CALIFORNIA COASTAL COMMISSION
45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200

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STAFF REPORT AND RECOMMENDATION

ON CONSISTENCY CERTIFICATION

Consistency Certification No.	CC-056-09
Staff:	MPD-SF
File Date:	9/16/2009
3 Months:	12/16/2009
6 Months:	3/16/2010
Commission Meeting:	10/7/2009

APPLICANT: **City of San Diego**

PROJECT LOCATION: E.W. Blom Point Loma Wastewater Treatment Plant (WTP), City of San Diego, with ocean outfall discharge point 4.5 miles offshore of Point Loma, San Diego (Exhibit 1)

PROJECT DESCRIPTION: Reissuance of Secondary Treatment Waiver

FEDERAL AGENCY AND PERMIT: Environmental Protection Agency (EPA) Reissuance, under Section 301(h) of the Clean Water Act, of a modified National Pollutant Discharge Elimination System (NPDES) Permit for Wastewater Treatment Plant Discharges

SUBSTANTIVE FILE DOCUMENTS: See page 46.

Staff Recommendation: Concurrence. Motion is on page 18.

[Staff Note: On August 13, 2009, the Commission objected to the City of San Diego's consistency certification for its secondary treatment waiver reissuance (CC-043-09). In lieu of actively pursuing an appeal to the Secretary of Commerce, which is a procedure available to applicants who have submitted consistency certifications to which the Commission has objected, the City has elected to resubmit its consistency certification to the Commission. For reasons similar to those contained in the staff's original recommendation, and with

additional focus on the adequacy and results of the City's monitoring efforts to determine the discharge's effects on marine, fishing, and recreational resources, the staff is continuing to recommend that the Commission concur with the City's consistency certification.]

EXECUTIVE SUMMARY

Under the federal Clean Water Act, wastewater discharges from publicly owned treatment works (POTWs) are required to receive at least secondary treatment. However, Clean Water Act Section 301(h), sometimes referred to as the "ocean waiver" provision of the Clean Water Act, gives the EPA Administrator (with the concurrence of the Regional Water Quality Control Board (RWQCB)) the authority to grant a waiver from otherwise applicable secondary treatment requirements for suspended solids (SS), biochemical oxygen demand (BOD), and pH. In this case, such a waiver would authorize the City of San Diego to continue to discharge effluent receiving less than full secondary treatment in terms of suspended solids (SS) and biochemical oxygen demand (BOD). Secondary treatment would result in removal of 85% of both SS and BOD. The City's proposed limits under the waiver would be 80% removal of SS and 58% removal of BOD. Secondary treatment waivers are jointly issued by EPA and the RWQCB, and the waivers need to be renewed every five years.

In reviewing past secondary treatment waiver and waiver renewal requests for the Cities of San Diego, Morro Bay, and Goleta, and Orange County,[1] the Commission has generally concurred with consistency certifications and found no conflict between such waivers and the applicable water quality and marine resource policies of the Coastal Act, especially when: (1) adequate monitoring is in place (stringent monitoring is required for dischargers receiving waivers); and (2) EPA and the appropriate RWQCB have determined that the discharger's effluent complies with the applicable Clean Water Act and Ocean Plan requirements. More recently, Morro Bay, Goleta, and Orange County have committed to upgrade to secondary, although interim waivers may still be needed before secondary treatment is fully implemented. Thus, in California, the City of San Diego is the only municipal ocean discharger of wastewater that has not either achieved or committed to implementing full secondary treatment.

In its review of the City of San Diego's last renewal of its secondary treatment waiver (CC-10-02), the Commission initially objected to the City's consistency certification, on April 8, 2002. The Commission's action occurred prior to RWQCB action on the waiver, and the Commission identified three areas of concern that it believed needed to be addressed in order for the discharges to be consistent with applicable Coastal Act policies: (1) reductions in permitted levels of mass emissions; (2) meaningful commitments for water reclamation; and (3) additional monitoring provisions.

[1] See pages 15-18 of this report for a fuller discussion of past Commission reviews of such waivers.

Acting two days later, the RWQCB adopted several of the Commission's recommendations; the RWQCB reduced the total permitted mass emission loadings by 6.7% in the NPDES permit, and separate from the NPDES permit: (a) requested annual reports from its staff on the City's progress towards implementing water reclamation; and (b) instructed its staff to review (and prepare for future RWQCB adoption) modifications to the monitoring program, including specific provisions for deep ocean receiving stations, human pathogens, and long term trends.

The City petitioned for review of the RWQCB action by the State Water Resources Control Board (SWRCB). The City also resubmitted its consistency certification to the Commission (CC-28-02). On August 15, 2002, the SWRCB ordered the mass emission limits to be returned to the originally-drafted level (i.e., eliminating the 6.7% reduction for the first four years). The SWRCB found that the RWQCB had failed to justify reducing the mass emission limits.

The City then clarified that the consistency certification that the City had resubmitted to the Commission was for the waiver as modified and ordered by the SWRCB. On September 9, 2002, the Commission concurred with this resubmitted consistency certification (CD-028-02). The Commission found:

> *Given the SWRCB analysis on the mass emission levels and the RWQCB measures to address water reclamation and future monitoring improvements, as well as the available monitoring evidence of the lack of adverse effects of past discharges on the marine environment and the continuation of the stringent monitoring throughout the term of the permit, the City's discharges would be consistent with the water quality, marine resources, commercial and recreational fishing, and public access and recreation policies (Sections 30230, 30231, 30234, 30234.5, 30213, and 30220) of the Coastal Act.*

For the current submittal, EPA's independent Technical Evaluation determined that San Diego's discharges continue to meet the applicable Clean Water Act standards for a waiver. On June 10, 2009, the RWQCB approved the waiver (in adopting Tentative Order No. R9-2009-0001 and NPDES Permit No. CA0107409). EPA's and the RWQCB's analyses further document that the discharges would meet California Ocean Plan standards for at least the 5-year life of the permit.

When the Commission reviewed the City's waiver request in 2002, the Commission expressed the need for more comprehensive and greater regional extent of monitoring. Since 2002 the City's has greatly expanded its monitoring program, including extensive regional monitoring, as well as adding new efforts such as deep water monitoring in the underwater canyons in the greater project area. These newer efforts, which are further detailed on pages 6-11, include: (1) Core Monitoring; (2) Strategic Process Studies; (3) Regional Monitoring; and (4) Plume Behavior Monitoring.

The Core Monitoring Program consists of five components: general water quality monitoring; bacteriological monitoring of shoreline, kelp bed, and offshore waters; sediment monitoring for grain size, chemistry, and benthic infauna community structure; monitoring for fish and megabenthic invertebrate communities, and contaminant body burdens of fishes; and monitoring of kelp bed canopy cover.

The Strategic Process Studies are designed to address specific research or management issues related to receiving water monitoring that are not addressed by core and regional monitoring elements; these studies are worked out in coordination with EPA and the RWQCB, on an annual basis.

The Regional Monitoring, also worked out in coordination with EPA and the RWQCB, is designed to maximize the efforts of all monitoring partners and scientific resources in the region, and is intended to provide a regional assessment of the impact of the discharge of municipal wastewater to the Southern California Bight, and to provide a more comprehensive picture of the ecological and statistical significance of monitoring results and determine cumulative impacts of various pollution sources.

In addition, in response to concerns over possible effects in the deep water canyons in the area, the City conducted a special monitoring study of the conditions of sediments and benthos in deep water (as deep as 542 meters) to look for potential impacts of the City's discharge. The concern expressed was that the canyons could be a major sink for the accumulation of sediments and other materials from a variety of point and non-point sources. In an effort to begin investigating such habitats, the City set up 16 monitoring stations for both the outfall, as well as the EPA designated disposal site (LA-5), at various depths in areas likely to be most susceptible to sediment accumulation. According to the RWQCB, the Preliminary summary report results indicate: " … no evidence of significant contaminant accumulation in these deeper habitats off San Diego that may have originated from the Point Loma outfall, the LA-5 disposal site or other sources… [and that] [n]o chlorinated pesticides or PCBs were detected at any of the 16 sites." Final study results will not be available until 2010.

Finally, with respect to monitoring, the City has also commenced a detailed plume monitoring study, designed to "… determine the behavior and dispersion of the Point Loma outfall plume using state-of-the-art methodology and equipment." This plume study will:

> *… address two primary concerns of operating the ocean outfall in its current configuration: (1) possible effects to beach and near-surface water quality and (2) its risk to the coastal marine environment. This study addresses beach and surface water quality concerns by determining whether the wastewater plume surfaces and encroaches upon beaches, and if so, the frequency of such behavior. It also supports efforts to address ecosystem concerns by determining the frequency of spatial occurrence (i.e. the temporal footprint) of the plume thereby helping to spatially focus ongoing and future biological monitoring programs.*

The result of this plume study will not be available before mid-2011.

Thus, the City has extensively improved its monitoring efforts since the last Commission review in 2002, and the monitoring results for the past seven years support the City's claim that the discharges comply with secondary treatment waiver requirements and California Ocean Plan standards, which contain policies comparable to the marine resource, fishing, and recreation protection policies of the Coastal Act. The stringent monitoring as required under Section 301(h) will be continued. The City has also upgraded its facilities, improved wastewater reclamation facilities, and maintained mass emission levels below the levels initially required recommended by the Commission and required by the RWQCB (prior to SWRCB reinstatement of the higher permit levels). Given all these factors and requirements, the City's discharges under the renewal of the secondary treatment waiver would be consistent with the water quality, marine resources, commercial and recreational fishing, and public access and recreation policies (Sections 30230, 30231, 30234, 30234.5, 30213, and 30220) of the Coastal Act.

STAFF SUMMARY AND RECOMMENDATION:

I. Staff Summary – Project Description and Background

A. Project Description. The City of San Diego ("City") has requested a waiver under Section 301(h) of the Clean Water Act (the Act), 33 U.S.C. Section 1311(h), from the secondary treatment requirements contained in Section 301(b)(1)(B) of the Act, 33 U.S.C. Section 1311(b)(1)(B). The waiver is being sought for the Point Loma Wastewater Treatment Plant (WTP) and Outfall, which discharges 4.5 miles from Point Loma (Exhibit 1). The waiver would allow the discharge of wastewater receiving less-than-secondary treatment into the Pacific Ocean. The City has been operating under a "special exception" to the 301(h) program, granted when Congress amended the Clean Water Act by adding to it Section 301(j)(5). That section allowed the City to apply for a waiver after the deadline for such applications had passed (it also contained substantive requirements, which are discussed below). The City applied for the waiver and subsequent renewals in a timely manner, initially in 1995, and for renewals in 2001 and 2007.

The Point Loma WTP, which serves the 450 sq. mi. Metropolitan San Diego area,[2] is located near the southern tip of Point Loma, and discharges wastewater from the City of San Diego through the Point Loma ocean outfall (PLOO) at a distance 4.5 miles from shore, west of Point Loma, in approximately 100 meters of water. The outfall terminates with a wye (Y-shaped) diffuser with two 2,496 foot long diffuser legs. The diffuser has 416 discharge ports (208 on each leg) and the zone of initial dilution (ZID) extends 93.5 meters (307 feet) on either side of the PLOO diffuser legs. The RWQCB, with assistance from the SWRCB, has

[2] The "Metro System" (Exhibit 2) includes the City and 15 participating agencies in the region. City flows account for 70% of the total flows.

established a minimum initial dilution factor for this permitting effort of 204:1. The sewer system also includes two pump stations, two water reclamation plants (WRPs) (North City and South Bay WRPs), and the Metro Biosolids Center at Marine Corps Air Station Miramar (Exhibit 2). Existing wastewater flows in recent years (2005-2007) have been approximately 160-185 million gallons per day (MGD) (average flows). Projected flows for the year 2014 (the end of the 5-year permit) are estimated at 202 MGD. System capacities are 240 MGD (average) and 432 MGD (peak wet weather flow).

The project service area and facilities are further described on pages 11-14 of EPA's Tentative Decision Document (Exhibit 12). This description notes a number of upgrades the City has made to the treatment system since the previous waiver was granted in 2002, including:

> *There have been improvements to Metro System facilities since the existing federal NPDES permit became effective in 2003. These include bringing the South Bay Water Reclamation Plant and recycled water users online within the service area of the South Bay Water Reclamation Plant and Ocean Outfall, and adding recycled water users within the North City Water Reclamation Plant service area. Figure A-2 presents a schematic of existing Metro System treatment and solids handling facilities which include the: Point Loma Wastewater Treatment Plant and Ocean Outfall, North City Water Reclamation Plant, South Bay Water Reclamation Plant and Ocean Outfall, and the Metro Biosolids Center. Waste solids from the South Bay Water Reclamation Plant (WRP) are conveyed to Point Loma WTP for treatment. Waste solids from Point Loma WTP and North City WRP are conveyed to the Metro Biosolids Center for dewatering and disposal.*

The City has also strengthened its monitoring program since the previous waiver was granted in 2002, including:

> ***D. Receiving Water Monitoring*** [3]
>
> ***1. Core Monitoring Program for Surface Water***
>
> *A monitoring program at the current discharge site has existed since 1991 and has focused on physical, chemical, and biological patterns in the region. The monitoring program underwent significant revision in 2003 to reallocate the level of effort that was in place at the time, in order to address crucial processes not addressed by earlier monitoring programs and provide a regional framework for interpreting discharge-related effects. The existing monitoring program reflects the principles expressed in the "Model Monitoring Program for Large Ocean Dischargers in Southern California" (SCCWRP, 2002). Since 2003, the following three components*

[3] Source: RWQCB Fact Sheet, pp. F-46 to F-49 (Exhibit 11) (Note: Monitoring stations are shown in Exhibits 3-5.)

have constituted the Discharger's receiving water monitoring program: (1) Core Monitoring; (2) Strategic Process Studies; and (3) Regional Monitoring. These three components are needed to evaluate compliance with the permit, federal 301(h) decision criteria, and State water quality standards; and to assess the effects of the discharge on the marine environment.

There are five components to the Core Monitoring Program: general water quality monitoring; bacteriological monitoring of shoreline, kelp bed, and offshore waters; sediment monitoring for grain size, chemistry, and benthic infauna community structure; monitoring for fish and megabenthic invertebrate communities, and contaminant body burdens of fishes; and monitoring of kelp bed canopy cover.

a. General Water Quality

The offshore and kelp bed water quality sampling program is designed to help evaluate the fate of the wastewater plume under various conditions and to determine if the water quality objectives contained in the Ocean Plan are being achieved in the receiving water. Salinity, temperature, density, pH, transmissivity, dissolved oxygen, and chlorophyll a are monitored throughout the entire water column quarterly at ***[36 offshore stations] and five times per month***[4] *at eight kelp bed stations. Ammonium is monitored at those stations which are located within State jurisdictional waters, on a quarterly basis and at the same discrete depths specified for bacterial monitoring. General water quality monitoring requirements have been carried over from the previous Order.* [Emphasis added]

b. Microbiological

Bacteria indicator sampling is required to help track the wastewater plume in federal and State offshore waters and evaluate compliance with recreational water quality standards in State waters within three nautical miles of the shoreline. In federal and State offshore waters, the nature and extent of primary contact recreational use in federal waters is noted and reported. ***A grid of 36 offshore stations is monitored quarterly for enterococcus. Eight kelp bed stations and eight shoreline stations are monitored five times per month for enterococcus, total coliform, and fecal coliform.*** *At offshore and kelp bed stations, these parameters are monitored in the water column at fixed intervals. At shoreline stations, these parameters are monitored in the surf zone using grab samples. General microbiological monitoring requirements have been carried over from the previous Order.* [Emphasis added]

c. Sediment

The physical and chemical properties of sediments and the biological communities that live in or on these sediments are monitored to evaluate potential effects of the

[4] Emphasis added in bold. Number of stations missing in the draft permit text was inserted in brackets.

PLOO discharge and compliance with narrative water quality standards in the Ocean Plan. The core sediment monitoring program is designed to assess spatial and temporal trends. ***A core set of 12 to 22 stations are monitored twice each year, in January and July, using grab samples.*** *Twelve primary stations are located along the 98-meter depth contour and 10 secondary stations are located along the 88-meter and 116-meter depth contours. The requirement for sampling at the secondary stations can be relaxed by the Regional Water Board and USEPA to allow the Discharger to participate in Bight-wide regional monitoring efforts. For sediment chemistry, monitored parameters include sediment grain size, metals, PCBs and chlorinated pesticides, and PAHs. Benthic community structure is evaluated using separate grab samples, in January and July. General sediment monitoring requirements have been carried over from the previous Order.* [Emphasis added]

d. Fish and Invertebrate

Epibenthic trawls at four trawl zone stations are used to assess the structure of demersal fish and megabenthic invertebrate communities and to evaluate compliance with narrative water quality standards in the Ocean Plan. Chemical analyses of fish tissues are performed annually on target species collected at or near the four trawl and two rig fishing stations. Species targeted are representative of those caught by recreational and/or commercial fishery activities in the region. Liver tissue is monitored at trawl stations and muscle tissue is monitored at rig fishing stations to assess the uptake of pollutants in fish species commonly consumed by humans in the region. The tissues are analyzed for lipids, metals, PCBs, and chlorinated pesticides. General fish and invertebrate monitoring has been carried over from the previous Order.

e. Kelp Bed Canopy

Annual kelp bed surveys are intended to assess the extent to which the discharge of wastes may affect the aerial extent and health of coastal kelp beds. This monitoring effort is conducted with other ocean dischargers in the San Diego Region and covers the entire San Diego Region coastline, from the international boundary to the San Diego Region/Santa Ana Region boundary. In each annual survey, the aerial extent of the various kelp beds are photographed and compared to previous surveys; further investigation is required if significant losses are observed to persist for more than one year. Kelp bed monitoring has been carried over from the previous Order.

E. Strategic Process Studies and Regional Monitoring Requirements

In addition to Core Monitoring activities, the Discharger is required to conduct Strategic Process Studies and participate in Regional Monitoring activities coordinated by the Southern California Coastal Water Research Project (SCCWRP). Strategic Process Studies are an integral part of the permit monitoring program and differ from other elements of the monitoring program (e.g., core monitoring, regional monitoring, other permit special studies). They are intended to

> *be short-term and are designed to address specific research or management issues related to receiving water monitoring that are not addressed by core and regional monitoring elements. The scope of special studies is determined by the Discharger, in coordination with the Regional Water Board Executive Officer and USEPA. Each year, the Discharger is required to submit proposals for strategic process studies for the following year's effort.* ***Detailed scopes of work for each study are provided by the Discharger and approved by the Executive Officer and USEPA, prior to study implementation.*** [Emphasis added]
>
> *The intent of Regional Monitoring activities is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and best utilize the pooled scientific resources of the region. During these coordinated large-scale sampling efforts, the Discharger's sampling and analytical effort may be reallocated to provide a regional assessment of the impact of the discharge of municipal wastewater to the Southern California Bight. Anticipated modifications to the monitoring program will be coordinated so as to provide a more comprehensive picture of the ecological and statistical significance of monitoring results and determine cumulative impacts of various pollution sources. Under previous permits, the Discharger participated in regional monitoring efforts in 1994, 1998, 2003, and 2008. The Discharger provides its level of effort for Regional Monitoring for Executive Officer and USEPA approval, following the procedures and schedule established for approval of Strategic Process Studies.*

The City conducted a special monitoring study of the conditions of sediments and benthos in deep water (as deep as 542 meters) to look for potential impacts of the Point Loma WTP discharge. A summary of the results of the Deep Benthic Pilot Study is part of the City's NPDES application Attachment E (RWQCB files) Benthic Sediments and Organisms:

> ***Deep Benthic Pilot Study*** *Little is known about benthic conditions on the continental slope off southern California, although this region may be a major sink for the accumulation of sediments and other materials that may originate from a variety of point and non-point sources. In an effort to begin investigating such habitats as part of its enhanced ocean monitoring objectives for Valley located west of the City's monitoring region for the Point Loma outfall and an EPA designated disposal site. Sixteen sites were distributed at depths around 200, 300, 400 and 500m along four offshore transects and modified to target areas most susceptible to sediment accumulation. Sites were classified into three "classes" based on geographic location, sediment composition, and steepness of slope. Samples were collected at each site for assessment of both sediment quality (grain size, chemistry) and biotic (infaunal communities) conditions. Preliminary analyses of the sediment data have been completed (see below), while assessment of the associated infaunal communities is underway. The preliminary summary report for this project is included as Attachment E.4 of this appendix, while a final comprehensive report is expected to be completed by the end of 2008.*

> *As part of the DBPS, benthic sediments were analyzed for grain size, total organic carbon, total nitrogen, total volatile solids, sulfides, trace metals, pesticides, and PCBs. Bottom water conditions were characterized based on CTD data. Preliminary results show no evidence of significant contaminant accumulation in these deeper habitats off San Diego that may have originated from the Point Loma outfall, the LA-5 disposal site or other sources.* ***No chlorinated pesticides or PCBs were detected at any of the 16 sites.*** *Sediment chemistries were closely linked to grain size compositions. Sediments sampled from the axial valley of the submarine canyon where materials are most likely to accumulate were much coarser and had correspondingly lower concentrations of metals and organic enrichment than sediments collected from the alluvial plain of the canyon and nearby shelf slope. Alluvial and deep sediments were organically enriched leading to low oxygen concentrations in the overlying water.*[5] [Emphasis added]

Finally, with respect to monitoring, the City has also commenced a detailed plume monitoring study, designed to "… determine the behavior and dispersion of the Point Loma outfall plume using state-of-the-art methodology and equipment." In designing this study, the City acknowledges that:

> *The behavior of the Point Loma wastewater plume (wastefield) is not well known at present because it has not been purposefully mapped an adequate number of times to determine its behavior given the complex ocean conditions that exist off San Diego. Ocean conditions that force plume behavior off San Diego are known to vary seasonally and are affected by larger scale ocean circulation within the southern California borderlands, local wind patterns, and winds located as far south as southern Baja California.*

The City summarizes this plume study as follows:

> *The purpose of the present project is to determine the behavior and dispersion of the Point Loma outfall plume using state-of-the-art methodology and equipment. The goals of this project are to address two primary concerns of operating the ocean outfall in its current configuration: (1) possible effects to beach and near-surface water quality and (2) its risk to the coastal marine environment. This study addresses beach and surface water quality concerns by determining whether the wastewater plume surfaces and encroaches upon beaches, and if so, the frequency of such behavior. It also supports efforts to address ecosystem concerns by determining the frequency of spatial occurrence (i.e. the temporal footprint) of the plume thereby helping to spatially focus ongoing and future biological monitoring programs.*

[5] Note – Low oxygen conditions are typical of deep water sediments off Southern California.

> *The work outlined here involves tracking the wastefield using an autonomous underwater vehicle (AUV) and modeling plume behavior both in the near and far fields off Point Loma. The ultimate goal is to track plume behavior over the range of observed ocean conditions an adequate number of times to support the prediction of plume behavior given the same conditions observed in the future. The modeling effort consists of coupling an EPA standard near-field model that describes the footprint, mixing and rising of the buoyant plume within a kilometer or two of the outfall to a regional model of ocean circulation to estimate plume behavior in the far field (tens to over a hundred kilometers from the outfall). The end-product of this work will be a statistical description of plume behavior over the range of ocean conditions off Point Loma and a coupled dynamical model of plume behavior that would facilitate real-time prediction of plume dispersion based on ocean current and temperature data telemetered from a sensor array located over the outfall. In other words, possible plume surfacing events and shoreline incursions could be known in near real time.*
>
> *The work outlined here represents the second phase of work intended to determine plume behavior. The first phase, monitoring of ocean circulation and temperature profiles in the vicinity of the Point Loma outfall, began in 2006 as a collaborative effort between the City of San Diego Ocean Monitoring Program (Metropolitan Wastewater Department) and the Scripps Institution of Oceanography. The AUV and modeling work outlined below will be supported by ongoing observations of ocean currents and temperature as well as high frequency (HF) radar observations. High frequency radar supports estimation of surface current fields and is therefore useful for tracking sewage wastefields that have surfaced as well as possibly contaminated buoyant plumes from terrestrial surface runoff or outflows from rivers or bays.*

The result of this plume study will not be available before mid-2011.

For the 5 year term of the NPDES permit, the City proposes the following system improvements (EPA TDD, p. 14 (Exhibit 12)):

> *During the next 5-year permit cycle, the applicant has proposed the following improvements to the Metro System. Volume III, Large Applicant Questionnaire section II.A.2, of the application. These improvements are: (1) the ongoing program to bring additional recycled water users online to reduce dry-weather North City WRP flows discharged downstream to the Point Loma WTP and PLOO and South Bay WRP flows discharged to the SBOO; and (2) effluent disinfection provided by the installation and implementation (operation) of prototype effluent disinfection facilities at the Point Loma WTP. Prototype effluent disinfection facilities have been installed at the Point Loma WTP to allow the discharge to comply with recreational body-contact bacteriological standards throughout the water column (ocean surface to ocean bottom) in all State-regulated waters (within three nautical miles of the*

coast). The City will perform and complete follow-up studies to assess the need for refinements or modifications to prototype disinfection facilities or operations. The City is proposing to implement effluent disinfection at the Point Loma WTP to achieve a 2.1 logarithm (approximately 99%) reduction in pathogen indicator organisms using a 7 mg/l dose rate of a 12 percent sodium hypochlorite solution in the effluent channel. (For reference, 1 milligram per liter is 1 part per million.) The application projects that the sodium hypochlorite solution will be entirely consumed by effluent chlorine demand during outfall transport, allowing the Point Loma discharge to maintain a zero chlorine residual as the effluent enters the outfall diffuser. The City may propose future modification of the prototype disinfection facilities or operations based on additional studies and following approval by the Regional Water Board and EPA.[6]

As documented in Volume III, Large Applicant Questionnaire section II.A.3, of the application, the City has constructed 45 mgd of recycled water treatment capacity; during the period of the existing permit, the applicant has consistently achieved 80% removal of TSS and 58% removal of BOD; and reduced TSS mass emissions during the period of the 301(h) modification (in Tables II.A-3 and II.A-4 and Figure II.A-1, Volume III of the application). Except for a slight reduction in year five of the renewed permit, the City is not requesting any change in the mass emission rate effluent limits for TSS, the concentration effluent limit for TSS, or the percent removal effluent limits for TSS and BOD, from those in the existing permit (in Tables II.A-2 and II.A-5, Volume III of the application). "System-wide" percent removal is computed as specified in Addendum No. 1 to Order No. R9-2002-0025, NPDES No. CA0107409. Tables II.A-3 and II.A-4 include the contribution from South Bay WRP which is neither identified in amended Order No. R9-2002-0025, nor included in the computation of "system-wide" percent removal.

[6] For further background, the RWQCB Fact Sheet notes:

> *On November 13, 2007, the Discharger submitted a request to the Regional Water Board to initiate operation of prototype effluent disinfection facilities to achieve compliance with bacteriological water quality standards in State waters. On August 13 2008, the Regional Water Board approved modifications associated with operation of the Discharger's proposed prototype effluent disinfection facilities at Point Loma WTP. The Discharger's 2007 301(h) application is based on an improved discharge, as defined at 40 CFR 125.58(i), and incorporates effluent disinfection to achieve these standards prior to permit reissuance.*

EPA estimates past and projected (for the 5-year life of the permit) flows as follows (TDD Table 1):

Table 1. Actual and projected annual average and maximum daily/peak hour flows (mgd) for the Point Loma Ocean Outfall from 2001 through 2014.

Year	Observed Flows		Project Flows	
	Annual Average Flow[1]	Maximum Daily Flow	Projected Annual Average Flow[2]	Maximum Projected Peak Hour Flow[3]
2001	175	222	---	---
2002[4]	169	189	---	---
2003	170	223	---	---
2004	174	295	---	---
2005	183	325	---	---
2006	170	224	---	---
2007	161	206	---	---
2008	162[5]	233[5]	191	458[6]
2009	---	---	192	463[6]
2010	---	---	193	467[6]
2011	---	---	194	471[6]
2012	---	---	197	476[6]
2013	---	---	199	481[6]
2014	---	---	202	486[6]

[1] Data from monthly reports submitted to the Regional Water Board and EPA for 2001-2008. Maximum daily flow is the highest daily PLOO flow observed during the listed year.

[2] Average annual PLOO flow projections based on Metro System flow projections for long-term facilities planning. The flow projections for long-term facilities planning are conservative (overestimates that employ a factor of safety) to ensure that adequate future system capacity is maintained. Average annual PLOO flows will vary depending on hydrologic conditions, recycled water demands, and SBOO flows. These approximations are based on average annual recycled water use in the North City WRP service area of 7,210 AFY [Acre-Feet/Year] in 2008, 7,760 AFY by 2010, 8,260 AFY by 2012, linearly increasing beyond 2012 to 9,970 AFY (8.9 mgd) by 2027. Estimates are also based on combined South Bay WRP reuse and SBOO flows of 6,730 AFY in 2008, 6,930 AFY in 2010, 7,490 AFY in 2012, linearly increasing beyond 2012 to 8,850 AFY (7.9 mgd) by 2027. Estimates are also based on net annual Metro System flow reductions of 3.0 mgd from recycled water use from Padre Dam MWD, Santee WRP, and Otay Water District WRF.

[3] Maximum projected peak-hour wet-weather flow for a 10-year return period, per MWWD [Metropolitan Wastewater Dept.] System wide Planning Design Event Analysis for Peak Flows and Volumes - PS1 and PS2, April 24, 1997. Values assume that no recycled water use occurs during a wet weather event. Maximum projected peak-hour flows represent short-term peak flows for purposes of assessing the ability of Metro System collection facilities to handle short-term instantaneous peak flows. Actual maximum peak hour flows in any year are likely to be significantly less than this projected once-in-10-year event.

[4] South Bay WRP is brought online.

[5] Preliminary values for January 1 through September 30, 2008.

[6] The City is reassessing peak hour wet-weather flow projections. As part of this assessment, the City is evaluating the need to add equalization storage at Pump Station Nos. 1 and 2 (or implementing alternative peak-flow management options) to increase the ability of Metro System conveyance facilities to handle potential maximum instantaneous peak flows.

B. Treatment Levels. Secondary treatment is defined in Clean Water Act implementing regulations (40 CFR Part 133) in terms of effluent quality for suspended solids (SS), biochemical oxygen demand (BOD) and pH. The secondary treatment requirements for SS, BOD and pH are as follows:

SS and BOD:

(1) The 30-day average shall not exceed **30 mg/l** (milligrams per liter).
(2) The 7-day average shall not exceed **45 mg/l**.
(3) The 30-day average percent removal **shall not be less than 85%;**

pH: The effluent limits for pH shall be maintained within the limits of 6.0 to 9.0 pH units. (Note: the City is not seeking a waiver from this requirement.)

State water quality standards (i.e., the **California Ocean Plan) require removal of 75% of SS**. The Ocean Plan does not have an effluent limitation for BOD; the comparable standard is for dissolved oxygen, and the Plan requires that "dissolved oxygen shall not at any time be depressed more than 10% from that which occurs naturally as a result of the discharge of oxygen-demanding waste materials."

The special legislation created for the City's application for a secondary treatment waiver (Ocean Pollution Reduction Act of 1994 (OPRA)/CWA Section 301(j)(5)/Public Law 103-431) requires:

1. **80% removal of TSS** (monthly average);

2. **58% removal of BOD** (annual average);

3. 45 MGD of water reclamation capacity by the year 2010; and

4. Reduction of TSS during the 5-year period of permit modification (EPA has interpreted this standard to require reduction of TSS from 15,000 to 13,600 metric tons/yr).

33 U.S.C. § 1311(j)(5)(B) & (C).

The following table compares the various statutory requirements:

Table 1. Comparison of treatment removal requirements. [Source: EPA Tentative Decision Document]

Requirement	Suspended Solids Removal	Biochemical Oxygen Dema Removal	pH Limitation
Primary	30% as 30-day average	30% as 30-day average	6-9
California Ocean Plan	75% as 30-day average	No Requirement	6-9
OPRA [only applicable to San Diego discharges]	80% as 30-day average	58% as annual average	
Secondary	85% as 30-day average	85% as 30-day average	6-9

Thus, the City is requesting a variance from secondary treatment standards for BOD and SS. Under this waiver, the City's advanced primary system must remove 80% of SS, and 58% of BOD. The City's performance in recent years has achieved averaged removal rates of 89% for SS, and 68% for BOD. Recent suspended solids loadings have been less than 10,500 metric tons/yr. (see Table 9, pages 32-33). The City is not requesting a waiver of pH requirements.

B. Procedures. Secondary treatment waivers are reviewed by EPA and the RWQCB, with EPA retaining the final decision authority. Under the 301(h) waiver process, once the application is made, EPA performs an independent technical evaluation and, if the discharges meets all Clean Water Act 301(h) waiver requirements, EPA issues a tentative decision document (TDD). (EPA's TDD, issued December 2, 2008, is attached as Exhibit 12.) This is followed by RWQCB and Coastal Commission public hearings and actions (which can occur in either order), and after these and other agency reviews are finalized (including U.S. Fish and Wildlife Service and National Marine Fisheries Service reviews under the Endangered Species and Magnusen-Stevens Acts), EPA issues its final decision. On June 10, 2009, the RWQCB approved the waiver in its adoption of Tentative Order No. R9-2009-0001 and Draft NPDES Permit No. CA0107409. EPA can not grant the waiver until after the RWQCB approves a Draft NPDES permit and the Commission concurs with a consistency certification for the waiver (or (a) if the RWQCB objects, the State Water Resources Control Board approves the permit on appeal; and/or (b) if the Commission objects, the Secretary of Commerce overrides the Commission's objection on appeal).

C. History of San Diego Waiver. On September 27, 1995, after a Commission public hearing, and after which the Commission endorsed the staff's recommended approach, the Commission staff concurred with a previous submittal from the City of San Diego of a "No Effects" letter (in lieu of a consistency certification) for its first EPA-issued secondary treatment waiver (NE-94-95). That matter was reviewed as an administrative item due to unusual circumstances and history surrounding the waiver. The Commission normally reviews secondary treatment waivers and reissuances as consistency certifications, as is the case for the subject reissuance.

On April 8, 2002, the Commission objected to the City's consistency certification for the City's waiver reissuance (CC-10-02). The Commission determined that the activity was not consistent with the California Coastal Management Program (CCMP), and that in order to bring the activity into conformance with the CCMP, the City would need to modify the activity. The Commission identified the following three areas of concern that needed to be addressed: (1) reductions in permitted levels of mass emissions; (2) commitments for water reclamation; and (3) additional monitoring provisions. More specifically, the Commission requested:

> *1. meaningful reductions in rates of annual mass emissions (i.e., the proposed EPA/RWQCB permit limitations of 15,000 metric tons (MT) per year for the first four years, and 13,599 MT for the fifth year, are set unrealistically high, compared to current discharges of approximately 9,000 MT/yr.);*
>
> *2. commitments for actual reclamation (as opposed to the requirements under the Ocean Pollution Reduction Act of 1994 (OPRA) to develop 45 MGD of reclamation capacity); and*
>
> *3. additional monitoring measures, consisting of:*
>
> *a. Extending the Coastal Ocean Dynamics Applications Radar (CODAR) monitoring developed at Imperial Beach to the Point Loma area.*
>
> *b. Adding a monitoring station in La Jolla Canyon.*
>
> *c. Incorporating remote sensing into the monitoring program.*

On April 10, 2002, the Regional Water Quality Control Board (RWQCB), San Diego Region, adopted modified permit conditions and addressed these three areas of Commission concern in the following manner:

(1) the RWQCB modified the permit to reduce total allowable mass emission loadings by 6.7%, from 15,000 metric tons per year (MT/yr.) to 13,995 MT/yr. for the first four years (with the fifth year remaining at 13,599 MT/yr.);

(2) the RWQCB requested annual reports from the RWQCB's Executive Officer on the City's progress towards implementing water reclamation, and noted that the RWQCB could impose future reclamation requirements if adequate progress is not forthcoming;

(3) the RWQCB instructed its staff to review and prepare for future RWQCB adoption modifications to the monitoring program, including specific provisions for deep ocean receiving stations, human pathogens, and long term trends.

In separate proceedings the City appealed both the Commission and RWQCB actions. The City also resubmitted its consistency certification to the Commission (CC-28-02). On May 8, 2002, the City appealed the Coastal Commission's consistency certification objection (CC-10-02) to the Secretary of Commerce. On May 9, 2002, the City petitioned for review of the RWQCB's NPDES permit action modifying the mass emission limits by the State Water Resources Control Board (SWRCB)[7]. The City and the Commission staff agreed to "stay" any further deliberations in the Secretary of Commerce appeal, pending Commission reconsideration of the matter once the SWRCB acted. On August 15, 2002, the SWRCB ordered the mass emission limits to be returned to the originally-drafted 15,000 MT/yr. (for the first four years). The SWRCB concluded that the RWQCB had "… failed to make findings, either in its order or during its deliberations, that justify reducing the mass emission limits for TSS from 15,000 metric tons per year to 13,995 metric tons per year in the waste discharge requirements." Accordingly, the City clarified that its resubmitted consistency certification was for the waiver as modified and ordered by the SWRCB. On September 9, 2002, the Commission concurred with this resubmitted consistency certification (CC-028-02).

Finally, for the current waiver, on August 13, 2009, the Commission objected to the City of San Diego's consistency certification (CC-043-09). In lieu of actively pursuing an appeal to the Secretary of Commerce, which is a procedure available to applicants who have submitted consistency certifications to which the Commission has objected, the City has elected to resubmit its consistency certification to the Commission.

D. <u>Previous Commission Reviews of Other California Waivers</u>. In 1979, and 1983-1985, the Commission reviewed a number of consistency certifications for secondary treatment waiver applications, under the federal consistency provisions of the Coastal Zone Management Act ("CZMA"), and EPA ultimately granted many of these waivers. During these reviews the Commission expressed concern over the need for treatment meeting the *equivalent* of secondary treatment with respect to removal of toxics. At that time, the Commission consciously adopted a neutral position on the waivers. Since a position of "neutrality" is not an action that is recognized under CZMA regulations, the Commission's concurrence in the waivers was presumed pursuant to the CZMA and its administrative regulations. 16 USC § 1456(c)(3)(A); 15 CFR § 930.62(a).

Section 301(h) waivers are only valid for 5 years, although EPA commonly administratively extends the time during processing of renewal applications. Only a few of the initial round of waiver applicants continued to pursue waivers; by the mid-1990's the list was down to: Goleta, Morro Bay, and Orange County (CSDOC). On January 12, 2005, and January 8, 1997, the Commission concurred with Goleta's renewals (CC-13-02 and CC-126-96,

[7] Only the first of the above RWQCB measures was an actual permit modification (i.e., the second and third measures were outside the scope of the permit).

respectively). On January 9, 2009, January 13, 1999, and January 12, 1993, the Commission concurred with Morro Bay's renewals (CC-007-06, CC-123-98 and CC-88-92, respectively). On March 10, 1998, the Commission concurred with Orange County's renewal (CC-3-98).

Morro Bay, Goleta, and Orange County have now all agreed to upgrade to secondary treatment, by 2012 (Orange Co.), 2014 (Goleta), and 2015 (Morro Bay). Goleta recently (May 29, 2009) submitted its latest (pending) waiver request (CC-032-09), as one more waiver is needed before it can fully implement secondary treatment. On July 17, 2002, Orange County agreed to pursue secondary treatment. Since 2004, Orange County has been operating under an EPA secondary permit and, because the plant does not yet achieve secondary treatment, a federal consent decree. EPA states that Orange County expects to meet the consent decree deadline for achieving full secondary treatment on or before December 31, 2012. Thus, the Commission should not expect to see any further Orange County consistency certifications for any more 301h waivers.

E. Applicant's Consistency Certification. The City of San Diego certifies that the proposed renewal of its 301(h) waiver by EPA complies with the federally approved California Coastal Management Program (CCMP) and will be conducted in a manner consistent with such program.

II. Staff Recommendation:

The staff recommends that the Commission adopt the following motion:

MOTION. I move that the Commission **concur** with the City of San Diego's consistency certification.

The staff recommends a **YES** vote on this motion. A majority vote in the affirmative will result in adoption of the following resolution:

Concurrence

The Commission hereby **concurs** with the consistency certification made by the City of San Diego for the proposed waiver, finding that the waiver is consistent with the enforceable policies of the California Coastal Management Program.

III. Findings and Declarations:

The Commission finds and declares as follows[8]:

A. Water Quality/Marine Resources

1. Regulatory Framework. EPA and the applicable RWQCBs regulate municipal wastewater outfalls discharging into the Pacific Ocean under NPDES permits issued pursuant to the federal Clean Water Act. As enacted in 1972, the Clean Water Act required secondary treatment for all wastewater treatment nationwide. Amendments to the Clean Water Act in 1977 provided for Section 301(h) (33 USC Section 1311(h)) waivers of the otherwise applicable requirements for secondary treatment for discharges from publicly owned treatment works into marine waters. Section 301(h) is implemented by EPA regulations set forth in 40 CFR Part 125, Subpart G.

Section 301(h) of the Clean Water Act provides that an NPDES permit that modifies the secondary treatment requirements may be issued if the applicant: (1) discharges into oceanic or saline, well-mixed estuarine waters; and (2) demonstrates to EPA's satisfaction that the modifications will meet those requirements specified in Section 301(h) (quoted in full below), including: (a) that the waiver will not result in any increase in the discharge of toxic pollutants or otherwise impair the integrity of receiving waters; and (b) that the discharger must implement a monitoring program for effluent quality, must assure compliance with pre-treatment requirements for toxic control, must assure compliance with water quality standards, and must measure impacts to indigenous marine biota. In California, the applicable water quality standards are embodied in the California Ocean Plan (summarized below).

While the State of California (through the SWRCB and RWQCBs) administers the NPDES permit program and issues permits for most discharges to waters within State waters, authority to grant a waiver and issue a modified NPDES permit under Section 301(h) of the Act is reserved by the Regional Administrator of EPA. Prior state (i.e., SWRCB or RWQCB) concurrence with the waiver is also required.

Section 307(f) of the federal CZMA (16 USC § 1456(f)) specifically incorporates all Clean Water Act-based requirements into the California Coastal Management Program (CCMP). Commission consistency certification review and concurrence is required for 301(h) waiver applicants, because EPA NPDES permits are listed in California's Coastal Management program as federal licenses or permits for activities affecting land or water uses in the coastal zone. In reviewing the proposed discharges, the Commission relies on the Clean Water Act and its implementing regulations, the California Ocean Plan, the Coastal Act (Chapter 3 policies), and California Water Code Section 13142.5 (incorporated into the Coastal Act by

[8] These findings also hereby incorporate by reference Section I of the Staff Summary and Recommendation in which these findings appear, which section is entitled "Staff Summary – Project Description and Background."

Section 30412(a)). These requirements, which are further described and summarized below, provide both specific numerical standards for pollutants, as well as general standards for protection of marine biological productivity.

a. <u>Clean Water Act/Section 301(h)</u>. Implementation of the Clean Water Act in California, for the most part, has been delegated to the applicable RWQCB for issuance of NPDES permits. Under an MOA between EPA and the State of California, NPDES permits for secondary treatment waivers (regardless of location) are issued jointly by EPA and the applicable RWQCB. The Clean Water Act divides pollutants into three categories for purposes of regulation, as follows: (1) conventional pollutants, consisting of total suspended solids (TSS or SS); biochemical oxygen demand (BOD, a measure of the amount of oxygen consumed during degradation of waste); pH; fecal coliform bacteria; and oil and grease; (2) toxic pollutants, including heavy metals and organic chemicals; and (3) non-conventional pollutants (a "catch-all" category for other substances needing regulation (e.g., nitrogen and phosphorus, chlorine, fluoride)).

Guidelines adopted under Section 403 of the Clean Water Act (40 CFR Part 125.120-124, Subpart M, “Ocean Discharge Criteria”) specify that beyond an initial mixing zone, commonly referred to as the zone of initial dilution (ZID), the applicable water quality standards must be met. The zone of initial dilution is the boundary of the area where the discharge plume achieves natural buoyancy and first begins to spread horizontally. Discharged sewage is mostly freshwater, so it creates a buoyant plume that moves upward toward the sea surface, entraining ambient seawater in the process. The wastewater/seawater plume rises through the water column until its density is equivalent to that of the surrounding water, at which point it spreads out horizontally.

Section 301(h) of the Clean Water provides for secondary treatment waivers under certain circumstances. The following requirements must be met for EPA to grant a secondary treatment waiver:

> *(1) there is an applicable water quality standard specific to the pollutant for which the modification is requested, which has been identified under section 304(a)(6) of this Act;*
>
> *(2) such modified requirements will not interfere, alone or in combination with pollutants from other sources, with the attainment or maintenance of that water quality which assures protection of public water supplies and the protection and propagation of a balanced, indigenous population (BIP) of shellfish, fish and wildlife, and allows recreational activities, in and on the water;*
>
> *(3) the applicant has established a system for monitoring the impact of such discharge on a representative sample of aquatic biota, to the extent practicable, and the scope of the monitoring is limited to include only those scientific investigations which are necessary to study the effects of the proposed discharge;*

(4) such modified requirements will not result in any additional requirements on any other point or nonpoint source;

(5) all applicable pretreatment requirements for sources introducing waste into such treatment works will be enforced;

(6) in the case of any treatment works serving a population of 50,000 or more, with respect to any toxic pollutant introduced into such works by an industrial discharger for which pollutant there is no applicable pretreatment requirement in effect, sources introducing waste into such works are in compliance with all applicable pretreatment requirements, the applicant will enforce such requirements, and the applicant has in effect a pretreatment program which, in combination with the treatment of discharges from such works, removes the same amount of such pollutant as would be removed if such works were to apply secondary treatment to discharges and if such works had no pretreatment program with respect to such pollutant;

(7) to the extent practicable, the applicant has established a schedule of activities designed to eliminate the entrance of toxic pollutants from nonindustrial sources into such treatment works;

(8) there will be no new or substantially increased discharges from the point source of the pollutant to which the modification applies above that volume of discharge specified in the permit;

(9) the applicant at the time such modification becomes effective will be discharging effluent which has received at least primary or equivalent treatment and which meets the criteria established under section 304(a)(1) of the Clean Water Act after initial mixing in the waters surrounding or adjacent to the point at which such effluent is discharged.

For the purposes of this subsection the phrase "the discharge of any pollutant into marine waters" refers to a discharge into deep waters of the territorial sea or the waters of the contiguous zone, or into saline estuarine waters where there is strong tidal movement and other hydrological and geological characteristics which the Administrator determines necessary to allow compliance with paragraph (2) of this subsection, and section 101(a)(2) of this Act. For the purposes of paragraph (9), "primary or equivalent treatment" means treatment by screening, sedimentation and skimming adequate to remove at least 30 percent of the biochemical oxygen demanding material and of the suspended solids in the treatment works influent, and disinfection, where appropriate. A municipality which applies secondary treatment shall be eligible to receive a permit pursuant to this subsection which modifies the requirements of subsection (b)(1)(B) of this section with respect to the discharge of any pollutant from any treatment works owned by such municipality into marine

> *waters. No permit issued under this subsection shall authorize the discharge of sewage sludge into marine waters. In order for a permit to be issued under this subsection for the discharge of a pollutant into marine waters, such marine waters must exhibit characteristics assuring that water providing dilution does not contain significant amounts of previous discharged effluent from such treatment works. No permit issued under this subsection shall authorize the discharge of any pollutant into marine estuarine waters which at the time of application do not support a balanced, indigenous population of shellfish, fish and wildlife, or allow recreation in and on the waters or which exhibit ambient water quality below applicable water quality standards adopted for the protection of public water supplies, shellfish and wildlife, or recreational activities or such other standards necessary to assure support and protection of such uses. The prohibition contained in the preceding sentence shall apply without regard to the presence or absence of a causal relationship between such characteristics and the applicant's current or proposed discharge. …*

In addition, as discussed on page 14, Section 301(j)(5) of the Clean Water Act provides procedural and substantive requirements enabling the City of San Diego (only) to apply for a waiver and specifying that discharges must meet the following tests: 80% removal of TSS (monthly average); 58% removal of BOD (annual average); 45 MGD of water reclamation capacity by the year 2010; and reduction of TSS during the 5-year period of permit modification.

EPA's Tentative Decision Document dated December 2, 2008, evaluates the City's compliance with each of the above nine criteria (see EPA conclusions below). EPA's tentative decision is that the discharges meet each of the above criteria and the NPDES permit is eligible for reissuance. In addition, the RWQCB has evaluated the City's discharges and determined that they would comply with the applicable California Ocean Plan, other California requirements, and NPDES permit limitations.

b. <u>California Ocean Plan</u>. The California Ocean Plan was originally adopted by the SWRCB and approved by the EPA in June 1972, and is revised every three years. Among the California Ocean Plan requirements are the following water quality objectives (Chapter II) [note: the asterisks (*) below refer the reader to Ocean Plan definitions in its Appendices (Exhibit 9)]:

> *A. General Provisions*
>
> *1. This chapter sets forth limits or levels of water quality characteristics for ocean* waters to ensure the reasonable protection of beneficial uses and the prevention of nuisance. The discharge of waste* shall not cause violation of these objectives.*

2. The Water Quality Objectives and Effluent Limitations are defined by a statistical distribution when appropriate. This method recognizes the normally occurring variations in treatment efficiency and sampling and analytical techniques and does not condone poor operating practices.

3. Compliance with the water quality objectives of this chapter shall be determined from samples collected at stations representative of the area within the waste field where initial dilution is completed.*

B. Bacterial Characteristics

1. Water-Contact Standards

Both the SWRCB and the California Department of Health Services (DHS) have established standards to protect water contact recreation in coastal waters from bacterial contamination. Subsection a of this section contains bacterial objectives adopted by the SWRCB for ocean waters used for water contact recreation. Subsection b describes the bacteriological standards adopted by DHS for coastal waters adjacent to public beaches and public water contact sports areas in ocean waters.

…

2. Shellfish Harvesting Standards*

a. At all areas where shellfish may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:*

(1) The median total coliform density shall not exceed 70 per 100 ml, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

C. Physical Characteristics

1. Floating particulates and grease and oil shall not be visible.

2. The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean* surface.*

3. Natural light shall not be significantly* reduced at any point outside the initial* dilution zone as the result of the discharge of waste*.*

4. The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded*.*

D. Chemical Characteristics

1. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials.*

2. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.

3. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.*

4. The concentration of substances set forth in Chapter II, Table B, in marine sediments shall not be increased to levels which would degrade indigenous biota.*

5. The concentration of organic materials in marine sediments shall not be increased to levels that would degrade marine life.*

1. *Nutrient materials shall not cause objectionable aquatic growths or degrade* indigenous biota.*

…

E. Biological Characteristics

1. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.*

2. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.*

3. The concentration of organic materials in fish, shellfish or other marine resources*
used for human consumption shall not bioaccumulate to levels that are harmful to human health.

F. Radioactivity

1. Discharge of radioactive waste shall not degrade* marine life.*

General requirements in the Ocean Plan include:

A. Waste management systems that discharge to the ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.

B. Waste discharged to the ocean must be essentially free of:

1. Material that is floatable or will become floatable upon discharge.

2. Settleable material or substances that may form sediments which will degrade benthic communities or other aquatic life.

3. Substances which will accumulate to toxic levels in marine waters, sediments or biota.

4. Substances that significantly decrease the natural light to benthic communities and other marine life.

5. Materials that result in aesthetically undesirable discoloration of the ocean surface.

C. Waste effluents shall be discharged in a manner which provides sufficient initial dilution to minimize the concentrations of substances not removed in the treatment.

D. Location of waste discharges must be determined after a detailed assessment of the oceanographic characteristics and current patterns to assure that:.

1. Pathogenic organisms and viruses are not present in areas where shellfish are harvested for human consumption or in areas used for swimming or other body-contact sports.

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.

In addition, the Ocean Plan contains "Table A" effluent limitations for major wastewater constituents and properties, "Table B" limitations that provide maximum concentrations for toxic materials that may not be exceeded upon completion of initial dilution, and other standards. Table A and B limitations are contained in Exhibit 10.

c. Coastal Act Policies. The Coastal Act contains policies protecting water quality and marine resources. Section 30230 of the Coastal Act provides:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231 provides:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

In addition to these resource protection policies, Section 30412 addresses the Commission's relationship with the SWRCB and RWQCBs; Section 30412 provides (in relevant part):

(a) In addition to Section 13142.5 of the Water Code, this section shall apply to the commission and the State Water Resources Control Board and the California regional water quality control boards.

(b) The State Water Resources Control Board and the California regional water quality control boards are the state agencies with primary responsibility for the coordination and control of water quality. The State Water Resources Control Board has primary responsibility for the administration of water rights pursuant to applicable law. The commission shall assure that proposed development and local coastal programs shall not frustrate this section. The commission shall not, except as provided in subdivision (c), modify, adopt conditions, or take any action in conflict with any determination by the State Water Resources Control Board or any

California regional water quality control board in matters relating to water quality or the administration of water rights.

Except as provided in this section, nothing herein shall be interpreted in any way either as prohibiting or limiting the commission, local government, or port governing body from exercising the regulatory controls over development pursuant to this division in a manner necessary to carry out this division.

Finally, Section l3l42.5 of the Water Code, which is referenced in Section 30412 above, provides:

In addition to any other policies established pursuant to this division, the policies of the state with respect to water quality as it relates to the coastal marine environment are that:

(a) Waste water discharges shall be treated to protect present and future beneficial uses, and, where feasible, to restore past beneficial uses of the receiving waters. Highest priority shall be given to improving or eliminating discharges that adversely affect any of the following:

(1) Wetlands, estuaries, and other biologically sensitive sites.
(2) Areas important for water contact sports.
(3) Areas that produce shellfish for human consumption.
(4) Ocean areas subject to massive waste discharge.

Ocean chemistry and mixing processes, marine life conditions, other present or proposed outfalls in the vicinity, and relevant aspects of areawide waste treatment management plans and programs, but not of convenience to the discharger, shall for the purposes of this section, be considered in determining the effects of such discharges...

2. <u>EPA Evaluation of the City of San Diego's Discharges</u>. EPA has conducted an independent technical evaluation analyzing San Diego's compliance with the 301(h) Clean Water Act requirements and other criteria discussed above. This tentative evaluation, dated December 2, 2008 (Exhibit 12), includes the following EPA findings:

SUMMARY OF FINDINGS

Based upon review of the data, references, and empirical evidence furnished in the application and other relevant sources, EPA Region 9 makes the following findings with regard to the statutory and regulatory criteria:

1. *The applicant's proposed discharge will comply with primary treatment requirements. [CWA section 301(h)(9); 40 CFR 125.60]*

2. *The applicant's proposed 301(h)-modified discharge will comply with the State of California's water quality standards for natural light and dissolved oxygen. (A modification for pH is not requested.) The applicant has sent a letter to the San Diego Regional Water Quality Control Board (Regional Water Board) requesting determination that the proposed discharge complies with applicable State law including water quality standards. In 1984, a Memorandum of Understanding was signed by EPA Region 9 and the State of California to jointly administer discharges that are granted modifications from secondary treatment standards. The joint issuance of a NPDES permit which incorporates both the federal 301(h) variance and State permit requirements will serve as the State's certification/concurrence that the modified discharge will comply with applicable State law and water quality standards. A draft 301(h)-modified permit has been jointly developed by the Regional Water Board and EPA Region 9. [Section 301(h)(1); 40 CFR 125.61]*

3. *The applicant has demonstrated it can consistently achieve State water quality standards and federal 304(a)(1) water quality criteria beyond the zone of initial dilution. [CWA section 301(h)(9); 40 CFR 125.62(a)]*

4. *The applicant's proposed discharge, alone or in combination with pollutants from other sources, will not adversely impact public water supplies or interfere with the protection and propagation of a balanced, indigenous population (BIP) of fish, shellfish and wildlife, and will allow for recreational activities. [CWA section 301(h)(2); 40 CFR 125.62(b), (c), (d)]*

5. *The applicant has a well-established monitoring program and has demonstrated it has adequate resources to continue the program. The applicant has proposed no changes to its existing monitoring program. EPA Region 9 and the Regional Water Board will review the applicant's existing monitoring program and revise it, as appropriate. These revisions will be included in the 301(h)-modified permit, as conditions for monitoring the impact of the discharge. [CWA section 301(h)(3); 40 CFR 125.63]*

6. *The applicant has sent a letter to the Regional Water Board requesting determination that the proposed discharge will not result in any additional treatment requirements on any other point or nonpoint sources. The adoption by the Regional Water Board of a NPDES permit which incorporates both the federal 301(h) variance and State permit requirements will serve as the State's determination, pursuant to 40 CFR 125.59(f)(4), that the requirements under 40 CFR 125.64 are achieved. [CWA section 301(h)(4); 40 CFR 125.64]*

7. *The applicant's existing pretreatment program was approved by EPA Region 9 on June 29, 1982, and remains in effect. [CWA section 301(h)(5); 40 CFR 125.66 and 125.68]*

8. *The applicant has complied with urban area pretreatment requirements by demonstrating that it has an applicable pretreatment requirement in effect for each toxic pollutant introduced by an industrial discharger. The Urban Area Pretreatment Program was submitted to EPA Region 9 and the Regional Water Board in August 1996. This program was approved by the Regional Water Board on August 13, 1997 and EPA on December 1, 1998. [CWA section 301(h)(6); 40 CFR 125.65]*

9. *The applicant will continue to develop and implement both its existing nonindustrial source control program, in effect since 1985, and existing comprehensive public education program to minimize the amount of toxic pollutants that enter the treatment system from nonindustrial sources. [CWA section 301(h)(7); 40 CFR 125.66]*

10. *There will be no new or substantially increased discharges from the point source of the pollutants to which the 301(h) variance applies above those specified in the permit. [CWA section 301(h)(8); 40 CFR 125.67]*

11. *The applicant has sent letters to the U.S. Fish and Wildlife Service and NOAA National Marine Fisheries Service requesting determinations that the proposed discharge complies with applicable federal and State laws. The applicant has prepared a letter to the California Coastal Commission requesting a determination that the proposed discharge complies with applicable federal and State laws; this request will be transmitted to the California Coastal Commission after the 301(h) modified permit is adopted by the Regional Water Board. The issuance of a final 301(h)-modified permit is contingent upon receipt of determinations that the issuance of such permit does not conflict with applicable provisions of federal and State laws. [40 CFR 125.59]*

12. *In its operation of the Point Loma WTP, the applicant will continue to: achieve a monthly average system-wide percent removal for TSS of not less than 80 percent and an annual average system-wide percent removal for BOD of not less than 58 percent; and has implemented a water reclamation program that will result in a reduction in the quantity of suspended solids discharged into the marine environment during the period of the 301(h) modification. To ensure compliance with this requirement, EPA Region 9 is imposing permit conditions slightly different than those proposed by the applicant. In addition, the applicant has constructed a system capacity of 45 mgd of reclaimed water, thereby meeting this January 1, 2010 requirement. [CWA section 301(j)(5)]*

CONCLUSION

EPA Region 9 concludes that the applicant's proposed discharge will satisfy CWA sections 301(h) and (j)(5) and 40 CFR 125, Subpart G.

EPA's TDD further states:

APPLICATION OF STATUTORY AND REGULATORY CRITERIA

A. Compliance with Federal Primary Treatment, California Ocean Plan Table A, and CWA section 301(j)(5) Requirements

…

1. Total Suspended Solids

To comply with the… [applicable] requirements, the applicant has proposed the following effluent limits for total suspended solids:

TSS: (1) The monthly average system-wide percent removal shall not be less than 80% percent (computed in accordance with Addendum No. 1 to Order No. R9-20020025, NPDES No. CA0107409).

(2) The monthly average treatment plant effluent concentration shall not be more than 75 mg/l.

(3) The annual treatment plant loading to the ocean shall not be more than 15,000 metric tons per year during years one through four of the permit and not more than 13,598 metric tons per year during year five of the permit. Compliance calculations for these loadings are not to include contributions from: Tijuana, Mexico, via the emergency connection; federal facilities in excess of solids contributions received in calendar year 1995; Metro System flows treated in the City of Escondido; South Bay Water Reclamation Plant flows discharged to the South Bay Ocean Outfall; and emergency use of the Metro System by participating agencies over their capacity allotments.

Describing the plant's SS removal rates for the term of the previous waiver, the TDD states:

Table 4. Monthly average and annual average effluent concentrations for total suspended solids (mg/l) at Point Loma WTP.

Month	2002	2003	2004	2005	2006	2007
January	40.5	41.0	46.4	38.0	35.7	36
February	46.6	42.2	43.7	39.0	36.8	34
March	40.9	39.9	43.6	35.6	36.8	33
April	41.7	41.1	43.5	38.2	37.9	29
May	42.5	45.8	42.0	40.2	35.1	26
June	46.5	43.7	44.0	45.1	33.6	25
July	51.9	44.1	43.7	46.9	37.2	31
August	46.0	41.4	43.1	41.0	37.1	34
September	39.0	39.9	44.8	41.9	30.6	41
October	39.4	41.3	37.5	43.0	31.7	43
November	42.4	40.5	37.9	39.2	33.9	35
December	44.5	43.3	41.9	38.5	32.5	41
Annual Average	43.5	42.0	42.7	40.6	34.9	34
Maximum Month	51.9	43.3	46.4	46.9	37.9	43
Minimum Month	39.0	39.9	37.5	35.6	30.6	25

Table 5. Monthly average and annual average percent removals for total suspended solids (%) at Point Loma WTP.

Month	2002	2003	2004	2005	2006	2007
January	85.6	86.1	85.1	84.5	87.4	86.7
February	82.1	85.4	85.1	84.5	87.5	87.9
March	84.9	85.9	85.0	85.1	86.6	88.9
April	85.2	85.8	84.9	85.7	86.1	90.9
May	85.3	84.4	85.3	85.1	87.6	91.6
June	84.6	84.9	85.5	84.3	87.7	92.6
July	83.7	84.9	85.4	83.3	86.8	91.4
August	84.3	85.6	85.5	86.1	86.7	90.8
September	86.5	85.5	84.8	85.8	89.8	87.7
October	86.3	84.5	87.2	84.7	89.7	86.5
November	85.4	84.9	85.5	86.5	88.8	88.7
December	84.3	84.9	84.7	86.8	88.7	85.4
Annual Average	**84.9**	**85.2**	**85.3**	**85.2**	**87.8**	**89.1**

Maximum Month	86.5	86.1	87.2	86.8	89.8	92.6
Minimum Month	82.1	84.4	84.7	83.3	86.1	85.4

[Emphasis added]

Describing reclamation improvements, the TDD states:

> *To comply with the CWA section 301(j)(5) requirement to implement a wastewater reclamation program that will result in a reduction in the quantity of suspended solids discharged by the applicant into the marine environment during the period of the 301(h) modification, the applicant has brought online the 30 mgd North City WRP and the 15 mgd South Bay WRP and, as part of its "improved" discharge, has committed to bring additional recycled water users online to reduce dry-weather flows to both the South Bay Ocean Outfall and Point Loma WTP and Ocean Outfall. Evidence for reductions in the quantity of suspended solids discharged by the applicant during the period of the 301(h) modification are provided in the application (Volume III, Figure II.A-1) which shows the actual reduction in Point Loma WTP effluent mass emissions for total suspended solids from 1995 through 2007. The application also provides projections for total suspended solids loadings from the Point Loma WTP during the period of the proposed 301(h) modification (Appendix III, Table II.A-21).*

Describing past and projected future discharge and emission flow rates, the TDD states:

Table 9. Point Loma WTP actual and projected flows (mgd) and total suspended solids loadings (MT/year) during the terms of the existing and proposed permits.

Year	Actual Annual Average Discharg	Actual TSS Mas Emissions[1,2]	Projected Annua Average Dischar	Projected TSS Mass Emission
1995	188	11,060	---	---
1996	179	10,718	---	---
1997[3]	189	10,255	---	---
1998[4]	194	10,627	---	---
1999	175	9,130	---	---
2000[5]	174	9,036	---	---
2001	175	10,256	---	---
2002[6]	169	10,184	---	---
2003	170	9,862	---	---
2004	174	10,300	---	---
2005	183	10,229	---	---
2006	170	8,248	---	---

2007	161	7,588	---	---
2008	---	---	191	11,400
2009	---	---	193	11,500
2010	---	---	194	11,800
2011	---	---	195	11,700
2012	---	---	197	11,800
2013	---	---	199	11,900
2014	---	---	202	12,100

[1] Flow and mass emissions data from annual reports submitted to the Regional Water Board and EPA for 1995-2007.

[2] Annual mass emissions (converted to units of metric tons per year) are computed as the annual average of monthly mass emissions presented in annual reports submitted to the Regional Water Board and EPA for 1995-2007. The above-listed annual values (computed from monthly averages) may vary slightly from the annual values presented in the summary sheets within the annual reports, which are computed on the basis of average flow and effluent total suspended solids concentrations.

[3] North City WRP is brought online.

[4] Metro Biosolids Center is brought online.

[5] International Boundary and Water Commission International Wastewater Treatment Plant is brought online and Tijuana wastewater flows to Metro System are terminated.

[6] South Bay WRP is brought online.

Describing the plant's BOD removal rates for the term of the previous waiver, the TDD states:

> ***2. Biochemical Oxygen Demand***
>
> *To comply with federal primary treatment and CWA section 301(j)(5) requirements for biochemical oxygen demand, the applicant has proposed the following effluent limit:*
>
> *BOD: The annual average system-wide percent removal shall not be less than 58 percent (computed in accordance with Addendum No. 1 to Order No. R9-2002-0025, NPDES No. CA0107409).*
>
> *EPA reviewed influent and effluent data for Point Loma WTP provided in Volume IV, Appendix A, of the application. The data for biochemical oxygen demand are summarized, as follows.*
>
> *As shown in Table 12* [EPA TDD, p. 30], *the monthly average percent removals for biochemical oxygen demand meet the federal primary treatment requirement.*

In contrast to the federal primary treatment requirement, the percent removal requirement for biochemical oxygen demand specified under CWA section 301(j)(5) is applied on a "system-wide" basis and computed in accordance with the existing permit.

Table 13. Monthly average and annual average system-wide percent removals for biochemical oxygen demand (%).

Month	2002	2003	2004	2005	2006	2007
January	65	67	62	62	65	67
February	61	65	64	62	66	68
March	67	63	62	60	63	69
April	66	61	64	61	63	71
May	69	61	65	60	64	71
June	70	61	64	59	62	73
July	68	62	63	60	60	72
August	69	64	60	62	64	72
September	71	66	61	63	67	72
October	68	65	66	60	69	70
November	65	67	63	63	67	71
December	68	66	62	63	66	69
Annual Average	67	64	63	61	65	70
Maximum Month	71	67	66	63	69	73
Minimum Month	61	61	60	59	60	67

As shown in Table 13, the annual average system-wide percent removals for biochemical oxygen demand meet the CWA section 301(j)(5) requirement of not less than 58 percent.

Describing attainment of water quality standards for TSS and BOD, the TDD states:

Under 40 CFR 125.61(a) which implements CWA section 301(h)(1), there must be a water quality standard applicable to the pollutants for which the modification is requested; under 125.61(b)(1), the applicant must demonstrate that the proposed modified discharge will comply with these standards. The applicant has requested modified requirements for total suspended solids, which can affect natural light (light transmissivity) and biochemical oxygen demand which can affect dissolved oxygen concentration.

1. Natural Light

…

Under its existing NPDES permit, the City conducts the required quarterly monitoring for light transmittance, throughout the water column, at a grid of 33 offshore stations located along the 98, 80 and 60 meter contours. EPA evaluated the applicant's monitoring results from October 2003 through October 2007. As shown in Table B-1 and Figure A-5, long-term averages and standard deviations for percent transmissivity at different water depths at the near-ZID boundary and nearfield stations (F30, F29, F31) are similar to those observed for the same water depth, at farfield stations located on the 98 meter contour. Long-term averages for percent transmissivity are lower and more variable at water depths closer to the surface and at the bottom, in comparison to water depths below the euphotic zone which are frequented by the drifting wastefield. Generally, percent transmissivity is lower at stations closer to the coast, due to shoreline influences and sediment resuspension at the bottom. Based on this evaluation, EPA concludes that the Point Loma discharge does not result in a significant reduction in natural light in areas within the wastefield where initial dilution is completed.

2. Dissolved Oxygen

…

Table 15. Predicted worst-case dissolved oxygen (DO) depressions (mg/l) and percent reductions (%) performed by San Diego (1995) and EPA (1995).

Sources of Potential Oxygen Demand	San Diego	EPA
DO depression upon initial dilution (and % reduction)	0.05 (<1%)	0.08 (1.7%)
DO depression due to BOD exertion in the farfield (and % reduction)	0.14 (2.4%)	0.23 (5.9%)
DO depression due to steady-state sediment oxygen deman (and % reduction)	0.045 (1.7%)	0.16 (4.7%)
DO depression due to abrupt sediment resuspension (and % reduction)	0.077 (2.4%)	0.12 (3.5%)

…

Based on the model predictions and receiving water monitoring results, EPA concludes it is unlikely that the dissolved oxygen concentration will be depressed more than 10 percent from that which occurs naturally outside the initial dilution zone, as a result of the wastewater discharge.

Describing attainment of Other Water Quality Standards and Impact of the Discharge on Shellfish, Fish and Wildlife; Public Water Supplies; and Recreation, the TDD states:

1. Attainment of Other Water Quality Standards and Criteria

40 CFR 125.62(a) requires that the applicant's outfall and diffuser be located and designed to provide adequate initial dilution, dispersion, and transport of wastewater such that the discharge does not exceed, at and beyond the zone of initial dilution, all applicable State water quality standards. Where there are no such standards, individual 304(a)(1) aquatic life criteria and human health criteria must not be exceeded by the discharge. For this review, the applicable water quality standards and criteria are analyzed in four categories: pH, toxics, whole effluent toxicity, and sediment quality.

a. pH

…

Based on the model predictions and receiving water monitoring results, it is unlikely that pH will be depressed more than 0.2 units from that which occurs naturally outside the initial dilution zone, as a result of the wastewater discharge. Also, EPA expects that technology based effluent limits for pH will be met by the applicant.

b. Toxics and Whole Effluent Toxicity

…

In accordance with the existing permit, the applicant conducted sensitivity screening using <u>Atherinops affinis</u> (topsmelt), <u>Haliotis rufescens</u> (red abalone), and <u>Macrocystis pyrifera</u> (giant kelp) and concluded that the red abalone and giant kelp were the most sensitive organisms for chronic toxicity testing. EPA's review of the 52 red abalone larval development test results from June 2003 through 2007 shows no exceedance of the chronic toxicity objective using the minimum monthly initial dilution value of 204:1. EPA's review of the 60 giant kelp germ tube length test results from June 2003 through 2007 shows one exceedance (December 19, 2005) of the chronic toxicity objective which is a very low failure rate. In response to the exceedance, the City conducted accelerated toxicity testing as required by the existing permit; these follow-up toxicity tests demonstrated compliance with

the objective. The applicant reports that concentrations of toxic inorganic and organic constituents in the Point Loma WTP effluent at the time of the noncompliant toxicity test were at normal values and the cause of the toxicity is unknown. The existing permit limit is 205 TUc and the critical effluent concentration is 0.49 percent effluent.

EPA reviewed these acute toxicity data, along with the summary results for acute toxicity provided in Volume III, Large Applicant Questionnaire section III.B.7, of the application to determine if any test results exceeded the Table B acute toxicity objective of 0.3 TUa (= 100/LC50). In accordance with the existing permit, the applicant conducted sensitivity screening both using Atherinops affinis (topsmelt) and Mysidopsis bahia (shrimp) and concluded that the shrimp was the more sensitive organism for acute toxicity testing. EPA's review of the 11 test results from June 2003 through September 2007 shows no exceedance of the acute toxicity objective, using the minimum monthly initial dilution value of 20.4:1 for acute toxicity. The existing permit limit is 6.5 TUa and the critical effluent concentration is 15.5 percent effluent.

…

EPA concludes that the modified discharge will attain applicable water quality standards and criteria for toxics and whole effluent toxicity, based on the very low rates of effluent excursions above water quality objectives for toxics and chronic toxicity. Consistent with State policy, appropriate requirements for toxics and whole effluent toxicity will be included in the permit. Water quality based effluent limits will be established for all California Ocean Plan Table B parameters where effluent data show the reasonable potential to exceed water quality objectives for toxics and whole effluent toxicity. The effluent will be monitored for all Table B parameters and other priority pollutants following the regular schedule set in the existing permit. The results of the effluent monitoring program will be evaluated against the annual mass emission benchmarks to protect the Point Loma WTP headworks and achieve permit compliance with water quality standards.

In accordance with 40 CFR 125.62, EPA concludes that the modified discharge will allow for the attainment or maintenance of water quality which assures protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife.

c. Sediment Quality

…

Organic Indicators

Concentrations of total organic carbon, total volatile solids, total nitrogen, biochemical oxygen demand, and sulfides are measured as indicators of organic enrichment in sediments. Total organic carbon and total volatile solids represent more direct measurements of carbon imported as fine particulate matter.

Total Organic Carbon. … The… data do not suggest an outfall related effect. Figure E.5-2 in Volume IV, Attachment E.5, of the application summarizes percent total organic carbon in sediments for the San Diego Coastal region during the period of the discharge (1994-2000 and 2001-2006).

Total Volatile Solids. … The… data do not suggest an outfall-related effect. Figure E.5-3 in Volume IV, Attachment E.5, of the application summarizes percent total volatile solids in sediments for the San Diego Coastal region during the period of the discharge (19942000 and 2001-2006)

Total Nitrogen. … The… data do not suggest an outfall-related effect. Figure E.5-4 in Volume IV, Attachment E.5, of the application summarizes percent total nitrogen in sediments for the San Diego Coastal region during the period of the discharge (1994-2000 and 2001-2006).

Biochemical Oxygen Demand. … The…data suggest that a small amount of organic enrichment is occurring close to the outfall diffuser.

Sulfides. … The… data suggest that a small amount of organic enrichment is occurring close to the outfall diffuser. Figure E.5-5 in Volume IV, Attachment E.5, of the application summarizes sulfide concentrations in sediments for the San Diego Coastal region during the period of the discharge (1994-2000 and 2001-2006).

Modeling predictions indicate that deposition and accumulation rates associated with the Point Loma Ocean Outfall are not likely to have negative effects on benthic communities beyond the zone of initial dilution. Monitoring results for sediment parameters associated with organic enrichment suggest a mixed picture relative to the potential for biological effects close to the outfall diffuser. Only biochemical oxygen demand and sulfides are elevated at near-ZID station E14; sulfides are variably elevated at nearfield stations E17 and E11. However, as described below, monitoring results for biological indicators of organic enrichment lead EPA to conclude that significant effects on the benthic macrofauna community are not occurring in areas beyond the zone of initial dilution. EPA also concludes that the modified discharge complies with applicable California Ocean Plan water quality objectives for chemical characteristics of marine sediments.

Trace Metals and Toxic Organics

…

Based on this review, EPA concludes that the chemical characteristics in sediments beyond the zone of initial dilution are not changed by the modified discharge such that toxic substances in Table B of the California Ocean Plan are increased to levels which would degrade indigenous biota.

3. Impact of the Discharge on Shellfish, Fish, and Wildlife

…

a. Phytoplankton

…

EPA concludes that total suspended solids and nutrient materials in the Point Loma discharge will not result in a significant change in the productivity or standing stock of phytoplankton, will not cause natural light to be significantly reduced beyond the initial dilution zone, and will not cause objectionable aquatic growths or degrade indigenous biota.

b. Benthic Macrofauna

…

Based on the evidence described in this section, EPA concludes that conditions beyond the zone of initial dilution are not degraded in compliance with the California Ocean Plan and support an ecological community which exhibits characteristics similar to those of nearby, healthy communities existing under comparable but unpolluted environmental conditions.

c. Demersal Fish

…

EPA concludes there are no apparent spatial or temporal trends in the total number of fish species or abundances of fishes that suggest an outfall-related impact.

Describing additional requirements for improved discharges, the TDD states:

H. Increase in Effluent Volume or Amount of Pollutants Discharged

…

The City must also implement a wastewater reclamation program that, at minimum, will result in a reduction in the quantity of suspended solids discharged into the marine environment during the period of the modification.

…

Table II.A-21 in Volume III of the application provides projections for Metro System flow and mass loads for total suspended solids and biochemical oxygen demand, in one year increments, through 2027. This table also provides flow and total suspended solids load projections for the PLOO discharge. Table 30 summarizes these projections for the term of the proposed permit (2009/10 through 2013/14).

Table 30. Point Loma Ocean Outfall flows (mgd) and total suspended solids loadings (MT/yr) projections for long-term facilities planning during the term of the proposed permit and proposed total suspended solids mass emission effluent limits.

Year	Projected Annual Average Discharge	Projected TSS Mass Emissions	Proposed TSS Mass Emission Effluent Limits
2009	193	11,500	15,000
2010	194	11,800	15,000
2011	195	11,700	15,000
2012	197	11,800	15,000
2013	199	11,900	15,000
2014	202	12,100	13,598

The applicant's projections in Table 30 and proposed effluent limits in Table 29 satisfy the applicable requirements. Based on Table 30, EPA believes that a total suspended solids mass emission rate of 12,100 metric tons per year would be achievable during all five years of the proposed 301(h) modification. During this period, EPA recognizes that reductions in mass emissions resulting from increased water reclamation are likely to be seasonal and anticipates the potential for corresponding higher mass emission rates during wet weather months. In the future, the City needs to pursue additional water reclamation and reuse projects, including those which demand a year-round supply of reclaimed water so as to maintain long-term compliance with this decision criterion.

3. RWQCB Evaluation of San Diego's Discharges. On June 10, 2009, the RWQCB adopted "Tentative Order No. R9-2009-0001 and Draft NPDES Permit (Order/Permit) No. CA0107409; Waste Discharge Requirements and NPDES Permit for the City of San Diego E.W. Blom Point Loma Metropolitan Wastewater Treatment Plant Discharge to the Pacific Ocean through the Point Loma Ocean Outfall." The RWQCB's Order/Permit contains a detailed description of the discharge system, numerous limitations and discharge requirements, monitoring, reporting and compliance requirements, reopener provisions, and a determination that compliance with the Order's/Permit's conditions would enable the RWQCB to the find the discharges in compliance with applicable federal and state water quality standards. The Order/Permit states (p. 5):

The Regional Water Board's certification/concurrence that the discharge will comply with water quality standards for the pollutants which the 301(h) variance is requested (40 CFR 125.61) (i.e., TSS and BOD5). The joint issuance of a NPDES permit which incorporates both the 301(h) variance and State waste discharge requirements will serve as the State's concurrence ….

The full text of the Order/Permit, as well as the RWQCB's Responses to Public Comments, can be found at the following link at the RWQCB's website:
http://www.waterboards.ca.gov/sandiego/board_decisions/tentative_orders/

4. Commission Conclusion. The information submitted by the City of San Diego, along with the supporting analysis and information from EPA and the RWQCB, support the City's certification that its continued discharge from the Point Loma WTP under a secondary treatment

waiver would not be inconsistent with the Coastal Act's water quality and marine resource protection provisions, or with any of the other applicable standards. EPA's independent Technical Evaluation determined that San Diego's discharges meet the applicable Clean Water Act standards for a waiver. Based on EPA's analysis including a review of plant performance and modeling efforts performed since 2002, the discharges from the outfall do not appear to be resulting in any significant reduction in light transmissivity, any biologically significant changes in benthic community structure in the vicinity of the outfall (beyond the zone of initial dilution), or any significant changes in fish populations or fish diseases in the area.

Specifically with respect to the results of the City's benthic monitoring, any documented changes to the benthic community that were identified in the monitoring were limited to a very small area, and those changes did not appear to be a consequence of, and certainly did not demonstrably result from, the reduced treatment level permitted by the secondary treatment waiver. In addition, and as noted above, when the Commission reviewed the City's waiver request in 2002, the Commission expressed the need for more comprehensive and greater regional extent of monitoring. Since 2002 the City's has greatly expanded its monitoring program, including extensive regional monitoring, as well as adding new efforts such as deep water monitoring in the underwater canyons in the greater project area.

The only benthic samples showing deviation from reference conditions or reduction of biodiversity were within the physically disturbed area directly adjacent to the end of the outfall. In this area the outfall splits into two legs each 760 meters (m) long and with a total of 208 diffuser ports. Benthic organisms in this area are impacted by physical factors (cement pipes, base rock, turbulent water flow), as well as changes to water salinity due to the discharge, and these changes to the benthic community would result even if the discharge was treated to secondary standards.

The Clean Water Act requires that the discharge must meet receiving water body water quality standards after initial turbulent mixing at the end of the outfall, and for the Point Loma Ocean Outfall this "zone of initial dilution" (or ZID) has been identified as an area surrounding the diffuser legs that extends no more than 100m from the outfall (Exhibits 6-8). Monitoring by the City of San Diego has shown that the discharge does achieve receiving water quality standards at the boundary of the ZID. One area of concern has been that about 5% of bacteria samples in the kelp beds that lie between the end outfall and the shoreline exceed the states recreational standard for beaches promulgated by Assembly Bill 411 (the Beach Water Quality Act). While these standards mandated by AB411 for heavily used-beaches (more than 50,000 users per year) are not strictly applicable to kelp beds, they provide a conservative benchmark, and achievement of that benchmark motivated the City to initiate chlorination of the discharge in late 2008.

While the receiving waters at the end of the outfall typically achieve water quality standards, concerns have been expressed that there may be adverse impacts to the benthic (sea floor) environment surrounding the outfall. Exhibit 6 provides an overview of the area sampled annually for benthic conditions, covering an area about 25 km by 10 km (250 km^2). For benthic

community data, the Benthic Response Index (Smith, 2001) is commonly used in the Southern California Bight as a way to express levels of impacts to benthic communities by divergence of the community from reference conditions.

The two following exhibits (Exhibits 7 & 8) show progressively smaller areas, with the former (Exhibit 7) showing only about 2% (5 km^2) of the total area sampled and the latter (Exhibit 8) showing the ZID, which is only about 0.3 km^2. The sequence of Exhibits clearly shows that the only two sample locations where the benthic community differed from the reference community were within 100 m of the outfall diffuser. These two locations are out of a total of 100 sample locations. One of the samples in the ZID exhibited barely enough deviation to qualify as a "marginal deviation from reference" (25.8 in a range of 25-34), and the other showed just enough deviation to place it in the range for "biodiversity loss" (34.5 in a range of 34-44). While a loss of biodiversity over a large area would in fact conflict with Coastal Act policies, the Commission finds that a small loss of biodiversity in an area of 0.3 km^2 directly adjacent to the outfall structure does not constitute an impact that would be inconsistent with the requirements of Sections 30230 and 30231 to sustain biological productivity, to maintain healthy populations of all species of marine organisms, and to protect the biological productivity and the quality of coastal waters, through, among other means, minimizing the adverse effects of waste water discharges.

Looking at the health of populations over the area where the plume might have a measurable effect, loss of a particular species within the small area of the ZID does not indicate that healthy biological populations of those species are not maintained in the receiving waters of the discharge. This finding is supported by EPA's conclusion that the discharge:

> *… will not interfere, alone or in combination with pollutants from other sources, with the attainment or maintenance of that water quality which assures […] the protection and propagation of a balanced, indigenous population (BIP) of shellfish, fish and wildlife, and allows recreational activities, in and on the water".*

The clear intent of the Coastal Act marine resource protection policies is that marine populations should not be either reduced or increased to the detriment of the biological community or to human uses of the populations (e.g., for commercial, recreational, scientific, or educational purposes as listed in Section 30230). While a measurable decrease in diversity and an increase in the number of organisms occurs in a small area within the ZID, no evidence is available to suggest that this has adversely impacted the benthic or pelagic organisms outside of the ZID to the extent that the continued discharges would be inconsistent with Section 30230 or 30231.

With regard oxygen reduction in receiving waters, the Commission notes that the plant's Biochemical Oxygen Demand (BOD) reduction is the primary reason the Point Loma treatment plant does not achieve secondary standards (as SS reductions are very close to if not at secondary treatment levels). The plant only reduces BOD by 68%, rather than of the 85% reduction secondary treatment would achieve. The BOD standard is intended to measure the reduction of organic materials to prevent them from providing excess substrate (food) to microbial organisms in natural waters. A high level of BOD in the effluent would typically favor rapid growth of microbial

organisms and a depression in the dissolved oxygen of the receiving waters as those microbes breakdown the organic materials. This can have a significant adverse effect on aquatic organisms in the receiving water and as well as other water quality problems (odors, poor water clarity, etc.). In waters with restricted circulation (rivers, estuaries, lakes), the low dissolved oxygen (DO) can significantly change the health biological community. In the case of the Point Loma discharge, the treatment process reduction of BOD by 68% and the rapid initial dilution of the discharge with well-oxygenated ocean water do not result in measurable depression of receiving water DO and do not violate state standards.

The California Ocean Plan standard for effluent impacts on dissolved oxygen requires that "dissolved oxygen shall not at any time be depressed more than 10% from that which occurs naturally as a result of the discharge of oxygen-demanding waste materials." Water quality measurements required by the NPDES permit have not shown any consistent measurable depression of DO related to the Point Loma discharge while monitoring at 8 kelp bed monitoring stations 5 times per month and 26 offshore stations 4 times per year. Modeling of worst case DO depression was conducted by USEPA and RWQCB in 1995. The results showed that the worst case of stirring up bottom sediments near the outfall would result in a short term depression of DO of up to 3.5%, lower than the California Ocean Plan limit of 10% for DO depression.

Finally, the RWQCB's Order and NPDES Permit further document and assure (through conditions) that the discharges would meet California Ocean Plan standards. Moreover, the stringent monitoring as required under Section 301(h) will be continued. In addition, the City has upgraded its facilities since the waiver was originally granted, including adding wastewater reclamation facilities and reducing total mass emission levels. Thus, based on the available monitoring evidence of the lack of adverse effects of past discharges on the marine environment at current and projected (for the life of the NPDES permit) discharge levels, with the continuation of the stringent monitoring throughout the term of the permit, as conditioned by the RWQCB, the Commission concludes that the City's discharges would be consistent with the water quality and marine resources policies (Sections 30230 and 30231) of the Coastal Act.

B. <u>Commercial Fishing/Recreation</u>

Section 30230 of the Coastal Act, quoted in full on page 26, includes a requirement that:

> *Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

The Coastal Act also contains more specific policies protecting commercial and recreational fishing; Section 30234 provides:

> *Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.*

Section 30234.5 provides:

> *The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.*

The Coastal Act also protects public recreation (such as surfing and other water-contact recreation). Section 30213 provides, in part:

> *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided..*

Section 30220 provides:

> *Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

For similar reasons as discussed in the water quality/marine resource section above, the Commission finds that City's monitoring efforts over the past five years are sufficient to enable a determination that commercial/recreational fishing and other recreational resource protection policies will not be violated by the City's proposed discharges. Recreational activities that might be impacted by the Point Loma WTP discharge are centered around the Point Loma kelp beds and in nearshore waters. SCUBA diving is very popular in the offshore kelp beds. Only limited diving occurs outside the area of the kelp beds. EPA's analysis of the City's plume modeling and monitoring data show that while there have been shoreline water quality standard exceedances, they are unlikely to be related to the City's outfall discharges and more likely to be from land based nonpoint source runoff. Rare exceedances of bacteriological water quality standards in the kelp beds (0.5% of samples) are being addressed by installation of effluent disinfection facilities that were brought on line in September 2008 (see water contact recreation excerpt below). As discussed in the water quality/marine resource section above, the City's monitoring efforts over the past five years are sufficient to enable a determination that commercial/recreational fishing is protected and other recreational concerns are met. EPA states the following concerning effects on recreational activities (including fish consumption):

4. Impact of the Discharge on Recreational Activities

…

a. Bioaccumulation and Fish Consumption

…

Based on this review of fish liver and muscle tissues, EPA finds that the improved modified discharge will comply with California Ocean Plan water quality objectives for biological characteristics of ocean waters. EPA concludes that the improved modified discharge will allow for the attainment or maintenance of water quality which allows for recreational activities (fishing) beyond the zone of initial dilution.

b. Water Contact Recreation

…

The 2007 application is based on an improved discharge, as defined at 40 CFR 125.58(i), and incorporates effluent disinfection to achieve these California Ocean Plan standards in State waters prior to permit reissuance. On November 13, 2007, the City submitted a request to the Regional Water Board to initiate operation of prototype effluent disinfection facilities to achieve compliance with bacteriological water quality standards in State waters. On August 13, 2008, the Regional Water Board approved modifications associated with operation of the City's proposed prototype effluent disinfection facilities at Point Loma WTP. The City began adding sodium hypochlorite to the effluent discharge on September 3, 2008.

Based on this review, EPA finds that the improved modified discharge will meet bacterial water quality standards in State waters. EPA also finds that federal waters are not required to achieve the 304(a)(1) water quality criteria for bacteria because federally-defined primary contact recreational activities are not occurring in waters beyond 3 nautical miles. The reissued permit will require the City to record and report any primary contact recreational activities observed in federal waters, during offshore water quality monitoring surveys. The Regional Water Board and EPA conduct routine reviews of the City's discharge monitoring reports to assess compliance with the existing permit and water quality standards. EPA concludes that the improved modified discharge will allow for the attainment or maintenance of water quality which allows for recreational activities beyond the zone of initial dilution, including, without limitation, swimming, diving, picnicking, and sports activities along shorelines and beaches.

In reviewing the City's previous waiver (CC-028-02), the Commission found that the City's discharges addressed all applicable commercial/recreational fishing and other recreational concerns. The monitoring results since that time support the same conclusion that the Commission previously reached, and similar monitoring will be maintained for the period of this continuing waiver. Therefore, as discussed above with respect to marine resources, and as conditioned by the RWQCB, the Commission concludes that the discharges would be consistent with the applicable commercial and recreational fishing and general recreation policies (Sections 30230, 30234, 30234.5, 30213, and 30220) of the Coastal Act.

IV. SUBSTANTIVE FILE DOCUMENTS:

1. RWQCB Tentative Order No. R9-2009-0001 and Draft NPDES Permit No. CA0107409; Waste Discharge Requirements and NPDES Permit for the City of San Diego E.W. Blom Point Loma Metropolitan Wastewater Treatment Plant Discharge to the Pacific Ocean through the Point Loma Ocean Outfall

2. EPA Tentative Decision, City of San Diego WTP Outfall, Environmental Protection Agency, Region IX, December 2, 2008.

3. Consistency Certifications No. CC-043-09, CC-28-02 and CC-010-02 (City of San Diego, secondary treatment waiver), and related RWQCB/SWRCB Orders: (1) SWRCB Order WQO-2002-0013 (SWRCB/OCC FILE A-1477), City of San Diego; (2) RWQCB Tentative Order No. R9-2002-0025 and draft NPDES Permit No. CA0107409, City of San Diego; and (3) RWQCB Order No. 95-106 and NPDES Permit No. CA0107409, City of San Diego.

4. Morro Bay, Goleta, and Orange County Consistency Certifications for secondary treatment waiver renewals, CC-88-92 and CC-123-98, and CC-007-06 (City of Morro Bay), CC-13-02 and CC-126-96 (Goleta Sanitary District), and CC-3-98 (County Sanitation Districts of Orange County (CSDOC)).

5. Consistency Certification No. CC-62-91/Coastal Development Permit No. 6-91-217 (City of San Diego, Point Loma outfall extension).

6. No Effects Determination NE-94-95 (City of San Diego, secondary treatment waiver).

7. Consistency Determination No. CD-137-96 (IBWC) International Boundary and Water Commission International Wastewater Treatment Plant Interim Operation.

X. Exhibits (attached):

1. Area Map/Outfall
2. Metro Sewer System

Click on the links
on this page and the next
to go to the exhibits
and the appendix.

3. Sediment Monitoring & Mapping Stations
4. Regional Monitoring Stations
5. Deep Benthic Monitoring Stations
6. Benthic Monitoring Results – large scale
7. Benthic Monitoring Results – medium scale
8. Benthic Monitoring Results – small scale
9. California Ocean Plan, Definitions
10. California Ocean Plan, Tables A and B and Water Quality Objectives
11. RWQCB Fact Sheet – Monitoring Requirements
12. Smith, R.W., et. al., Ecological Applications, Vol. 11, No. 4 (Aug., 2001), 1073-1087.
13. EPA Tentative Decision, December 2, 2008 (without appendices)

Note: the TDD Appendices can be found at these two EPA website links: http://www.epa.gov/region09/water/npdes/pdf/ca/SanDiego/SanDiegoFigures-A1-A55.pdf and http://www.epa.gov/region09/water/npdes/pdf/ca/SanDiego/SanDiegoTables-B1-B27.pdf

Appendix A - Correspondence (separate attachment)