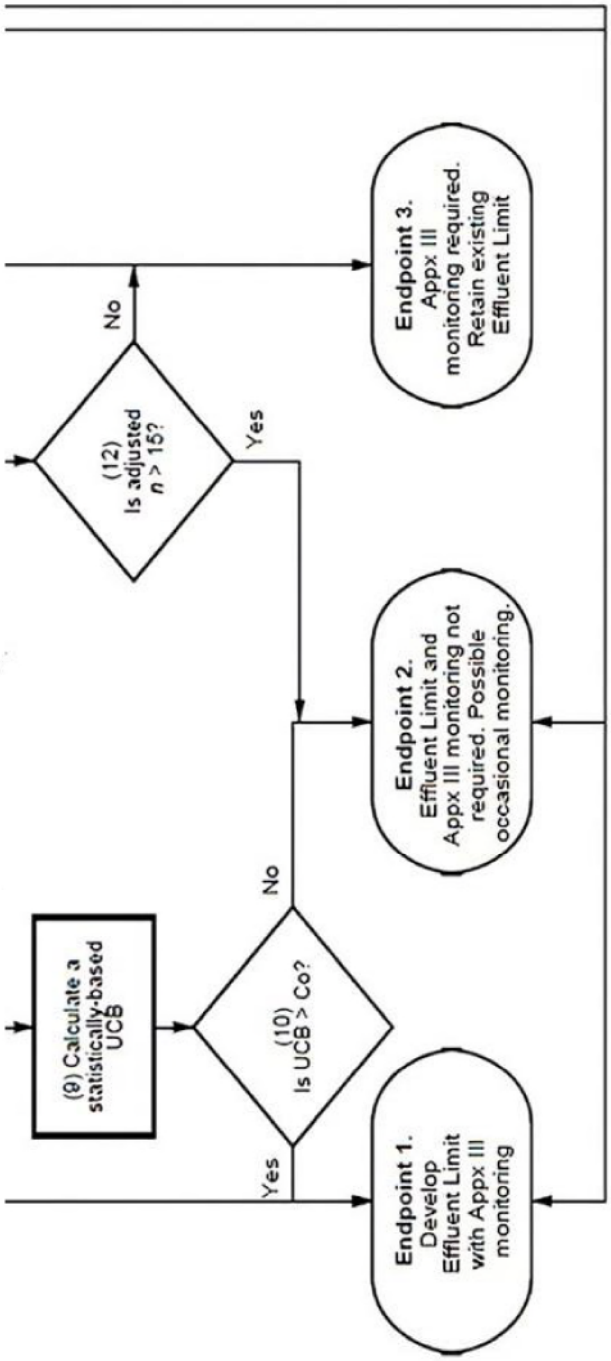
40	2.125
50	2.065
60	2.022
120	1.899
240	1.819
480	1.766
∞	1.645

Figure VI-1.
Reasonable potential analysis flow chart




(5) Count n, c, d. Is any detected value greater than Co?
No
Yes
(6) Three or more detected observations, (d ≥ 3)?
No
Yes
(7) Parametric RPA. Assume lognormal distribution
(11) Non-Parametric RPA.
(13) Is other information unavailable or insufficient to determine if a limit is needed?
No
Yes


(11) Compare each data value to Co. Reduce n for ties
No
(8) Is data censored by 80% or less, (c/n ≤ 0.8)?
Yes
(8) Calculate summary statistics using Helsel & Cohn (1988)
No
(7) Is data entirely detected values (c/n = 0)?
Yes
(7) Calculate summary statistics, ML & SL


(9) Calculate a statistically-based UCB
(10) Is UCB > Co?
No
Yes
(12) Is adjusted n > 15?
No
Yes
Endpoint 1. Develop Effluent Limit with Appx III monitoring
Endpoint 2. Effluent Limit and Appx III monitoring not required. Possible occasional monitoring.
Endpoint 3. Appx III monitoring required. Retain existing Effluent Limit

APPENDIX VII
EXCEPTIONS TO THE CALIFORNIA OCEAN PLAN

Table VII-1
Exceptions to the Ocean Plan
(GRANTED BY THE STATE WATER RESOURCES CONTROL BOARD)

Year	**Resolution**	**Applicable Provision**	**Discharger**
1977	77-11	Discharge Prohibition, ASBS #23	US Navy San Clemente Island
1979	79-16	Discharge Prohibition for wet weather discharges from combined storm and wastewater collection system.	The City and County of San Francisco
1983	83-78	Discharge Prohibition, ASBS #7	Humboldt County Resort Improvement District No.1
1984	84-78	Discharge Prohibition, ASBS #34	Carmel Sanitary District

1988	88-80	Total Chlorine Residual Limitation	Haynes Power Plant Harbor Power Plant Scattergood Power Plant Alamitos Power Plant El Segundo Power Plant Long Beach Power Plant Mandalay Power Plant Ormond Beach Power Plant Redondo Power Plant
1990	90-105	Discharge Prohibition, ASBS #21	US Navy San Nicolas Island
2004	2004-0052	Discharge Prohibition, ASBS #31	UC Scripps Institution of Oceanography
2006	2006-0013	Discharge Prohibition, ASBS #25	USC Wrigley Marine Science Center
2007	2007-0058	Discharge Prohibition, ASBS #4	UC Davis Bodega Marine Laboratory

2011	2011-0049	Discharge Prohibition, ASBS #6	HSU Telonicher Marine lab
2011	2011-0050	Discharge Prohibition, ASBS #19	Monterey Bay Aquarium
2011	2011-0051	Discharge Prohibition, ASBS #19	Stanford Hopkins Marine Station
2012	2012-0012, as amended on June 19 2012; in 2012-0031	ASBS Discharge Prohibition, General Exception for Storm Water and Nonpoint Sources	27 applicants for the General Exception

APPENDIX VIII
MAPS OF THE OCEAN, COAST, AND ISLANDS

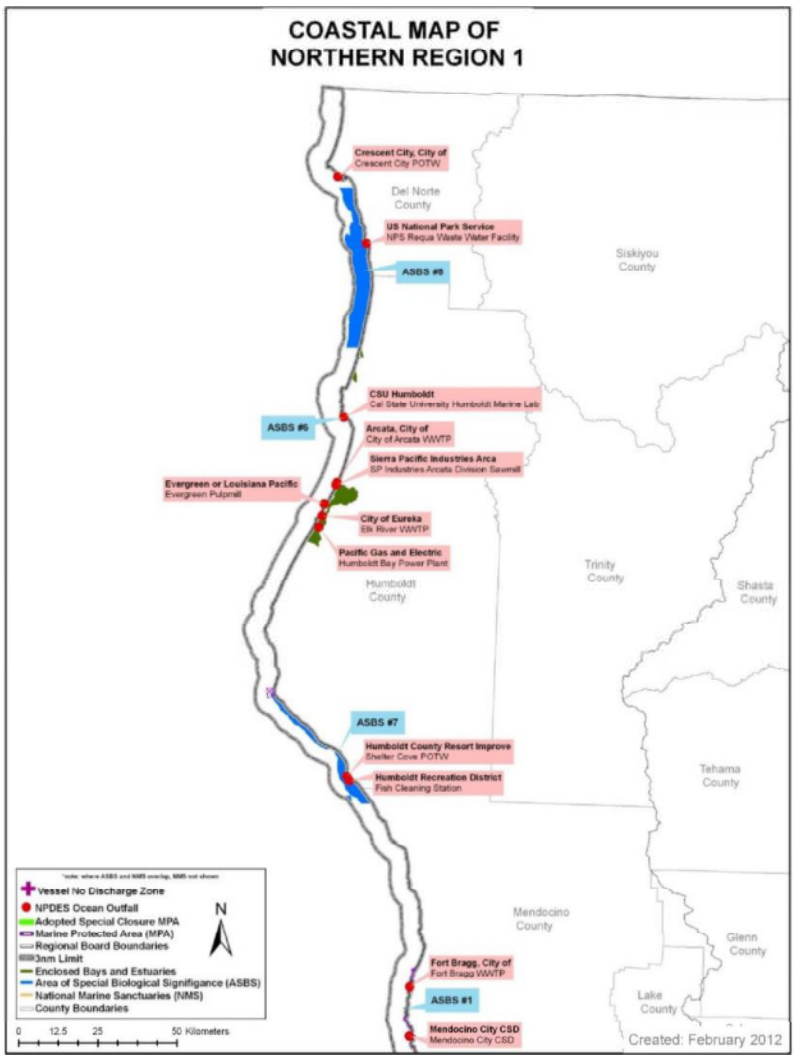


Figure VIII-1. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in northern Region 1.

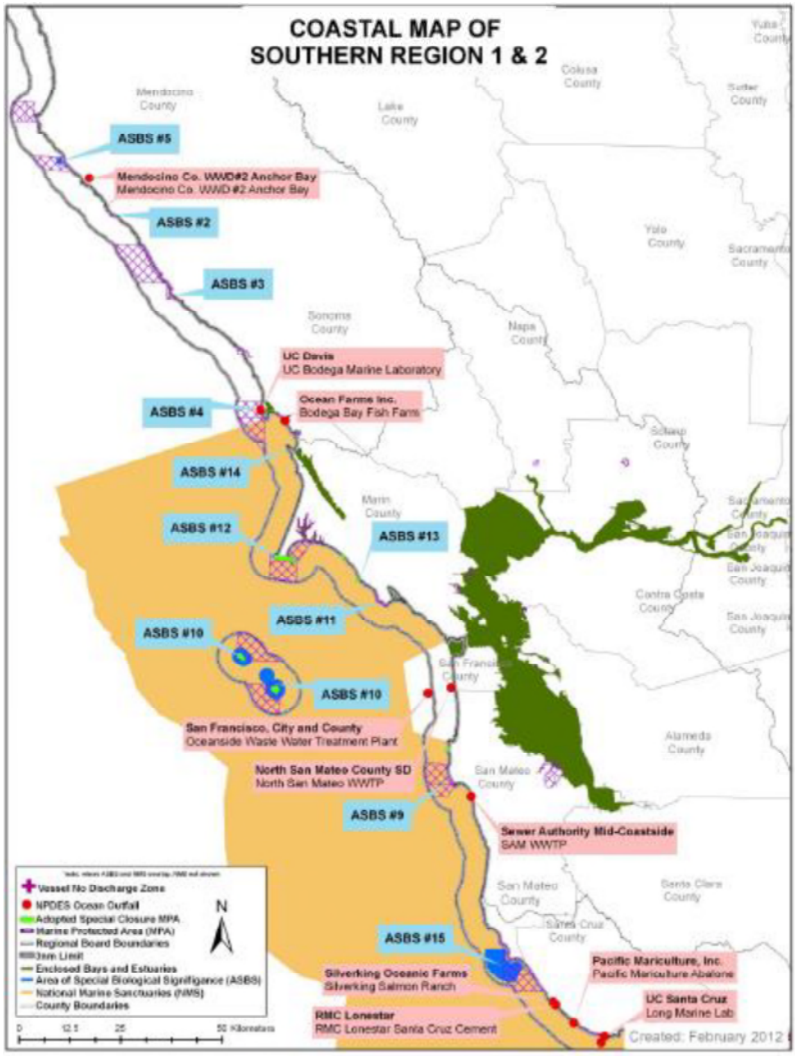


Figure VIII-2. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in southern Region 1 and Region 2.

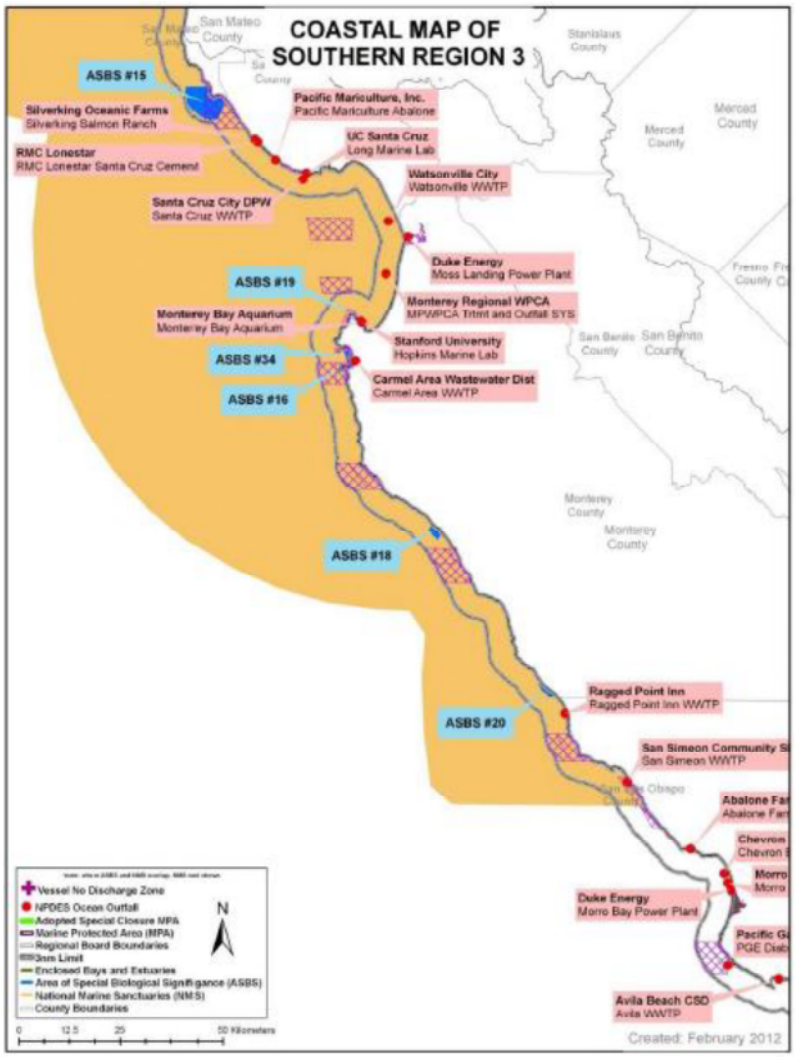


Figure VIII-3. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in northern Region 3.

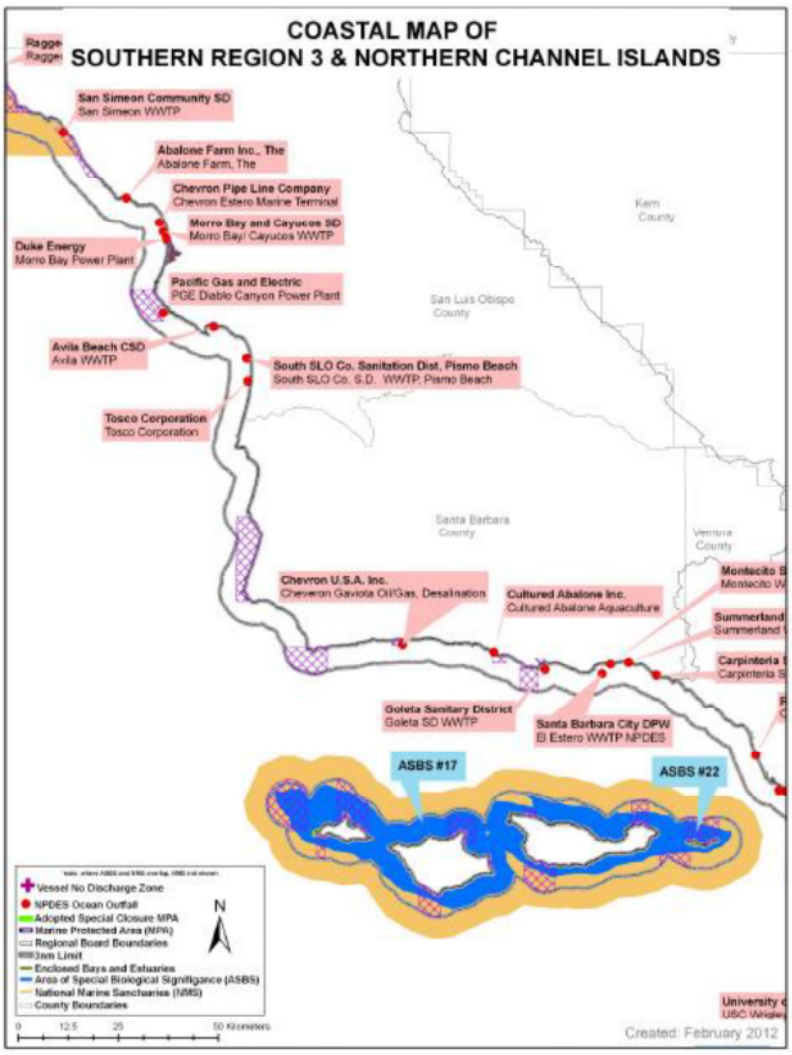


Figure VIII-4. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in southern Region 3 and northern Channel Islands.

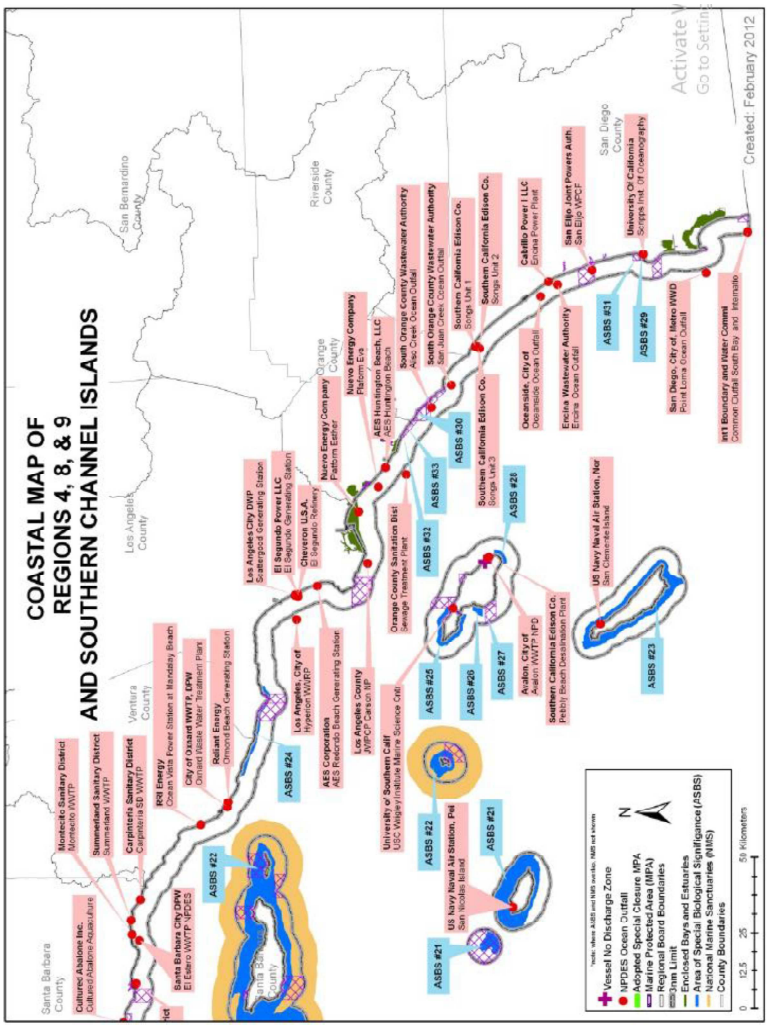


Figure VIII-5. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in southern Channel Islands and Regions 4, 8 and 9.