G. Recycling Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Receiving water limitations of this Order are derived from the water quality objectives for ocean waters established by the Basin Plan and the Ocean Plan.

Prior to 2009, the San Diego Water Board interpreted the Bacterial Characteristics Water-contact Standards of the Ocean Plan (Receiving Water Limitations section V.A.1) to apply only in the zone bounded by the shoreline and a distance 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and within kelp beds. The Ocean Plan provides that these Bacteriological Standards also apply in designated areas outside this zone used for water contact sports, as determined by the Regional Water Boards (i.e., all waters designated with the REC-1 beneficial use). These designated areas must be specifically defined in the Basin Plan. Because the San Diego Water Board has designated the ocean waters with the REC-1 beneficial use in the Basin Plan, the Ocean Plan Bacterial Standards apply throughout State of California territorial marine waters in the San Diego Region, which extend from surface to bottom, out to three nautical miles from the shoreline. This interpretation has been confirmed by the USEPA.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR section 122.42, are provided in Attachment D of this Order.

Sections 122.41(a)(1) and (b) through (n) of 40 CFR establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 CFR allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

This Order may be reopened and modified, revoked and reissued, or terminated in accordance with the provisions of 40 CFR parts 122, 123, 124, and 125. The San Diego Water Board may reopen the permit to modify permit conditions and requirements. Causes for modifications include, but are not limited to, increased/ modified receiving water requirements and participation in the Southern California Coastal Water Research Project (SCCWRP) model monitoring program; the promulgation of new regulations; modification in sludge use or disposal practices; or adoption of new regulations by the State Water Board or the San Diego Water Board, including revisions to the Basin Plan.

2. Special Studies and Additional Monitoring Requirements

a. Spill and Transboundary Wastewater Flow Prevention and Response Plan

i. Discharges of Wastewater and Other Materials

The CWA largely prohibits any discharge of pollutants from point sources to waters of the United States except as authorized under an NPDES permit. In

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general, any point source discharge of sewage effluent to waters of the United States must comply with technology-based, secondary treatment standards, at a minimum, and any more stringent requirements necessary to meet applicable water quality standards and other requirements. The unpermitted discharge of wastewater to waters of the United States is illegal under the CWA. Further, the Basin Plan prohibits discharges of waste to land, except as authorized by WDR's or the terms described in Water Code section 13264. The Basin Plan also prohibits the unauthorized discharge of treated or untreated sewage to waters of the State or to a storm water conveyance system. Further, Discharge Prohibition III.A of the Order prohibits the discharge of waste from the Facilities to a location other than Discharge Point No. 001.

Sanitary collection and treatment systems experience periodic failures resulting in discharges that may affect waters of the State and the environment. There are many factors which may affect the likelihood of a spill. To ensure appropriate funding, management, and planning to reduce the likelihood of a spill, and increase the spill preparedness, this Order requires the Discharger to maintain and implement a *Spill and Transboundary Wastewater Flow Prevention and Response Plan* (Prevention/Response Plan).

ii. **Transboundary Flows Containing Wastewater**

IBWC Minute No. 283 states, "[t]he Government of Mexico will assure that there are no discharges of treated or untreated domestic or industrial wastewaters into waters of the Tijuana River that cross the international boundary, and that in the event of a breakdown in collection or other detention facilities designed to prevent such discharges, the Government of Mexico will take special measures to immediately stop such discharges and make repairs. Should Mexico request it through the Commission, the United States Section will attempt to assist with equipment and other resources in the containment of such discharges and temporary repairs under the supervision of the Commission."

The 1944 Water Treaty (*Treaty for the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande*), states that the government of the U.S. and Mexico shall share the responsibility of border sanitation problems.

This Order requires the Prevention/Response Plan to contain provisions to maximize treatment capacity utilization on both sides of the international border and minimize transboundary wastewater flows to fulfill the agreements contained in the 1944 Water Treaty and IBWC Minute No. 283. These requirements shall serve as an indicator to the San Diego Water Board of the Discharger's ability to adequately coordinate flows between the facilities on both sides of the international border and to better respond to emergencies on either sides of the international border. Emergencies include, but are not limited to, reduction or catastrophic loss of service, which could cause or contribute to a degradation of water quality in the Tijuana River and its tributaries or present an elevated risk to public health and safety in the South Bay region.

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iii. **Canyon Collectors**

On July 2, 1990, the United States and Mexican sections of the IBWC signed IBWC Minute No. 283 titled *Conceptual Plan for the International Solution to the Border Sanitation Problem in San Diego, California/Tijuana, Baja California*. IBWC Minute No. 283 states the following: "Should Mexico request [help] through the Commission, the United States Section will attempt to assist with equipment and other resources in the containment of [discharges of treated or untreated domestic or industrial wastewaters into waters of the Tijuana River that cross the international boundary] and temporary repairs under the supervision of the Commission." Mexico has the primary responsibility for preventing the discharge of wastewater to receiving waters in the Tijuana River Valley; but, per IBWC Minute No. 283, the U.S. also has a role assisting with equipment, maintenance, and resources in the containment of wastewater discharges through utilization of the canyon collectors, which collect and divert untreated sewage and other dry weather transboundary flows to the Facility for treatment. These flows have great potential to cause or contribute to degradation of water quality in the receiving water and, therefore, must be contained.

As defined by section 212 of the CWA, a treatment works includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. Treatment works also includes any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste, including storm water runoff, or industrial waste, including waste in combined storm water and sanitary sewer systems. Consistent with this definition, the canyon collectors are considered part of the treatment works of the Facility regulated by this Order.

The CWA largely prohibits any discharge of pollutants from point sources to waters of the United States except as authorized under an NPDES permit. In general, any point source discharge of sewage effluent to waters of the United States must comply with technology-based, secondary treatment standards, at a minimum, and any more stringent requirements necessary to meet applicable water quality standards and other requirements. The unpermitted discharge of wastewater to waters of the United States is unlawful.

The Basin Plan prohibits discharges of waste to land, except as authorized by WDR's or the terms prescribed in Water Code section 13264. The Basin Plan also prohibits the unauthorized discharge of treated or untreated sewage to waters of the State or to a storm water conveyance system.

Discharge Prohibition III.A of the Order prohibits the discharge of waste from the Facilities to a location other than Discharge Point No. 001, unless specifically regulated by this Order or separate WDR's. This prohibition also applies to any dry weather discharge of waste overflowing the canyon collectors.

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This Order requires the Prevention/Response Plan to mandate that the Discharger operate and maintain the canyon collectors as part of the treatment works and in a manner consistent with the IBWC Minutes between Mexico and the U.S., to prevent violations of the CWA, Basin Plan, and Prohibition III.A of this Order.

b. **Spill and Transboundary Wastewater Flow Reporting Requirements**

To determine compliance with Discharge Prohibition III.A and provide appropriate notification to the governmental agencies and general public for the protection of public health and the environment, spill and transboundary wastewater flow reporting requirements have been established in section VI.C.2.d of this Order.

c. **Toxicity Reduction Evaluation (TRE)**

Implementing provisions at section III.C.4.c.(4) of the Ocean Plan require chronic toxicity monitoring for ocean waste discharges with minimum initial dilution factors less than 100:1 for the protection of beneficial uses of ocean waters. Based on methods of the Ocean Plan, an acute effluent limitation of 3.2 TUa and a chronic toxicity effluent limitation of 95.6 TUc are established in this Order. The weekly monitoring for acute and chronic toxicity from Order No. 96-50 has been carried over to this Order.

Section III.C.10. of the Ocean Plan requires a Toxicity Reduction Evaluation (TRE) if a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 1 of the Ocean Plan.

In compliance with the Ocean Plan, this Order requires the Discharger to develop a TRE workplan, submit the TRE workplan within 180 days of the effective date of this Order, and share the TRE workplan with CILA. The workplan must describe steps the Discharger intends to follow if the effluent limitation for acute toxicity (3.2 TUa) is exceeded or if the effluent limitation for chronic toxicity (95.6 TUc) is exceeded.

If the effluent limitation for acute or chronic toxicity is exceeded in any one test, the Discharger must conduct a TRE if the toxicity is exceeded in any of the next six (6) succeeding tests performed at 14-day intervals and notify the San Diego Water Board. The requirement for a minimum of six (6) succeeding tests performed at 14-day intervals is based on the probability of encountering at least one toxicity exceedance assuming a true, but unknown level of occurrence. After the acute or chronic toxicity exceedance, the Discharger must continue to conduct the routine weekly monitoring for both acute and chronic toxicity as required in Attachment E of this Order. The TRE shall be conducted in accordance with the approved TRE workplan and available USEPA guidance documents2. The Discharger must also implement a Toxicity Identification Evaluation (TIE), as necessary, based upon the magnitude and persistence of toxicity effluent limitation exceedances. Once the source of toxicity is identified, the Discharger must take all reasonable steps to

[2] See (a) TRE Guidance for Municipal Wastewater Treatment Plants (EPA 833-B-99-002, 1999); (b) Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (EPA/600/2-88/070); Toxicity Identification Evaluation, Phase I (EPA/600/6-91/005F); (c) Methods for Aquatic Toxicity Identification Evaluations, Phase II (EPA/600/R-92/080); (d) Methods for Aquatic Toxicity Identification Evaluations, Phase III (EPA/600/R-92/081); and (e) Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document (EPA/600/R-96-054,1996)

reduce the toxicity to meet the acute and/or chronic toxicity effluent limitation identified in section IV.A of this Order, including working with the Government of Mexico as described further in section VI.C.2.e.

Within 30 days of completion of the TRE, the Discharger must submit the results of the TRE, including a summary of the findings, data generated, a list of corrective actions taken or planned to achieve consistent compliance with all the toxicity limitations of this Order and prevent recurrence of exceedances of those limitations, and a time schedule for implementation of any planned corrective actions. The Discharger must implement any planned corrective actions assigned to the Discharger in the TRE Final Report in accordance with the specified time schedule, unless otherwise directed in writing by the San Diego Water Board. The corrective actions and time schedule must be modified at the direction of the San Diego Water Board.

3. Best Management Practices and Pollution Prevention – Not Applicable

4. Construction, Operation, and Maintenance Specifications – Not Applicable

5. Special Provisions for Municipal Facilities (Wastewater Facilities Only)

a. **Influent Limitations and Pretreatment**

IBWC Minute No. 283 states "[t]he Government of Mexico in accordance with laws in force in that country, in order to assure efficient treatment of Tijuana sewage in the international plant, will require all industries to provide appropriate pretreatment of wastewater that those industries may discharge into the Tijuana sewage collection system which would in turn discharge into the international sewage treatment plant."

Requirement G. 1 of Order No. 96-50 states "[i]n consultation with the Government of Mexico, the discharger shall develop and implement mass emission rate and concentration limitations for the influent to the Facility (influent limitations) for pollutants that may cause or contribute to interference, pass through or other problems described at 40 CFR section 403.5. The influent limits shall prevent violations of the Ocean Plan and this Order."

Requirement G.4 of Order No. 96-50 requires the Discharger to submit a project report to include influent limitations, the basis for the influent limitations, a comparison of the influent limitations with the Facility influent and with any Mexican wastewater quality standards, a sensitivity analysis, and an achievability analysis by June 18, 1997.

On June 4, 1997, the San Diego Water Board received a report titled "Development of Headworks Allocations for the South Bay International Wastewater Treatment Plant - Final Report". The Final Report identified 16 primary pollutants of concern, including arsenic, beryllium, cadmium, chromium, copper, cyanide, lead, mercury, nickel, silver, zinc, total HCH (Lindane), Aldrin, DDTs, PAHs, and carbon disulfide.

On September 17, 1997, the San Diego Water Board adopted Addendum No. 1 to Order No. 96-50 which established advanced primary treatment influent limitations for 12 of the 16 primary pollutants of concern which were identified in the June 1997 Final Report (including arsenic, beryllium, cadmium, chromium, copper, cyanide,

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lead, mercury, nickel, silver, zinc, total HCH (Lindane)). Influent limitations could not be developed for Aldrin, DDTs, PAHs, and carbon disulfide, but these parameters were monitored according to Monitoring and Reporting Program No. 96-50.

Influent limitations are necessary to prevent the introduction of pollutants into the Facility that a) inhibit or disrupt the Facility, its treatment processes or operations, or its sludge processes, use or disposal; b) pass through the Facility in quantities or concentrations that cause or contribute to an exceedance of an applicable water quality standard in the receiving water or otherwise be incompatible with the treatment works; or c) cause other problems as described at 40 CFR section 403.5.

Influent limitations are based on the specific treatment and operational capacity of the Facility and are therefore essential to ensure that all aspects of the treatment works are protected from pass through or interference in accordance with the Clean Water Act and NPDES pretreatment regulations at 40 CFR part 403. Influent limitations impose conditions on the quality of influent discharged into the sewage treatment plant located in the United States. They do not establish water quality or discharge requirements that must be attained in Mexico.

The influent limitations in this Order have been carried over from Order No. 96-50. Section VI.C.5.a.i of this Order requires the Discharger to develop and implement updated influent limitations (also known as Maximum Allowable Headworks Allocations (MAHA) Report) no later than one year after the adoption of this Order, for approval and incorporation into this Order. In consultation with the San Diego Water Board and the government of Mexico, the Discharger must review and update influent limitations, as necessary, to take into account (1) the Facility's recent treatment upgrade from advanced primary treatment capabilities to secondary treatment capabilities; and (2) any changes that may have occurred in the make-up or quantity of industrial users contributing loadings to the Facility via the City of Tijuana's wastewater conveyance system.

USIBWC submitted the MAHA Report on June 18, 2018. Through Amending Order No. R9-2019-0012, the proposed influent limitations in the June 18, 2018 MAHA Report have been approved and incorporated into this Order and supersede the Interim Influent Limitations that were carried over from Order No. 96-50.

This Order contains provisions to address exceedances of influent limitations, including a requirement to formally communicate with Mexico about the quality of the influent to the Facility and any issues regarding the influent quality. These requirements are consistent with and further efforts to attain the goals of IBWC Minute No. 283 to prevent pollutants from entering the Facility that may cause or contribute to interference, pass through or other problems described at 40 CFR section 403.5 and to prevent violations of effluent limitations.

b. **Sludge (Biosolids) Requirements**

The use and disposal of biosolids within the United States is regulated under federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR part 503. The Discharger is required to comply with the standards and time schedules contained in 40 CFR part 503 for biosolids used or disposed of within the United States.

Title 27, CCR, division 2, subdivision 1, section 20005 establishes approved methods for the disposal of collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes. Requirements to ensure the Discharger disposes of solids in compliance with State and federal regulations have been included in this Order.

In its NPDES application, the Discharger indicates that all biosolids produced at the Facility are trucked to Mexico for disposal. The use and disposal of any biosolids occurring within the United States shall be regulated under this Order.

Monitoring and reporting requirements have been included in this Order in the event of a sludge spill, to ensure proper handling and storage of sludge, and to certify the disposal of the sludge in Mexico.

In the event that the Government of Mexico is unable to truck the processed sludge and solids to Mexico for disposal, this Order requires the Discharger to develop a Sludge and Solids Contingency Plan to temporarily store or dispose of the processed sludge and solids in the United States.

c. **Requirements for Receipt of Anaerobically Digestible Material**

This provision implements an agreement between State Water Board; California Department of Resources Recycling and Recovery; the California Department of Food and Agriculture; and the California Association of Sanitation Agencies regarding the regulation of hauled-in anaerobically digestible material for injection into an anaerobic digester. With the addition of a standard provision in NPDES permits that requires the treatment works to develop and implement standard operating procedures from anaerobically digestible material acceptance and digestion operations, CalRecycle would exempt the operation from regulation under its requirements.

6. Other Special Provisions

7. Compliance Schedules – Not Applicable

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the San Diego Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E, establishes monitoring and reporting requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Core Monitoring Requirements

1. Influent Monitoring Requirements

Influent monitoring is required to determine the compliance with influent limitations, to assist with pretreatment investigations in Mexico, to evaluate compliance with effluent limitations, and to assess the performance of treatment facilities.

The influent monitoring for CBOD5, TSS, volatile suspended solids, and temperature has been increased from weekly to daily to match the effluent monitoring and thus to better evaluate compliance with effluent limitations and assess the performance of the new

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treatment facilities. Biochemical oxygen demand (5-day @ 20°C) (BOD5) has been added with a sampling frequency to match the effluent monitoring for the same reason.

The influent monitoring frequency for the other conventional pollutants (total dissolved solids, floating particulates, grease and oil, settleable solids, turbidity, and pH) have been carried over from Order No. 96-50. The influent monitoring frequency for parameters for protection of marine aquatic life has been reduced from weekly to monthly, with the exception of Table B metals and radioactivity. Weekly monitoring for table B metals has been carried over from Order No. 96-50. Radioactivity was already monthly in Order No. 96-50. The influent monitoring frequency for parameters for human health has been reduced from weekly/monthly to quarterly.

The monitoring frequency for the influent set forth in this Order is sufficient to evaluate the highly variable wastewater from Tijuana, Mexico. If, however, any result for this parameter exceeds the applicable interim or final influent limitation specified in this Order, as appropriate, the minimum frequency shall be increased from 1/Week to 5/Week, 1/Month to 1/Week, or 1/Quarter to 1/Month, as appropriate. The increase monitoring along with consultation with Mexico may help determine the cause.

Refer to section III.A of Attachment E of this Order for a summary of influent monitoring requirements.

2. **Effluent Monitoring Requirements**

Effluent monitoring is required to determine compliance with the permit conditions, to identify operational problems, to improve plant performance, and to conduct reasonable potential analyses for subsequent Orders. Effluent monitoring also provides information on wastewater characteristics for use in interpreting water quality and biological data.

Effluent monitoring for soluble BOD has been removed since monitoring of BOD and CBOD5 is sufficient for evaluating the secondary-treated effluent.

The sampling frequencies for the other conventional pollutants (CBOD5, BOD5, volatile suspended solids, total dissolved solids, temperature, floating particulates, total suspended solids, settleable solids, turbidity, and pH) have been carried over from Order No. 96-50, with the exception of grease and oil, which has been reduced from daily to weekly. Weekly sampling frequency for oil and grease is more common for secondary-treated effluent and the oil and grease has not been detected in the effluent from August 2012 to October 2013.

The effluent monitoring frequency for parameters for protection of marine aquatic life has been reduced from weekly to monthly, with the exception Table B metals, radioactivity and total chlorine residual. Monthly monitoring for radioactivity has been carried over from Order No. 96-50. The Facility currently monitors total chlorine residual on a daily basis. Daily monitoring for total chlorine residual has been included in this Order. Weekly monitoring for table B metals has been carried over from Order No. 96-50. Radioactivity was already monthly in Order No. 96-50. The effluent monitoring frequency for parameters for human health has been reduced from weekly/monthly to quarterly.

The Ocean Plan requires discharges greater than 10 MGD to monitor at least semiannually for Table 1 parameters. The monitoring frequency for the effluent set forth in this Order is greater than the Ocean Plan requirement to account for the highly variable wastewater from Tijuana, Mexico, but is reasonable for secondary-treated effluent.

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For this Order, as amended by Order No. R9-2017-0024, the Discharger may apply the performance goal for both chromium (VI) and chromium (III) as a total chromium performance goal. The Ocean Plan allows dischargers to meet the objective for chromium (VI) as a total chromium objective (footnote a of Table 1 of the Ocean Plan). Total chromium includes both chromium (VI) and chromium (III) and the Clean Water Act has no analytical method for chromium (III)[3]. Thus, this Order allows the Discharger to also meet the objective for chromium (III) as a total chromium objective. If the Discharger monitors for total chromium to meet the objective for both chromium (VI) and chromium (III), the total chromium data will be used to determine if reasonable potential exists for both chromium (VI) and chromium (III) in future permit reissuances and/or updates.

Refer to section III.B of Attachment E of this Order for a summary of effluent monitoring requirements.

3. **Whole Effluent Toxicity Testing Requirements**

This order contains both acute and chronic toxicity effluent limitation as described in section IV.C.3. Toxicity monitoring has been carried over from Order No. 96-50 to determine compliance with these toxicity effluent limitations.

4. **Land Discharge Monitoring Requirements – Not Applicable**

5. **Recycling Monitoring Requirements – Not Applicable**

B. Receiving Water Monitoring Requirements

The receiving water and sediment monitoring requirements set forth below are designed to measure the effects of the SBOO discharge on the receiving ocean waters. These monitoring requirements will remain in effect on an interim basis, pending development of a new and updated monitoring and assessment programs. The overall receiving water monitoring program is intended to answer the following questions:

(1) Does the receiving water meet water quality standards?

(2) Are the receiving water conditions getting better or worse over time?

(3) What is the relative contribution of the Facility discharge to pollution in the receiving water?

1. Shoreline Water Quality Monitoring Requirements

As ocean surface waves come closer to shore they break, forming the foamy, bubbly surface called surf. The region of breaking waves defines the shoreline.

Monitoring of the shoreline is intended to answer the following questions:

(1) Does the effluent cause or contribute to an exceedance of the water quality standards in the receiving water?

(2) Does the effluent reach water contact zones or commercial shellfish beds?

(3) Are densities of bacteria in water contact areas below levels protective of public health?

Shoreline Station S-1 (located in Mexico near Punta Bandera) was abandoned after August 6, 2002 as a result of legal restrictions that prevented access to this station

[3] In order to obtain a value for chromium (III), two separate methods must be used: one for total chromium determination and one for chromium (VI) determination. The value for chromium (III) is obtained by subtracting the chromium (VI) value from the total chromium value.

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beginning in July 2002. Consequently, shoreline Station S-0 was established to replace S-1 as the southernmost shoreline sampling site for SBOO. Sampling began at S-0 on August 13, 2002. This change was documented in the August 2002 monthly self-monitoring report.

Refer to section IV.A of Attachment E of this Order for a summary of shoreline water quality monitoring requirements.

2. Offshore Water Quality Monitoring Requirements

Offshore monitoring extends from south of international border to Point Loma. See Attachment B for a map of the offshore monitoring stations.

Offshore monitoring is necessary to answer the following questions:

(1) Is natural light significantly reduced at any point outside the zone of initial dilution as a result of the discharge?

(2) Does the discharge cause a discoloration of the ocean surface?

(3) Does the discharge of oxygen demanding waste cause the dissolved oxygen concentration to be depressed at any time more than 10 percent from that which occurs naturally?

(4) Does the discharge of waste cause the pH to change at any time more than 0.2 units from that which occurs naturally?

(5) Is the wastewater plume encroaching upon receiving water areas used for swimming, surfing, diving and shellfish harvesting?

(6) What is the fate of the discharge plume?

As commissioned by the USIBWC, staff at the University of California San Diego, Scripps Institution of Oceanography conducted a study to determine the characteristic fates of the wastewater plume from the SBOO. The results of the study were summarized in *the Final Report Coastal Observations Monitoring in South Bay San Diego*, dated February 25, 2009 (Plume Study). Recommendations from the Plume Study have been included in this Order.

Refer to section IV.B of Attachment E of this Order for a summary of off shore water quality monitoring requirements.

3. Benthic Community Protection Monitoring Requirements

Sediments integrate constituents that are discharged to the ocean. Most particles that come from the SBOO discharge, and any associated contaminants, will eventually settle to the seafloor where they are incorporated into the existing sediments. Sediments can accumulate these particles over the years until the point where sediment quality has degraded and beneficial uses are impaired.

The MRP requires periodic assessment of sediment quality to evaluate potential effects of the SBOO discharge and compliance with narrative water quality standards specified in the Ocean Plan. The required assessment consists of the measurement and integration of three lines of evidence: 1) physical and chemical properties of seafloor sediments, 2) seafloor sediment toxicity to assess bioavailability and toxicity of sediment contaminants and 3) ecological status of the biological communities (benthos) that live in or on the seafloor sediments.

The benthic community is strongly affected by sediment composition (e.g., sand, silt, and clay distributions), sediment quality (e.g., chemistry, toxicity), and water quality. Because benthic macroinvertebrates (e.g., infauna) are dependent on their surroundings, they often serve as important biological indicators that reflect the overall conditions of the marine environment.

Sediment and benthic community monitoring are necessary to answer the following question:

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

(2) Is the concentration of substances, set forth in Table 1 of the Ocean Plan for protection of marine aquatic life, in marine sediments at levels which would degrade the benthic community?

(1) Is the concentration of organic pollutants in marine sediments at levels that would degrade the benthic community?

(2) Are benthic communities degraded as a result of the discharge?

(3) Is the sediment quality changing over time?

Refer to section IV.C of Attachment E of this Order for a summary of sediment and benthic monitoring requirements.

4. Fish and Invertebrate Monitoring Requirements

Many pollutants discharged into receiving waters have the potential to bioaccumulate and persist in tissue of aquatic organisms, including fish. Chemical pollutants that bioaccumulate tend to magnify in concentration as they pass through the aquatic food chain. Fish monitoring data is required to assess the human health risks for individuals who may consume fish and to assess trends of contaminants levels in the receiving water over time.

Marine aquatic invertebrates are excellent indicators of ecosystem health because they are ubiquitous, abundant, diverse, and typically sedentary. The growth, survival, and reproduction of aquatic invertebrates are all sensitive to declines in environmental health, making analysis of assemblage structure a good ecosystem monitoring tool.

Fish and invertebrate monitoring is necessary to answer the following questions:

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

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

(3) Are the concentrations of pollutants in fish and other marine organisms changing over time?

(4) Is the health of fish changing over time?

(5) Is the population of selected species changing over time?

Refer to section IV.D of Attachment E of this Order for a summary of fish monitoring requirements.

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5. Receiving Water Monitoring Reports

In a letter dated November 5, 2015, the City of San Diego requested modifications to the reporting requirements for the receiving water monitoring for the Point Loma Ocean Outfall (PLOO) and SBOO. Order No. R9-2009-0001 for the PLOO discharge from the E.W. Blom Point Loma Wastewater Treatment Plant and Order No. R9-2013-0006 as amended by Order No. R9-2014-0071 for SBOO discharge from the South Bay Water Reclamation Plant[4] required the City of San Diego to submit annual full assessment reports, one annual report for PLOO and one annual report for SBOO. The City of San Diego also prepared a separate annual full assessment report for the Facility discharge to the SBOO as required by Order No. R9-2014-0009 as amended by Order No. R9-2014-0094. The recently adopted new MRP for the PLOO (Order No. R9-2017-0007)[5] authorizes the City of San Diego to replace the above three annual reports with Interim Receiving Water Monitoring Reports (Interim Reports, executive summary) and Biennial Receiving Water Monitoring Reports (Biennial Reports, full assessment) submitted in alternating years. The Interim Reports will cover a single monitoring calendar year (e.g., 2018, 2020), will only cover even numbered years, and shall be submitted every other year. The Biennial Receiving Water Monitoring Reports will provide a more thorough discussion, evaluation (e.g., detailed statistical analyses), and interpretation than the Interim Receiving Water Monitoring Reports; will cover two years of receiving water monitoring (e.g., biennial reports for calendar years 2016-2017, 2018-2019, and 2020-2021), and shall be submitted in the opposite years as the Interim Receiving Water Monitoring Reports. Under this approach, every two years, one integrated Interim Report and one integrated Biennial Report covering the receiving water monitoring requirements for both the SBOO and PLOO may be submitted to comply with NPDES Permit reporting requirements. The Discharger must collaborate with the City of San Diego in the submittal of the Interim Reports and the Biennial Reports required under this Order. The Discharger shall also collaborate with the City of San Diego in providing a Biennial State of the Ocean Report (an oral report) to the San Diego Water Board following each submittal of the Biennial Report. The oral report should focus on the effort completed during the past two years of monitoring, the status of the receiving waters, and plans for future monitoring efforts. If the oral report is not feasible (e.g., board meetings are cancelled or have too many items), a written Biennial State of the Ocean Report may be provided in lieu of an oral report.

Refer to section IV.E of Attachment E of this Order for a summary of fish monitoring requirements.

6. Groundwater – Not Applicable

C. Regional Monitoring Requirements

Regional ocean water monitoring provides information about the sources, fates, and effects of anthropogenic contaminants in the coastal marine environment necessary to make

[4] Order No. R9-2013-0006 as amended by Order Nos. R9-2014-0071 and R9-2017-0023, NPDES Permit No. CA0109045, *Waste* Discharge Requirements for the City of San Diego South Bay Water Reclamation Plant Discharge to the Pacific *Ocean via the South Bay Ocean Outfall,* Monitoring and Reporting Program (Attachment E)

[5] Order No. R9-2017-0007, NPDES Permit No. CA0107409, Waste Discharge Requirements and National Pollutant Discharge Elimination System Permit for the City of San Diego E.W. Blom Point Loma Wastewater Treatment Plant Discharge to the Pacific Ocean Through the Point Loma Ocean Outfall, Monitoring and Reporting Program (Attachment E)

assessments over large areas. The large scale assessments provided by regional monitoring describe and evaluate cumulative effects of all anthropogenic inputs and enable better decision making regarding protection of beneficial uses of ocean waters. Regional monitoring data assists in the interpretation of core monitoring studies by providing a more accurate and complete characterization of reference conditions and natural variability. Regional monitoring also leads to methods standardization and improved quality control through intercalibration exercise. The coalitions implementing regional monitoring enable sharing of technical resources, trained personnel and associated costs. Focusing these resources on regional issues and developing a broader understanding of pollutants effects in ocean waters enables the development of more rapid and effective response strategies. Based on all of these considerations the San Diego Water Board supports regional approaches to monitoring ocean waters.

The Discharger shall, as directed by the San Diego Water Board, participate with other regulated entities, other interested parties, and the San Diego Water Board in development and implementation of new and improved monitoring and assessment programs for ocean waters in the San Diego Region and discharges to those waters. These programs shall be developed and implemented so as to:

(1) Determine the status and trends of conditions in ocean waters in the San Diego Region with regard to beneficial uses, e.g.,

i. Are fish and shellfish safe to eat?

ii. Is water quality safe for swimming?

iii. Are ecosystems healthy?

(2) Identify the primary stressors causing or contributing to conditions of concern;

(3) Identify the major sources of the stressors causing or contributing to conditions of concern; and

(4) Evaluate the effectiveness (i.e., environmental outcomes) of actions taken to address such stressors and sources.

1. Kelp Bed Canopy Monitoring Requirements

Kelp consists of a number of species of brown algae. Along the central and southern California coast, giant kelp (Macrocystis pyrifera) is the largest species colonizing rocky, and in some cases sandy, subtidal habitats. Giant kelp is an important component of coastal and island communities in southern California, providing food and habitat for numerous animals. Monitoring of the kelp beds is necessary to answer the following questions:

(1) What is the maximum areal extent of the coastal kelp bed canopies each year?

(2) What is the variability of the coastal kelp bed canopy over time?

(3) Are coastal kelp beds disappearing? If yes, what are factors that could contribute to the disappearance?

(4) Are new coastal kelp beds forming?

Refer to section V.A of Attachment E of this Order for a summary of kelp bed canopy monitoring requirements.

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2. Southern California Bight Monitoring Program Participation Requirements

The Discharger is required to participate in the Southern California Coastal Water Research Project (SCCWRP), Southern California Bight Regional Monitoring Program), or any other coordinator named by the Executive Officer, pursuant to CWC 13267, 13383, and 40 CFR 122.48. The intent of the Southern California Bight Regional Monitoring Program is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled scientific resources of the Southern California Bight.

During these coordinated sampling efforts, the Discharger's receiving water sampling and analytical effort, as defined in section IV of the MRP, may be reallocated to provide a regional assessment of the impact of the discharge of municipal wastewater to the Southern California Bight. In that event, the receiving water sampling and analytical effort defined in section IV of the MRP will not be required for the duration of the reallocation. 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 to determine cumulative impacts of various pollution sources. The level of resources in terms of sampling and analytical effort redirected from the receiving water monitoring program required under section IV the MRP shall equal the level of resources provided to implement the regional monitoring and assessment program, unless the Executive Officer, the Discharger and City of San Diego agree otherwise. The specific scope and duration of the receiving water monitoring program reallocation and redirection shall be determined and set by the Executive Officer in consultation with the Discharger and City of San Diego.

D. Special Studies Requirements

Compliance with Bacteriological Standards

By letter dated January 10, 2013, the City of San Diego provided a tabulation and interpretation of the SBOO receiving water monitoring data for the past 17 years. From 1999 to 2010, the Discharger (USIBWC) discharged advanced primary treated wastewater from the Facility into the Pacific Ocean through the SBOO. During this same time period, sample results at the three offshore receiving water stations closest to the SBOO ranged from 72 to 94 percent in compliance with bacterial water quality objectives and samples at all the offshore receiving water stations for SBOO ranged from 90 to 95 percent in compliance with bacterial water quality objectives. After USIBWC commenced discharging secondary treated effluent from the Facility to meet secondary treatment requirements in January, 2011, sample results at the three offshore stations closest to the SBOO were 99 percent in compliance and sample results at all the offshore stations for SBOO were also 99 percent in compliance.

A new analysis of the receiving water bacterial data is necessary to demonstrate if the SBOO discharge is attaining full compliance with bacteriological receiving water limitations described in section V.A.1 of this Order at all times. The data set used for this analysis must be sufficient to provide statistically defensible conclusions and shall include all receiving water bacterial data collected after July 31, 2012 when the Facility discharge attained substantial compliance with secondary treatment standards through December 31, 2015. Primary questions to be addressed include the following:

(1) Does the Facility effluent cause or contribute to an exceedance of bacteriological receiving water limitations described in section V.A.1 of this Order in ocean waters outside the zone of initial dilution?

(2) What is the extent and magnitude of any identified exceedance of bacteriological receiving water limitations described in section V.A.1 of this Order?

(3) Do any identified exceedances impact any marine water contact recreation zones?

(4) If noncompliance with bacteriological receiving water limitations is identified, and if the noncompliance has not been corrected, what is the anticipated time it is expected to continue; and what are the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance?

E. Other Monitoring Requirements

Transboundary Wastewater Flows

Consistent with Water Code sections 13267 and 13383, this Order requires monitoring and reporting to evaluate international border sanitation problems and impacts to the beneficial uses of the Tijuana watershed and the coastal waters where the San Diego Water Board has legal authority to do so. In this Order, the San Diego Water Board has the legal authority to require the Discharger to monitor and assess dry-weather transboundary wastewater flows in Goat Canyon, Smugglers Gulch, Silva Drain, Canyon del Sol, and Stewart's Drain that pass the Discharger's canyon collector systems. The provision of the 1944 Water Treaty, article 3, expresses commitments by the governments of the United States and Mexico to give preferential attention to the solution of all international border sanitation problems. In addition, the 1944 Water Treaty article 2, 3, and 24, give the Discharger the authority to meet this obligation. Pollutant parameters required to be monitored were selected on the basis of their threat to impact REC-1 and other beneficial uses, the 303(d) list for waters in the vicinity of the Tijuana Watershed, and the probability that they may be present in the transboundary flows. This Order also requires the Discharger to provide appropriate notification of transboundary flows to the San Diego Water Board, other local, state, and federal authorities, and the general public for the protection of public health and the environment in the border region.

The term transboundary wastewater flow is used in this Order to refer to a variety of flows containing pollutants from Tijuana, Mexico that have historically flowed into the United States via the north-draining canyons and ravines identified in this Order as Goat Canyon, Smugglers Gulch, Silva Drain, Canyon del Sol, and Stewart's Drain, that empty into the Tijuana River Valley and Estuary. These wastewater flows from Tijuana are attributed to a variety of sources and causes including, but not limited to, treated wastewater effluent discharges, potable water leaks, sewer line leaks and spills, discharges from unsewered areas, and other failures and breakdowns of the wastewater collection infrastructure in Mexico. The transboundary wastewater flows consist of treated and untreated sewage and industrial wastewater, potable water, and other miscellaneous flows depending on the source of the flow. These transboundary wastewater flows have adversely impacted the Tijuana River Valley and Estuary as well as adjacent coastal marine waters and beaches.

Monitoring of dry-weather transboundary wastewater flows that pass any one of the five Discharger's canyon collector systems is necessary to answer the following questions:

(1) What is the frequency and volume of dry weather transboundary wastewater flows?

(2) What are the sources of dry weather transboundary wastewater flows?

(3) What pollutants are present in dry weather transboundary wastewater flows and what is their concentration?

(4) Do pollutants in dry weather transboundary wastewater flows affect beneficial uses of the Tijuana River and Estuary?

(5) What is the mass loading of pollutants on the Tijuana River and Estuary from dry weather transboundary wastewater flows over time?

(6) Are the canyon collector systems being properly operated and maintained to ensure compliance with the conditions of the Order?

VIII. PUBLIC PARTICIPATION

The San Diego Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the South Bay International Wastewater Treatment Plant. As a step in the WDR adoption process, the San Diego Water Board staff developed tentative WDR's and has encouraged public participation in the WDR adoption process and provided an opportunity for public review and comment on the tentative WDRs in accordance with title 40 CFR section 124.10 and Water Code section 13167.5.

A. Notification of Interested Parties

The San Diego Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the San Diego Union Tribune and San Diego Water Board's web site.

The public had access to the agenda and any changes in dates and locations through the San Diego Water Board's web site at:
http://www.waterboards.ca.gov/sandiego/

B. Written Comments

Interested persons were invited to submit written comments concerning tentative WDR's as provided through the notification process. Comments were due either in person or by mail to the Executive Office at the San Diego Water Board at 2375 Northside Drive, Suite 100, San Diego, CA 92108.

To be fully responded to by staff and considered by the San Diego Water Board, the written comments were due at the San Diego Water Board office by 12:00 noon on May 27, 2014.

C. Public Hearing

The San Diego Water Board held a public hearing on the tentative WDR's during its regular Board meeting on the following date and time and at the following location:

Date:	Wednesday, June 26, 2014
Time:	9:00 AM
Location:	Regional Water Quality Control Board Regional Board Meeting Room 2375 Northside Drive, Suite 100 San Diego, CA 92108

Interested persons were invited to attend. At the public hearing, the San Diego Water Board heard testimony, pertinent to the discharge, WDR's, and permit. For accuracy of the record, important testimony was requested in writing.

D. Appeal of Waste Discharge Requirements

Any person aggrieved by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with CWC section 13320 and California Code of Regulations, title 23, sections 2050. The State Water Board must receive the petition by 5:00 p.m. 30 days after the San Diego Water Board's action at the following address:State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

Copies of the law and regulations applicable to filing petitions may be found on the Internet at: ·

http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

E. Information and Copying

The Report of Waste Discharge, other supporting documents, and comments received are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the San Diego Water Board by calling 619-516-1990.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDR's and NPDES permit should contact the San Diego Water Board, reference this facility, and provide a name, address, and phone number or should sign up for the email subscription list for the "South Bay International Wastewater Treatment Plant – NPDES" at http://www.waterboards.ca.gov/resources/email_subscriptions/reg9_subscribe.shtml.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Joann Lim at 619-521-3362.

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ATTACHMENT G – OCEAN PLAN AND BASIN PLAN PROHIBITIONS

I. Ocean Plan Discharge Prohibitions

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

2. Waste shall not be discharged to designated Areas of Special Biological Significance except as provided in chapter III.E of the Ocean Plan.

3. Pipeline discharge of sludge to the ocean is prohibited by federal law; the discharge of municipal and industrial waste sludge directly to the ocean, or into a waste stream that discharges to the ocean, is prohibited. The discharge of sludge digester supernatant directly to the ocean, or to a waste stream that discharges to the ocean without further treatment, is prohibited.

4. The by-passing of untreated wastes containing concentrations of pollutants in excess of those of Table 2 or Table 1 of the Ocean Plan is prohibited.

II. Basin Plan Discharge Prohibitions[1]

1. The discharge of waste to waters of the State in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in Water Code section 13050, is prohibited.

2. The discharge of waste to land, except as authorized by WDR's or the terms described in Water Code section 13264 is prohibited.

3. The discharge of pollutants or dredged or fill material to waters of the United States except as authorized by an NPDES permit or a dredged or fill material permit (subject to the exemption described in Water Code section 13376) is prohibited.

4. Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto are prohibited, unless this San Diego Water Board issues an NPDES permit authorizing such a discharge; the proposed discharge has been approved by the State of California Department of Public Health and the operating agency of the impacted reservoir; and the discharger has an approved fail-safe long-term disposal alternative.

5. The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the San Diego Water Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.

6. The discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger is prohibited, unless the discharge is authorized by the San Diego Water Board.

[1] Where the Basin Plan prohibitions refer specifically to discharges to waters of the state, the prohibitions.

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7. The dumping, deposition, or discharge of waste directly into waters of the State, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited unless authorized by the San Diego Water Board.

8. Any discharge to a storm water conveyance system that is not composed entirely of storm water is prohibited unless authorized by the San Diego Water Board. [The federal regulations, 40 CFR section 122.26(b)(13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR section 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to an NPDES permit and discharges resulting from firefighting activities.] [section 122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].

9. The unauthorized discharge of treated or untreated sewage to waters of the State or to a storm water conveyance system is prohibited.

10. The discharge of industrial wastes to conventional septic tank/ subsurface disposal systems, except as authorized by the terms described in Water Code section 13264, is prohibited.

11. The discharge of radioactive wastes amenable to alternative methods of disposal into the waters of the State is prohibited.

12. The discharge of any radiological, chemical, or biological warfare agent into waters of the State is prohibited.

13. The discharge of waste into a natural or excavated site below historic water levels is prohibited unless the discharge is authorized by the San Diego Water Board.

14. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity or discoloration in waters of the State or which unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.

ATTACHMENT H – DILUTION MODEL INFORMATION

The dilution model used to determine the dilution factor of the South Bay Ocean Outfall (SBOO) was the USEPA-approved computer modeling application Visual Plumes (UM3 Model). The USEPA Visual Plumes website is located at <http://www.epa.gov/ceampubl/swater/vplume/index.htm>. The dilution model results are summarized in Table G.1 below.

Table 1: Summary of Visual Plumes dilution model results.

Ambient Profile[1]	Effluent Temperature (°C)	Dilution Factor at last Trap level	Dilution Factor at Surface
January	17.5[2]	159.0	159.0
February	17.5[2]	159.0	159.0
March	17.5[2]	123.2	142.9
April	17.5[2]	108.2	No result
May	17.5[2]	94.6	No result
June	17.5[2]	110.1	No result
July	17.5[2]	109.1	No result
August	17.5[2]	108.0	No result
September	17.5[2]	108.6	No result
October	17.5[2]	114.3	130.9
November	17.5[2]	124.1	142.7
December	17.5[2]	No result	155.4

[1] Ambient profiles developed from receiving water sampling location (I16) with data from June 2002 through December 2004.

[2] 17.5 °C is the most conservative effluent temperature within the effluent profile from June 2002 through December 2004.

Information about the SBOO and the outfall diffuser were obtained from the South Bay Water Reclamation Plant Report of Waste Discharge and correspondence with Facility representatives. The following description of the diffuser configuration was submitted by the Discharger and was used in making assumptions for the input into the model:

There are 82 diffuser riser assemblies (potential of four ports per riser assembly) per leg, and one at the wye structure for a total of 165 riser assemblies. The facility has three potential configurations per diffuser riser assembly: blind flanged with no ports (and no heads); heads (and no blind flanges) with four ports, which are temporarily closed; and heads (no blind flanges) with four open ports.

The naming convention of the assemblies is as follows: the wye is designated "W" and the south and north legs have either a "S" prefix or a "N" prefix, respectively. The numbering starts near the wye structure, with S82 and N82 located near the termini. There are 18 diffuser risers with open ports (72 open ports); they are W, S26, S52, and S68 through S82.

There are three different sizes of ports; with diameters of 2-3/8", 2-1/2", and 2-5/8". The smaller diameter ports are closer to the wye and including the wye. The larger diameter ports are located closer to the termini and the 2-1/2" are in between. There are 53 ports with a diameters of 2-3/8", 52 at 2-1/2", and 60 at 2-5/8".

Port diameter – 2.6 inches - Average diameter of the 72 open ports.

Port elevation – 0.0 meters – Ports are located on the ocean floor.

Vertical angle – 0 degrees.

Horizontal angle – 0 degrees – The diffuser ports alternated facing 0 degrees, 90 degrees, 180 degrees, and 270 degrees. This model does not have input abilities for a diffuser with ports facing various directions. A single direction for all ports was assigned. This will result in a conservative dilution factor.

Number of ports – 72 ports.

Port spacing – 6 feet – The dilution model does not have the ability to input the actual riser/port configuration of the diffuser. The 72 ports were evenly distributed along a length of diffuser representative of the length of diffuser of the south leg in which the majority of the open ports are concentrated (S68 through S82), with additional length included to account for ports located on risers W, S26, and S52.

Acute mix zone – Not relevant, value does not affect dilution factor as defined by the State Water Board.

Chronic mix zone – Not relevant, value does not affect dilution factor as defined by the State Water Board.

Port depth – 94 feet.

Effluent flow – 40 MGD – The total of permitted discharge flows through the SBOO. The actual operating capacity of the outfall is 174 MGD with all ports open.

Effluent salinity – 2.24 mmho/cm – This value was the most conservative salinity value within the effluent profile.

Effluent temp – 17.5 °C – This value was the most conservative temperature value within the effluent profile.

Pollutant concentration – Not relevant, input does not affect dilution factor.

Ambient data – Monthly ambient data for June 2002 through December 2004 obtained from the receiving water monitoring data (sample station I16) made available by SBWRP. Monthly salinity and temperature data taken at offshore monitoring station I16 were averaged at each depth to establish an ambient water profile for each month. The monthly profiles were used in Visual Plumes. For each month and for each Visual Plumes run, initial dilution was interpreted to occur either when the plume first reaches the surface, or at the last trapping level when the plume does not surface. The minimum initial dilution was the lowest dilution factor attained using the May 2004 ambient profile.

Far-field diffusion coefficient – 0.0003 m0.67/s2 - recommended in the Visual Plumes manual as a conservative value.

Special Settings Tab, Farfield Diffusivity Option - 4/3 Power Diffusivity was chosen based on the fact that the discharge is occurring in open water.

Special Settings Tab, Diffuser Port Contraction Coefficient - 0.61 - based on the use of cylindrical ports in the diffuser.

Special Settings Tab, Standard Light Adsorption Coefficient - 0.16 - recommended in the manual as a conservative value.