

Exhibit D

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region IX

75 Hawthorne Street
San Francisco, CA 94105

City of San Diego's
E. W. Blom Point Loma Metropolitan
Wastewater Treatment Plant and Ocean Outfall
Application for a Modified NPDES Permit
Under Sections 301(h) and (j)(5) of the Clean Water Act

Tentative Decision of the
Regional Administrator
Pursuant to
40 CFR Part 125, Subpart G

I have reviewed the attached evaluation analyzing the merits of the application of the City of San Diego's request for the E.W. Blom Point Loma Metropolitan Wastewater Treatment Plant and Ocean Outfall variance from secondary treatment requirements of the Clean Water Act (the Act), pursuant to section 301(h). It is my tentative decision that the Point Loma Wastewater Treatment Plant and Ocean Outfall be granted a variance in accordance with the terms, conditions, and limitations of the attached evaluation, based on sections 301(h) and (j)(5) of the Act.

My decision is based on available information specific to this particular discharge. It is not intended to assess the need for secondary treatment in general, nor does it reflect on the necessity for secondary treatment by other publicly owned treatment works discharging to the marine environment. This decision and the National Pollutant Discharge Elimination System (NPDES) permit implementing this decision are subject to revision on the basis of subsequently acquired information relating to the impact of the less-than-secondary discharge on the marine environment.

Under the procedures of the Permit Regulations, 40 CFR Part 124, public notice and comment regarding this tentative decision and accompanying draft NPDES permit will be made available to interested persons. Following the public comment period on this tentative decision and draft permit, a final decision and permit will be issued under the procedures in 40 CFR Part 124.

This tentative decision is issued without prejudice to the rights of any party to address the legal issue of the applicability of 33 U.S.C. section 1311(j)(5) to the City's future NPDES permits.

Dated: December 2, 2008

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Wayne Nastri
Regional Administrator

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INTRODUCTION

The City of San Diego, California (the applicant or City) is requesting a renewal of its variance (sometimes informally called a "waiver" or "modification") under section 301(h) of the Clean Water Act (the Act, CWA), 33 U.S.C. section 1311(h), and the Ocean Pollution Reduction Act of 1994, 33 U.S.C. section 1311(j)(5), from the secondary treatment requirements contained in section 301(b)(1)(B) of the Act, U.S.C. section 1311(b)(1)(B). The City submitted its renewal application to the U.S. Environmental Protection Agency, Southwest Region (the EPA Region 9 or EPA), on December 10, 2007.

The variance is being sought for the E.W. Blom Point Loma Metropolitan Wastewater Treatment Plant and Ocean Outfall, a publicly owned treatment works (POTW). The applicant is seeking a 301(h) variance to discharge wastewater receiving less-than-secondary treatment to the Pacific Ocean. Secondary treatment is defined in the regulations (40 CFR Part 133) in terms of effluent quality for total suspended solids (TSS), biochemical oxygen demand (BOD), and pH. The secondary treatment requirements for effluent TSS, BOD, and pH are listed below:

TSS: (1) The 30-day average shall not exceed 30 mg/l.
(2) The 7-day average shall not exceed 45 mg/l.
(3) The 30-day average percent removal shall not be less than 85 percent.

BOD: (1) The 30-day average shall not exceed 30 mg/l.
(2) The 7-day average shall not exceed 45 mg/l.
(3) The 30-day average percent removal shall not be less than 85 percent.

pH: At all times, shall be maintained within the limits of 6.0 to 9.0 units.

40 CFR 125.58(c) defines a large applicant as serving a population of 50,000 or more, or having a discharge flow of 5 million gallons per day (mgd) or more. The City meets the criteria for a large applicant. The City is requesting a modification for only TSS and BOD. (A modification for pH is not requested.) The applicant's proposed alternative effluent limits for TSS and BOD are shown in Volume III, Tables II.A-2 and II.A.5, of the application and require:

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. R9-2002-0025, 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.

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).

A concentration effluent limit for BOD (in mg/l) has not been requested by the applicant or required in NPDES permits for the 4.5 mile Point Loma Ocean Outfall. The alternative effluent limits requested by the applicant satisfy sections 301(h) and (j)(5) of the Act. The application is based on an "improved" discharge, as defined at 40 CFR 125.58(i). Facilities improvements proposed by the applicant during the period of the renewed NPDES permit (2009-2014) are effluent disinfection and follow-up studies. Volume III, Large Applicant Questionnaire section II.A.1, of the application.

This document presents the findings, conclusions, and recommendations of EPA Region 9, as to whether the applicant's proposed discharge complies with the criteria set forth in sections 301(h) and (j)(5) of the Act, as implemented by regulations at 40 CFR 125, Subpart G.

DECISION CRITERIA

Under section 301(b)(1)(B) of the Act, U.S.C. section 1311(b)(1)(B), POTWs in existence on July 1, 1977, were required to meet effluent limits based on secondary treatment as defined by the Administrator of EPA (the Administrator). Secondary treatment is defined by the Administrator in terms of three parameters: TSS, BOD, and pH. Uniform national effluent limitations for these pollutants were promulgated and included in National Pollutant Discharge Elimination System (NPDES) permits for POTWs issued under section 402 of the Act. POTWs were required to comply with these limitations by July 1, 1977.

Congress subsequently amended the Act, adding section 301(h) which authorizes the Administrator, with State concurrence, to issue NPDES permits which modify the secondary treatment requirements of the Act with respect to certain discharges. P.L. 95-217, 91 Stat. 1566, as amended by P.L. 97-117, 95 Stat. 1623; and section 303 of the Water Quality Act of 1987. Section 301(h) provides that:

The Administrator, with the concurrence of the State, may issue a permit under section 402 [of the Act] which modifies the requirements of subsection (b)(1)(B) of this section [the secondary treatment requirements] with respect to the discharge of any pollutant from a publicly owned treatment works into marine waters, if the applicant demonstrates to the satisfaction of the Administrator that:

- (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 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 into 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 previously 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. Notwithstanding any of the other provisions of this subsection, no permit may be issued under this subsection for discharge of a pollutant into the New York Bight Apex consisting of the ocean waters of the Atlantic Ocean westward of 73 degrees 30 minutes west longitude and westward of 40 degrees 10 minutes north latitude.

EPA regulations implementing section 301(h) provide that a 301(h)-modified NPDES permit may not be issued in violation of 40 CFR 125.59(b) which requires, among other things, compliance with the provisions of the Coastal Zone Management Act (16 U.S.C. 1451 et seq.), the Endangered Species Act (16 U.S.C. 1531 et seq.), the Marine Protection Research and Sanctuaries Act (16 U.S.C. 1431 et seq.), and any other applicable provisions of State or federal law or Executive Order.

In addition, under the Ocean Pollution Reduction Act of 1994, 33 U.S.C. section 1311(j)(5)(B) and (C):

An application under this paragraph shall include a commitment by the applicant to implement a waste water reclamation program that, at minimum, will –

(i) achieve a system capacity of 45,000,000 gallons of reclaimed waste water per day by January 1, 2010; and

(ii) result in a reduction in the quantity of suspended solids discharged by the applicant into the marine environment during the period of the modification.

The Administrator may not grant a modification pursuant to an application submitted under this paragraph unless the Administrator determines that such modification will result in removal of not less than 58 percent of the biological oxygen demand (on an annual average) and not less than 80 percent of total suspended solids (on a monthly average) in the discharge to which the application applies.

In the following discussion, data submitted by the applicant are analyzed in the context of the statutory and regulatory criteria.

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.

RECOMMENDATION

It is recommended that the applicant be granted a CWA section 301(h) variance in accordance with the above findings, contingent upon satisfaction of the following conditions:

1. The determination by the Regional Water Board that the proposed discharge will comply with applicable provisions of State law, including water quality standards, in accordance with 40 CFR 125.61(b)(2). 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 certification/concurrence, pursuant to 40 CFR Parts 124.53 and 124.54, that the requirements under 40 CFR 125.61(b)(2) are achieved.

2. The determination by the Regional Water Board that the proposed discharge will not result in any additional treatment requirements on any other point or nonpoint sources, in accordance with 40 CFR 125.64. 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.
3. The draft permit contains the applicable terms and conditions required by 40 CFR 125.68, for establishment of a monitoring program.
4. The determination by the California Coastal Commission that issuance of a 301(h)-modified permit does not conflict with the Coastal Zone Management Act, as amended.
5. The determination by the U.S. Fish and Wildlife Service that issuance of a 301(h)-modified permit does not conflict with applicable provisions of the federal Endangered Species Act, as amended.
6. The determination by the NOAA National Marine Fisheries Service that issuance of a 301(h)-modified permit does not conflict with applicable provisions of the federal Endangered Species Act, as amended, and the Magnuson-Stevens Fishery Conservation and Management Act, as amended.
7. Issuance of the 301(h)-modified permit assures compliance with all applicable requirements of 40 CFR 122 and 40 CFR 125, Subpart G.

DESCRIPTION OF TREATMENT SYSTEM

Treatment System

The City's treatment system is described in Volume III, Large Applicant Questionnaire section II.A, and Volume IV, Appendix A, of the application. The San Diego Metropolitan Sewage System (Metro System) provides for the conveyance, treatment, reuse, and disposal of wastewater within a 450-square mile service area for the City of San Diego and regional participating agencies (Figure A-1). Metro System facilities include wastewater collection interceptors and pump stations, wastewater treatment and water recycling plants, sludge pipelines and solids handling facilities, and two land/ocean outfall systems. Metro System facilities are owned by the City of San Diego and are managed and operated by the City's Metropolitan Wastewater Department. The City administers and executes contracts with each participating agency, monitors flows to the Metro System, bills and collects payments from participating agencies, and disburses all monies spent in connection with the Metro System. Wastewater collection systems that discharge to the Metro System are owned and operated by respective participating agencies. Current wastewater flows from the City comprise approximately 70 percent of the total Metro System flows. Remaining Metro System wastewater flows are contributed

by the 15 Metro System participating agencies. Participating agency input to Metro System planning and operation is provided through the San Diego Metropolitan Wastewater Commission.

The following five groups of facilities comprise the Metro System: wastewater conveyance facilities; the Point Loma Wastewater Treatment Plant and Ocean Outfall; the North City Water Reclamation Plant; the Metro Biosolids Center and sludge conveyance facilities; and the South Bay Water Reclamation Plant and Ocean Outfall.

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.

Pump Station No. 2 is the largest and most important pump station within the Metro System. It is a reinforced concrete structure equipped with eight dry pit pumping units. With one pump serving as a standby unit, the pumping capacity is approximately 432 million gallons per day (mgd). All influent wastewater delivered to the Point Loma WTP is pumped through Pump Station No. 2 which also provides preliminary treatment in the form of coarse screening (4 units) and chemical addition (ferric chloride). Ferric chloride is added for odor control and to assist in coagulation/sedimentation at Point Loma WTP.

Point Loma WTP operates as a chemically-assisted primary treatment plant and is the terminal treatment facility discharging to the Point Loma Ocean Outfall (PLOO) and Pacific Ocean. The plant has rated capacities (with one sedimentation tank out of service) of 240 mgd annual average daily flow and 432 mgd peak wet weather flow. Point Loma WTP receives a blend of excess recycled water (during irrigation season), secondary treated effluent (during non-irrigation season), and waste plant streams from the 30 mgd North City WRP, return solids from the 15 mgd South Bay WRP, and untreated sewage from all other parts of the Metro System. The applicant states that of the approximately 170 to 180 mgd of wastewater treated, the estimated contribution from industrial users of the Metro System is 2.5 percent (Volume VII, Appendix K, of the application). The applicant states that inflow and infiltration is approximately 4 to 5 percent of the total flow into the treatment works (Volume II, EPA Form 3510-2A, of the application).

Point Loma WTP unit process and design criteria and loadings are provided in Table A-2 of Volume IV, Appendix A, of the application. Unit processes at the Point Loma WTP include: preliminary treatment with 15-millimeter mesh mechanical self-cleaning climber screens (5 units) to remove rags, paper, and other floatable material; chemical addition

(ferric chloride) to screened wastewater and influent flow measurement at the Parshall flumes; aerated grit removal (6 units) including grit tanks, separators and washers; chemical addition (anionic synthetic polymer and hydrogen peroxide) at sedimentation basin entrances to enhance settling of solids and assist in stabilization and odor control; sedimentation basins (12 units) where flocculated solids (sludge) settle to the bottom and scum floats to the surface; and sludge and scum removal facilities. From the sedimentation basins, treated wastewater enters the effluent channel.

The following outfall conveyance facilities allow the treated effluent to be discharge to the PLOO through: (1) a direct connection with the sedimentation basins; (2) a throttling valve which regulates water surface levels in the outfall diversion structure; or (3) a bypass valve which can divert the effluent to the outfall via a vortex structure. The 7,154-meter PLOO extends approximately 7.24 kilometers (4.5 miles or 3.9 nautical miles) offshore to the edge of the mainland shelf and discharges at a depth of approximately 95 meters (312 feet). The outfall terminates in a "Y"-shaped diffuser, the center of which is located at: north latitude 32 degrees, 39 minutes, 55 seconds, and longitude 117 degrees west, 19 minutes, 25 seconds. From the outfall terminus, each leg of the diffuser extends approximately 805 meters (0.5 miles). Effluent discharge commenced at this location in November 1993.

Point Loma WTP provides onsite digestion of waste solids from the sedimentation basins with six anaerobic digesters. Biogas produced by the digesters is used for fueling an onsite cogeneration facility. Digested solids are pumped to the Metro Biosolids Center for dewatering and disposal. Dewatered solids are beneficially used as an alternate daily cover at a landfill or as a soil amendment. Screenings, grit, and scum are trucked to a landfill for disposal.

The City's recycled water operations are regulated by water reclamation requirements established by the San Diego Regional Water Board: Order No. 97-03 and addenda thereto for the 30 mgd North City WRP and Order No. 2000-203 for the 15 mgd South Bay WRP. The South Bay WRP secondary effluent discharge to the South Bay Ocean Outfall (SBOO) is regulated by Regional Board Order No. R9-2006-0067, NPDES No. CA0109045. Waste solids from North City WRP are directed to the Metro Biosolids Center for digestion and dewatering. Waste solids from the South Bay WRP are discharged to the sewer system for transport to Point Loma WTP for treatment and removal.

Improved Discharge

The City's 2007 application is based on an "improved" discharge, as defined at 40 CFR 125.58(i). Increases in Metro System flow (hydraulic) and load (suspended solids and biochemical oxygen demand) projections for long term facilities planning are projected at approximately 0.9 percent per year over the next 20 years (starting with the year 2008 projection). Section A.4 of the application (Volume IV, Appendix A) provides an overview of the new facilities and existing facility improvements that will be needed to meet discharge permit conditions for the Point Loma WTP and improve hydraulic

capacity within the Metro System. The two categories of facility improvements needed over the next 20 years are: (1) facilities to handle projected increased Metro System hydraulic and solids loadings which focus on South Bay facilities of the Metro System and (2) facilities at the Point Loma WTP to comply with revised California Ocean Plan (SWRCB, 2005) bacteriological water quality standards.

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.

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.

DESCRIPTION OF RECEIVING WATERS

Volume III, Large Applicant Questionnaire section II.B, of the application presents general information describing receiving waters for the Point Loma discharge. Volume VIII, Appendix N, of the application presents a detailed characterization of seasonal circulation patterns in the vicinity of the Point Loma discharge which was originally provided in the 1995 application. This characterization includes descriptions of regional and local bathymetry, regional currents, and currents and stratification in the Point Loma shelf area. (For reference, 1 meter is about 3.281 feet; 1 kilometer is 1,000 meters, or about 0.6214 statute miles or 0.5397 nautical miles; 1 statute mile is about 0.8684 nautical miles.)

Bathymetry

The waters of the Southern California Bight (SCB) overlie the continental borderland of southern California. The outer edge of the borderland lies about 250 to 300 kilometers offshore and is defined by a sharp change of slope at 1000 meters. The continental borderland consists of a number of offshore islands, submerged banks, submarine canyons, and deep basins. The result is an unusually narrow mainland shelf, which averages 3 kilometers in width (ranging from 1 to 20 kilometers) and ends in waters of 200 meters depth. The narrowness of the mainland shelf in the SCB makes it particularly susceptible to human activities. Shiff et al., 2000.

The mainland shelf off Point Loma is about 6.5 kilometers wide. Within this region, a narrow rocky shelf runs parallel to the coast and extends from the shoreline to water depths of about 17 to 20 meters. The outer edge of this rocky shelf is marked by the outer edge of kelp beds where the sea floor drops sharply by about 3 to 18 meters and terminates in a relatively smooth, gently sloping plain that extends seaward. This plain continues to gently slope seaward to water depths of about 90 to 95 meters, with only minor variations in direction and width for at least 15 kilometers north and south of the PLOO. The outer edge of the mainland shelf breaks at water depths of about 110 meters, as the bottom slopes sharply downward into the Loma Sea Valley. The PLOO discharges at the outer edge of this mainland shelf. The Loma Sea Valley axis lies about 15 kilometers offshore of Point Loma at a water depth of about 370 meters.

Currents

The local ocean current circulation in the vicinity of the PLOO occurs within the larger circulation of the California Current (the major southward-flowing surface current far offshore); the Southern California Counter Current (the inner northward-flowing leg of the counter-clockwise circulating gyre between the California Current and the coast); and the California Undercurrent (a northward flow beneath the Southern California Countercurrent at depths in excess of 100 meters).

Volume III and Volume VIII, Appendix N, of the application provide the following general characterization of the mainland shelf currents off the coast of Point Loma: the net subsurface flow (at a depth of 40 meters at the 60 meter contour) is upcoast at approximately 3 cm/sec; the net surface flow is downcoast at approximately 6 cm/sec; the net flow 1 to 2 meters above the ocean bottom has a strong offshore component that can exceed the longshore flow velocity; more than half the variations in longshore currents occur on time intervals longer than tidal periods; variations in cross-shore currents are dominated by tidal cycles; typical transport distances associated with tidal cycles are approximately 1 to 3 kilometers; waters along the nearshore shelf are dispersed with offshore waters on time scales of weeks; and long-term variability in currents can equal or exceed the seasonal variability. (For reference 1 cm/sec is about 0.6 m/min, or 1.1969 ft/min.) Table II.B-1 in Appendix III of the application summarizes 10th percentile, 50th percentile (median), and 90th percentile current speeds within the typical depth range of the PLOO wastefield (60 to 80 meters). Tenth percentile current speeds are typically 2 to 3 cm/sec and median current speeds are on the order of 7 to 10 cm/sec.

Stratification

The water column above the Point Loma outfall diffuser is density stratified by gradients in temperature and salinity. Salinity gradients are small for water temperatures above 11 to 12 degrees C, but they make an important contribution to the density gradients of lower temperature waters. The strongest density gradients exist during the summer in the upper portion of the water column due to the formation of a seasonal thermocline at depths that range from a few meters to tens of meters (typically around 5 to 20 meters). Surface water temperatures may reach 18 to 23 degrees C. Water temperatures are generally lowest in the late winter, when surface temperatures can fall to about 12 to 14 degrees C. During this time, the seasonal thermocline may disappear and the density gradients may be minimal. At water column depths in excess of about 45 meters, the strongest density gradients occur during the winter (typically in January). Although these density gradients are weak in comparison with the gradients existing in the upper portion of the water column during the summer, they are sufficient to trap the wastefield from the Point Loma discharge at depths of 30 meters, or more, below the surface. Modeling and receiving water monitoring data indicate that the wastefield is typically confined to the water depth interval between 55 and 87 meters (Volume III, Large Applicant Questionnaire section III.A.3, of the application).

PHYSICAL CHARACTERISTICS OF THE DISCHARGE

Outfall/Diffuser and Initial Dilution

40 CFR 125.62(a) requires that the proposed outfall and diffuser must be located and designed to provide adequate initial dilution, dispersion, and transport of wastewater to meet all applicable water quality standards and criteria at and beyond the boundary of the zone of initial dilution (ZID). This evaluation is based on conditions occurring during periods of maximum stratification and during other periods when discharge characteristics, water quality, biological seasons, or oceanographic conditions indicate

more critical situations may exist. The physical characteristics of the PLOO (including diffuser) are summarized in Volume III, Large Applicant Questionnaire section II.A.8, of the application.

In the 2007 application, the Metro System service area projected annual average flow for 2009 is 208 mgd and the peak flow is 463 mgd. The Metro System end-of-permit projected annual average flow for 2014 is 219 mgd and the peak flow is 486 mgd. This represents an average annual growth rate of 0.9 percent. For comparison, population within the Metro System service area increased at an annual growth rate of 1.07 percent from 1990 to 2000. By year 2025, the applicant projects the portion of Metro System flows directed to Point Loma WTP during inclement weather periods, when no recycled water use occurs, to approach 240 mgd.

The 1995 application for the Point Loma WTP was based on an end-of-permit projected flow of 205 mgd. The 2001 application was based on an end-of-permit projected flow of 195 mgd. For the 2007 application, the Point Loma WTP end-of-permit (2014) projected annual average flow is 202 mgd. Actual and projected effluent flow rates for the Point Loma WTP during the period of the existing and proposed permit are shown in Table 1.

Because the Point Loma WTP end-of-permit projected flow of 202 mgd is less than the end-of-permit projected flow of 205 mgd evaluated by EPA in the 1995 and 2001 applications, EPA believes that the projected flow of 205 mgd continues to be a reasonable estimate for evaluating initial dilutions in the 2007 application.

Chapter III of the California Ocean Plan requires that "Waste effluents shall be discharged in a manner which provides sufficient initial dilution to minimize the concentrations of substances not removed in the treatment." This plan defines the "minimum initial dilution (Dm)" as the "... lowest average initial dilution within any single month of the year." and specifies that "Dilution estimates shall be based on observed waste flow characteristics, observed receiving water density structure, and the assumption that no currents, of sufficient strength to influence the initial dilution process, flow across the discharge structure."

The applicant has continued to provide two sets of initial dilution calculations employing flows of 205 mgd and 240 mgd. For the TDDs, EPA has only reviewed predictions based on an end-of-permit projected annual average flow of 205 mgd, because it is appropriate to the end of the five-year permit period.

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 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 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.

The 1995 application for the Point Loma WTP was based on an end-of-permit projected annual average flow of 205 mgd. For this flow rate, the 50th percentile, flux-averaged initial dilution was predicted as 365:1 with currents and 300:1 without currents; the 5th percentile, flux-averaged initial dilution was predicted as 215:1 with currents and 194:1 without currents (based on time series data). For the water quality objectives in Table B of the California Ocean Plan, the lowest 30-day average initial dilution was predicted as 204:1 without currents (based on hydrocast data). Volume VIII, Appendix O, of the application. As reported in the 1995 and 2002 TDDs, EPA verified the City's estimate of initial dilution for the California Ocean Plan (204:1) by obtaining the modified RSB model and raw data used by the applicant; EPA's result for the minimum monthly average initial dilution was 195:1, for zero currents. This same initial dilution (195:1) was obtained by EPA using a selected set of model runs and EPA's version of RSB. Using EPA's UMERGE model, EPA's result for the minimum monthly average initial dilution was 179:1, for zero currents. Taken together, these independent modeling efforts by the applicant and EPA produced estimates for minimum monthly average initial dilution of 204:1, 195:1, and 179:1. The 1995 TDD concluded these values were similar given the inherent uncertainties associated with modeling and that each would provide a conservative estimate of initial dilution for evaluating compliance with Table B water quality objectives. EPA continues to use 204:1 for evaluating compliance with Table B water quality objectives in the California Ocean Plan and EPA's 304(a)(1) toxics water quality criteria for aquatic life which lack Table B objectives.

The 1995 TDD also evaluated the critical initial dilution with the applicant's modified RSB model and the EPA's RSB and UMERGE models using: peak 2-3 hour effluent flows (generally estimated to be 4/3 the average monthly effluent flow), all density profiles in the given month, and zero currents. This evaluation of critical initial dilution differs from the evaluation of the lowest average initial dilution within any single month specified for Table B water quality objectives in the California Ocean Plan. The combination yielding the lowest initial dilution was used as EPA's estimate for worst-case initial dilution. The worst-case initial dilution estimate was: 143:1 for the applicant's modified RSB model, 134:1 for EPA's RSB model, and 99:1 for the UMERGE model. This TDD continues to use the initial dilution of 99:1 to assess worst-case conditions for TSS and BOD.

Finally, the 1995 TDD calculated a long-term average initial dilution of 328:1 for evaluating compliance with EPA's toxics water quality criteria for human health (organisms only); this TDD continues to use the initial dilution of 328:1 to evaluate compliance with EPA's toxics water quality criteria for human health which lack Table B objectives in the California Ocean Plan.

Application of Initial Dilution to Water Quality Standards and Criteria

Based on the information summarized in the previous section, EPA concludes that: (1) the outfall and diffuser system are well designed and achieve a high degree of dilution; (2) the minimum monthly average initial dilution value of 204:1 provides a conservative estimate of initial dilution for evaluating compliance with applicable State water quality

standards in Table B of the California Ocean Plan and EPA toxics water quality criteria for aquatic life; and (3) the long-term effective dilution value of 328:1 provides an appropriate estimate for evaluating compliance with EPA toxics water quality criteria for human health (organisms only) based on long-term exposure. As in the 1995 and 2002 TDDs, this evaluation uses the initial dilution value of 99:1 to assess worst-case conditions for suspended solids and dissolved oxygen concentrations following initial dilution. The application of these initial dilution values is summarized in Table 2.

Table 2. Initial dilution values for evaluating compliance with applicable State water quality standards and EPA's 304(a)(1) water quality criteria.

Initial Dilution Type	Initial Dilution Value	Source	Applicable Water Quality Standard 40 CFR 125.62(a)
Minimum monthly average initial dilution (1995 and 2002)	204:1	California Ocean Plan	Table B objectives
Minimum monthly average initial dilution	204:1	Amended 301(h) Technical Support Document	304(a)(1) criteria for acute and chronic aquatic life with no Table B objectives
Long-term effective dilution	328:1	Amended 301(h) Technical Support Document	304(a)(1) criteria for human health (organisms only) with no Table B objectives
Worst-case (critical) initial dilution	99:1	Amended 301(h) Technical Support Document	Suspended solids and dissolved oxygen

Zone of Initial Dilution

No modifications to the PLOO have been implemented since its construction that would affect the dimensions of the zone of initial dilution. Consequently, the PLOO zone of initial dilution remains unchanged from the City's two prior applications. The zone of initial dilution extends 93.5 meters (307 feet) on either side of the PLOO diffuser legs. Volume VIII, Appendix O, of the application presents estimates of distances associated with completion of initial dilution at the PLOO's design average dry weather flow of 240 mgd; Table III.A-3 in Volume III of the application, presents a statistical breakdown of computed horizontal downstream distances from outfall ports to the completion of the initial dilution process.

As previously described, the outfall terminates in a "Y"-shaped diffuser, the center of which is located at: north latitude 32 degrees, 39 minutes, 55 seconds, and longitude 117 degrees west, 19 minutes, 25 seconds. For reference, near-ZID stations F30 (for water quality monitoring) and E14 (for sediment monitoring) are located on the 98 meter (320

foot) depth contour at: north latitude 32 degrees, 39 minutes, 94 seconds, and longitude 117 degrees west, 19 minutes, 49 seconds; or 300 meters (984 feet) west of the diffuser wye. See Figures A-3 and A-4 for maps of water quality stations and sediment monitoring stations, respectively.

Dilution Water Recirculation

The effect of re-entrainment of the wastefield is to reduce the volumetric initial dilutions for the discharged effluent within the zone of initial dilution. Under CWA section 301(h)(9), in order for a 301(h) permit to be issued 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 previously discharged effluent from the treatment works.

This requirement was addressed by the City in the 1995 application. To estimate the potential for re-entrainment effects on the 30-day average concentration, the applicant made the assumption that receiving waters around the outfall contain all the wastewater discharged during a 30-day period (205 mgd for a total volume of 1.3×10^8 cubic meters). This is a very conservative assumption, as physical oceanographic models indicate the residence time for wastewater within the 30 by 12 kilometer (19 by 7.5 miles) area around the outfall is about 4.5 days. For the effluent flow of 205 mgd, the largest reductions for computed volumetric initial dilutions were around 12 percent, occurring in July and September; the smallest reductions were around 4 percent, occurring in January and February.

Based on EPA's review of 2002 through 2006 effluent data for toxics concentrations to exceed California Ocean Plan Table B water quality objectives and EPA water quality criteria for aquatic life and human health, these predicted reductions for initial dilution due to re-entrainment are not expected to affect discharge compliance with applicable water quality objectives and criteria.

APPLICATION OF STATUTORY AND REGULATORY CRITERIA

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

Under CWA section 301(h)(9) and 40 CFR 125.60, the applicant's wastewater effluent must be receiving at least primary treatment at the time the 301(h) variance becomes effective. 40 CFR 125.58(r) specifies that primary treatment means treatment by screening, sedimentation, and skimming adequate to remove at least 30 percent of the biological oxygen demanding material and other suspended solids in the treatment works influent, and disinfection, where appropriate. In Table A of the California Ocean Plan, publicly owned treatment works must, as a 30-day average, remove 75 percent of suspended solids from their influent stream before discharging wastewaters to the ocean. Turbidity in the effluent must not exceed 75 NTU as a 30-day average, 100 NTU as a 7-

day average, and 225 NTU at any time. Settleable solids in the effluent must not exceed 1.0 MI/l as a 30-day average, 1.5 MI/l as a 7-day average, and 3.0 MI/l at any time. There are no Table A effluent requirements for biochemical oxygen demand. Finally, CWA section 301(j)(5) specifies that the applicant must 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. In addition, such modification must result in removal of not less than 80 percent of total suspended solids (on a monthly average) and not less than 58 percent of biochemical oxygen demand (on an annual average).

1. Total Suspended Solids

To comply with these 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. R9-2002-0025, 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.

(For reference, 1 metric ton is 1,000 kilograms which is approximately 2,205 pounds.)

EPA reviewed influent and effluent data for Point Loma WTP provided in Volume IV, Appendix A, of the application. The data for total suspended solids, turbidity, and settleable solids are summarized, as follows.

Table 3. Monthly average and annual average influent concentrations for total suspended solids (mg/l) at Point Loma WTP.

Month	2002	2003	2004	2005	2006	2007
January	281	296	311	245	283	271
February	260	289	294	251	294	283
March	270	282	290	239	275	298
April	283	290	289	268	273	319
May	290	293	285	269	282	323
June	301	290	303	287	274	340
July	318	292	300	280	282	368
August	293	288	297	294	278	377
September	290	276	295	296	299	338
October	287	267	293	281	309	320
November	291	268	262	290	303	313
December	283	287	274	292	288	280
Annual Average	287	285	291	274	287	319
Maximum Month	318	296	311	296	309	377
Minimum Month	260	267	262	239	273	271

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

Table 6. Monthly average and annual average effluent values for turbidity (NTU) at Point Loma WTP.

Month	2002	2003	2004	2005	2006	2007
January	42	40	50	51	43	44
February	48	38	45	47	44	44
March	45	39	47	42	42	47
April	43	44	49	47	45	41
May	43	47	53	51	45	41
June	45	49	50	52	40	40
July	48	49	50	53	42	42
August	46	48	54	49	38	42
September	44	47	53	47	38	46
October	46	47	44	47	40	48
November	44	46	49	45	45	46
December	43	47	53	46	46	47
Annual Average	45	45	50	48	42	44
Maximum Month	48	49	54	53	46	48
Minimum Month	42	38	44	42	38	40

Table 7. Monthly average and annual average effluent values for settleable solids (MI/l) at Point Loma WTP.

Month	2002	2003	2004	2005	2006	2007
January	0.1	0.1	0.2	0.2	0.5	0.4
February	0.1	0.1	0.2	0.2	0.3	0.3
March	0.1	0.1	0.3	0.2	0.3	0.3
April	0.1	0.1	0.5	0.3	0.4	0.3
May	0.2	0.2	0.7	0.3	0.3	0.3
June	0.2	0.2	0.8	0.2	0.2	0.3
July	0.3	0.2	0.5	0.3	0.1	0.3
August	0.3	0.3	0.5	0.3	0.3	0.5
September	0.3	0.3	0.5	0.5	0.4	0.6
October	0.2	0.3	0.4	0.4	0.3	0.6
November	0.1	0.1	0.3	0.3	0.3	0.6
December	0.2	0.2	0.3	0.3	0.5	0.8
Annual Average	0.2	0.2	0.4	0.3	0.3	0.4
Maximum Month	0.3	0.3	0.8	0.5	0.5	0.8
Minimum Month	0.1	0.1	0.2	0.2	0.1	0.3

As shown in Table 5, the monthly average percent removals for total suspended solids meet both federal primary treatment requirements and California Ocean Plan Table A requirements for the Point Loma WTP. As shown in Table 4, the applicant's proposed monthly average limit of 75 mg/l for the Point Loma WTP effluent will also be met, although lower concentrations for suspended solids in the effluent are achievable. As shown in Table 6 and based on EPA's review of the effluent data, the turbidity limits for the Point Loma WTP effluent will be met. As shown in Table 7 and based on EPA's review of the effluent data and the City's response to permit violations which occurred in June and August 2004 (Table III.B-28 in Volume III of the application), the settleable solids limits for the Point Loma WTP effluent will be met.

In contrast to federal primary treatment and California Ocean Plan requirements, the percent removal requirement for total suspended solids specified under CWA section 301(j)(5) is applied on a "system-wide" basis and computed in accordance with the existing permit.

Table 8. Monthly average and annual average system-wide percent removals for total suspended solids (%).

Month	2002	2003	2004	2005	2006	2007
January	86	87	84	85	87	87
February	83	86	86	85	88	88
March	86	86	86	86	87	89
April	86	86	86	86	86	91
May	86	85	86	86	87	92
June	85	86	86	84	88	93
July	82	86	86	84	85	92
August	85	87	86	87	87	91
September	88	87	86	87	90	88
October	87	85	87	85	90	86
November	86	85	86	87	89	89
December	86	86	86	88	87	86
Annual Average	86	86	86	86	88	89
Maximum Month	88	87	87	88	90	93
Minimum Month	83	85	84	84	85	87

As shown in Table 8, the monthly average system-wide percent removals for total suspended solids meet the CWA section 301(j)(5) requirement of not less than 80 percent.

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).

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 Discharge ¹	Actual TSS Mass Emissions ^{1,2}	Projected Annual Average Discharge	Projected TSS Mass Emissions
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.

The applicant's projections in Table 9 and proposed annual mass emissions limits for total suspended solids satisfy section 301(j)(5)(B)(ii) of the Act, except that footnotes 2 and 3 are retained from the existing permit:

² To be achieved on permit effective date through December 31, 2013.
 Applies only to TSS discharges from POTWs owned and operated by the Discharger and the Discharger's wastewater generated in the Metro System service area; does not apply to wastewater (and the resulting TSS)

generated in Mexico which, as a result of upset or shutdown, is treated at and discharged from Point Loma WTP.

³ To be achieved on January 1, 2014. Applies only to TSS discharges from POTWs owned and operated by the Discharger and the Discharger's wastewater generated in the Metro System service area; does not apply to wastewater (and the resulting TSS) generated in Mexico which, as a result of upset or shutdown, is treated at and discharged from Point Loma WTP."

The applicant's proposed modifications to the requirements of footnotes 2 and 3 in the existing modified permit would allow significant new sources of total suspended solids to be included in the Point Loma discharge, but excluded from the determination of compliance with these mass emission limits. EPA cannot determine compliance with CWA section 301(j)(5)(B)(ii) if these provisions are changed to allow additional total suspended solids loadings to be excluded from the mass emission requirements for total suspended solids. Maintaining the existing requirements in footnotes 2 and 3 ensures that the mass emission loadings are measured on a comparable basis so that EPA can determine that the permit requires the necessary reduction in suspended solids loadings.

Based on Table 9, 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 the decision criteria.

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.

Table 10. Monthly average and annual average influent concentrations for biochemical oxygen demand (mg/l) at Point Loma WTP.

Month	2002	2003	2004	2005	2006	2007
January	257	280	272	218	261	282
February	257	260	249	219	279	286
March	261	258	244	221	264	302
April	266	267	258	254	270	307
May	263	280	264	264	278	315
June	268	274	277	269	263	329
July	280	283	251	256	268	323
August	264	277	267	259	261	322
September	260	280	257	265	273	311
October	270	269	234	263	280	295
November	276	261	234	277	277	305
December	266	262	256	256	282	270
Annual Average	266	271	255	252	271	304
Maximum Month	280	283	277	277	282	329
Minimum Month	257	261	234	218	261	270

Table 11. Monthly average and annual average effluent concentrations for biochemical oxygen demand (mg/l) at Point Loma WTP.

Month	2002	2003	2004	2005	2006	2007
January	95.0	99.6	103.7	88.4	97.6	100
February	107.5	97.7	98.5	88.7	101.1	97
March	94.4	99.9	100.5	96.3	102.5	99
April	98.6	111.7	100.3	107.7	105.5	95
May	89.4	116.9	101.3	112.7	105.4	96
June	84.0	117.2	107.7	114.6	108.1	95
July	90.4	115.5	102.4	112.0	111.9	96
August	88.8	107.2	115.4	105.1	102.3	98
September	83.9	100.9	106.1	107.1	98.4	94
October	94.8	101.0	85.9	112.5	92.0	93
November	104.7	94.9	94.4	112.3	97.2	94
December	93.6	96.5	102.8	101.5	100.6	89
Annual Average	93.8	104.9	101.6	104.9	101.9	96
Maximum Month	107.7	117.2	115.4	114.6	111.9	100
Minimum Month	83.9	94.9	85.9	88.4	92.0	89

Table 12. Monthly average and annual average percent removals for biochemical oxygen demand (%) at Point Loma WTP.

Month	2002	2003	2004	2005	2006	2007
January	63.0	64.4	61.9	59.4	62.6	64.5
February	58.2	62.4	60.4	59.5	63.8	66.1
March	63.8	61.3	58.8	56.4	61.2	67.2
April	62.9	58.2	61.1	57.6	60.9	68.8
May	66.0	58.3	61.6	57.3	62.1	69.5
June	68.7	57.2	61.1	57.4	58.9	70.9
July	67.7	59.2	56.2	56.3	58.2	70.0
August	66.4	61.3	56.8	59.4	60.8	69.5
September	67.7	64.0	58.7	59.6	64.0	69.7
October	64.9	62.5	63.3	57.2	67.1	68.3
November	62.1	63.6	59.7	59.5	64.9	69.2
December	64.8	63.2	59.8	60.4	64.3	66.9
Annual Average	64.7	61.3	60.0	58.3	62.4	68.4
Maximum Month	68.7	64.4	63.3	60.4	67.1	70.9
Minimum Month	58.2	57.2	56.2	56.3	58.2	64.5

As shown in Table 12, the monthly average percent removals for biochemical oxygen demand meet the federal primary treatment requirement.