UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 Broadway
New York, New York 10007-1866

FACT SHEET
FOR
DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO THE WATERS OF THE UNITED STATES

NPDES Permit No. PR0023728

Name and Address of Applicant:

Puerto Rico Aqueduct and Sewer Authority
P.O. Box 7066
Barrio Obrero Station
San Juan, Puerto Rico 00916

Name and Address of Facility where discharge occurs:

Bayamón Regional Wastewater Treatment Plant
Road 869 KM 2.9 BO. Palmas
Cataño, Puerto Rico 00962

Receiving Water: Atlantic Ocean

Receiving Water Classification: Class SC

Permit Writer: Yasmin Laguer, Caribbean Environmental Protection Division

I. LOCATION OF DISCHARGE

The above-named applicant has applied for NPDES permit to the U.S. Environmental Protection Agency (EPA) to discharge into the designated receiving water. The approximate U.S.G.S. coordinates for Discharge 001 are:

Latitude **18°29'13"**North
Longitude **66°08'21"**West

II. DESCRIPTION OF FACILITY

The Bayamón Regional Wastewater Treatment Plant (RWWTP) started operations in May 1983. The facility is owned and operated by the Puerto Rico Aqueduct and Sewer Authority (PRASA). It is located in Barrio Palmas in Cataño, Puerto Rico. The Bayamon RWWTP serves the municipalities of Bayamón, Cataño, parts of Guaynabo, Rio Piedras, Toa Alta and Toa Baja.

The Bayamón RWWTP is designed to treat an average hydraulic loading of 40 million gallons per day (MGD) and a peak hydraulic loading of 68 MGD. Currently, the average daily and maximum flows are approximately 30 MGD and 50 MGD, respectively. The facility's layout includes a pumping station, mechanical bar screen, grit removal mechanism, primary clarifiers, sludge handling facilities and disinfection area. The treated effluent from the Bayamón RWWTP combines with treated effluent from the Puerto Nuevo RWWTP and the Bacardi Corporation's wastewater treatment plant (WWTP). The combined effluent is then discharged approximately 7,365 ft (2,246 m) from the shoreline into the Atlantic Ocean, at a location approximately 3,600 ft (1,097 m) north of Isla de Cabras, at a depth of 141 ft (43 m). The discharge is through a high-rate, Y-shaped diffuser consisting of two (2) legs that are each 1,010 ft (308 m) in length and a constant 84-inch diameter. The west leg of the diffuser has 100 bell- mouthed ports and the east leg of the diffuser has 102 bell-mouthed ports, each at 15 degrees from the horizontal. There are a total of 202 ports. On the west diffuser leg, there are 80 inshore ports that have a diameter of 6 in (15.2 cm), 19 offshore ports that have a diameter of 7 in (17.8 cm), and 1 10-inch (25.4 cm) port. On the east diffuser leg, there are 81 inshore ports that have a diameter of 6 in (15.2 cm), 20 offshore ports that have a diameter of 7 in (17.8 cm), and 1 10-inch port. The ports discharge on alternating sides of the diffuser and are evenly spaced at 10 ft (3.05 m) intervals. The diffuser is currently operated with all 202 ports open. PRASA is proposing to continue discharging through all 202 ports.

An explanation of the physical components of the Bayamón RWWTP follows:

Influent Pumping Station and Headworks

Wastewater collected and transported to the Bayamón RWWTP enters a common headworks structure prior to entering three screening channels. The screening facility has mechanical bar screens, which remove large debris such as rags, paper, rocks and material from the wastewater stream. Removal of this material is necessary to protect mechanical equipment such as pumps and augers from excessive wear and tear.

Following screening, the wastewater is pumped by the influent pumping system to the grit removal process. Influent pumping is accomplished by five pumps (three variable speed types rated at 13 MGD each, and two constant speed type rated at 24 MGD each) and a standby 24 MGD variable speed, all of the vertical centrifugal type. The pumps operate in either the variable speed mode based on influent wet well water level or in the manual mode with operator controlled speed adjustment. The pumped influent flow is discharged through two headers that convey the wastewater to flow metering through two 66-inch Parshall flumes, before being conveyed to the common aerated channel of the grit tanks.

The grit removal system is designed to remove material that is not removed by screening and is suspended in the fluid medium as a result of the wastewater velocity. This material is composed of grit and sand-type-particles that are classified as discrete particles. The Bayamón RWWTP has four aerated grit units. Each grit collection unit is 20 ft wide by 40 ft long with a side water depth of 12.5 ft at average design flows. Settled grit is collected in the hopper and conveyed by two screw conveyors from the influent and effluent ends to the center of the hopper, where it falls into two openings. Settled grit from the bottom of the tanks is pumped to three cyclone degritters, using grit pumps. The washed grit from the cyclone degritters is conveyed by a conveyor to a dumpster for offsite disposal.

Advanced Primary Treatment

The Bayamón RWWTP was designed to provide primary treatment of wastewater prior to discharge to the Atlantic Ocean. Basic primary treatment involves the physical separation of solid matter in the wastewater by gravitational forces. Raw wastewater is composed of discrete and organic solid particles. Primary sedimentation basins are designed to remove a large fraction of the discrete or settleable solid particles. The organic fraction of solid particles, suspended solids, are minute in size and are not readily removed in the liquid-solid separation phase of the primary sedimentation basins.

Following grit removal, the wastewater is conveyed to the influent channel of the primary sedimentation basins where chemical addition (polymer) is done to enhance sedimentation. To enhance sedimentation, the draft permit requires PRASA to use a chemical additive to increase the settling of suspended solids. Currently PRASA uses a polymer composed of ferric salts called ODO – Free. The aerated influent channel equally distributes the flow to up to six primary sedimentations basins. Each basin is 40.4 ft wide, 234.4 ft long, and has an average depth of approximately 10 ft. A traveling bridge collector mechanism spans and serves each pair of sedimentation basins and is equipped with sludge scraper/scum skimming mechanisms. The traveling bridge mechanism collects and transports settled solids to the sludge hoppers, and skims the scum to the slotted collection pipes.

Accumulated sludge is transported to the influent end of each basin where sludge hoppers are located. The sludge hoppers are fitted with screw type cross collectors that transport the accumulated sludge to an opening at the bottom center of each hopper. Sludge is removed and pumped by the primary sludge transfer pumps to two gravity sludge thickeners. Scum collected in the wells is removed and placed in a dumpster for offsite disposal, while the water from the scum wells drains back to the headworks.

The primary effluent is discharged via an arrangement of finger weirs at the downstream end of the basins, and transported through 12 launders per basin to the primary effluent channel. Air spraying is used at the upstream side of the finger weirs to prevent any scum from entering the effluent weirs. Chlorine solution is injected into the primary treated effluent to provide disinfection. The facility is equipped with three non-potable water pumps that supply water for the preparation of the chlorine solution. The chlorinated primary effluent is conveyed by gravity to an effluent diversion

structure for post-chlorination and subsequent discharge to the ocean outfall by either gravity flow or by pumping.

Primary Sludge Handling

Primary sludge is removed from the sedimentation tanks and is macerated by grinders before being pumped by the primary sludge transfer pumps to the sludge thickeners. The sludge thickeners are concrete structures equipped with rotating sludge thickener mechanisms designed to thicken sludge to approximately 5 to 10 percent solids. Thickened primary sludge is pumped to the belt filter press facility. The belt filter pressed dewaters the sludge. Dewatered sludge is trucked to an offsite disposal site.

III. DESCRIPTION OF DISCHARGE AND DRAFT PERMIT CONDITIONS

A description of the type and quantity of pollutants which are discharged or proposed to be discharged is in Attachment I. The effluent limitations, monitoring requirements, schedules of compliance and other conditions of the draft permit are also described in Attachment I.

IV. COMMONWEALTH CERTIFICATION REQUIREMENTS

Commonwealth Certification requirements based upon a Water Quality Certificate (WQC) issued by the Puerto Rico Environmental Quality Board (EQB) are described in the draft permit. Review and appeals of limitations and conditions attributable to Commonwealth Certification shall be made through the applicable procedures of the Commonwealth of Puerto Rico and may not be made through EPA procedures.

V. SECTION 301(h) MODIFIED PERMIT FOR THE BAYAMON RWWTP

Under section 301(h) of the Clean Water Act, 33 U.S.C. 1311(b)(1)(B), publicly-owned wastewater treatment plants that discharge into deep ocean waters can apply for a modification of secondary treatment requirements and be approved for a modified NPDES permit by the EPA provided that the applicant demonstrates that it meets all nine of the statutory and regulatory criteria. In 2007, the EPA issued a final approval of PRASA's renewal application for a modified permit for the Bayamón RWWTP, and subsequently issued a permit that became effective on July 1, 2008, and will expire on June 30, 2013. The EPA intends to revoke this permit and reissue a new permit based on a new section 301(h) analysis to reflect a change in wastewater flow from the Bayamón RWWTP as a result of an expanded service area, and to meet specific flow transfer requirements from the 2010 Mega Consent Decree entered into with PRASA by the EPA and the U.S. Department of Justice.

On October 1, 2010, PRASA requested a renewal of its section 301(h) modification of secondary treatment requirements for the Bayamón RWWTP. EPA has issued a tentative approval of PRASA's request for a section 301(h) modification from secondary treatment requirements in the draft permit for the Bayamón RWWTP. A detailed discussion of EPA's findings, conclusions and

recommendations on compliance of the Bayamón RWWTP discharge, alone and in combination with discharges from the Puerto Nuevo RWWTP and Bacardi Corporation WWTP, with the criteria set forth in section 301(h) of the Act and its implementing regulations at 40 CFR Part 125, Subpart G, and Puerto Rico Water Quality Standards Regulations, as amended (Regulation Number 7837), is presented in the EPA's 2011 Decision Document for the Bayamón and Puerto Nuevo RWWTPs. EPA is proposing a draft 301(h) modified permit under section 402 of the Act which modifies the requirements of subsection 301(b)(l)(B) with respect to the discharge of any pollutant from a publicly owned treatment works into marine waters.

VI. ENVIRONMENTAL JUSTICE

Environmental Justice (EJ) is the right to a safe, healthy, productive and sustainable environment for all, where "environment" is considered in its totality to include the ecological, physical, social, political, aesthetic and economic environments. The EPA has performed an EJ analysis for the Bayamon RWWTP in accordance with the President's Executive Order 12898 entitled "Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations" and its regional Interim Policy for Environmental Justice. Since the Bayamón RWWTP and Bacardi WWTP share an outfall and they potentially impact the same Community of Concern (COC), the EPA has prepared an EJ analysis that includes both facilities. The EPA has prepared a separate EJ analysis for the Puerto Nuevo RWWTP service area because it is in a different COC. The EJ analyses are part of the Administrative Record and are available for review upon request.

In the EJ analysis, the EPA determined that the Municipality of Cataño is an EJ community based on demographic and income information that demonstrated that the average poverty level in the Cataño exceeds the threshold average for Puerto Rico, as established in EPA Region 2's Interim Policy for Environmental Justice. In addition, the EPA determined that the potential exists for a disproportionate and/or adverse environmental burden in the Municipality of Cataño based on a higher number of facilities in Cataño that are listed in the EPA environmental databases for toxic releases than the average number of facilities island-wide. In the NPDES permitting program, the public participation process provides opportunities to address EJ concerns by providing appropriate avenues for public participation, seeking out and facilitating involvement of those potentially affected, and including public notices in more than one language where appropriate. The EPA is committed to taking all necessary actions to minimize potential adverse impacts to the Municipality of Cataño from Bayamón RWWTP. The EPA has prepared a public notice for comment on the draft permit in both English and Spanish, and will address any EJ concerns that arise during the public comment period.

VII. PROCEDURES FOR REACHING A FINAL DECISION ON THE PERMIT

Procedures for reaching a final decision on the permit are set forth in 40 CFR Part 124 and described in the public notice of the preparation of the draft permit. Included in the public notice are requirements for the submission of comments by a specified date, procedures for requesting a hearing and the nature of the hearing, and other procedures for participation in the final agency decision.

VIII. EPA CONTACT

Additional information concerning the draft permit and the section 301(h) Decision Document may be obtained between the hours of 8:00 A.M. and 4:30 P.M. Eastern Standard Time, Monday through Friday from:

Ms. Yasmin Laguer
Caribbean Environmental Protection Division
EPA Region 2
Centro Europa Building, Suite 417
1492 Ponce de Leon Avenue, Stop 22
San Juan, Puerto Rico 00909
(787) 977-5848

ATTACHMENT I

DESCRIPTION OF DISCHARGE AND DRAFT PERMIT CONDITIONS

Discharge 001

The treatment plant effluent is discharged through Discharge 001 into the **Atlantic Ocean (Classification SC)**. Since effluent from the Bayamón RWWTP combines with effluent from the Puerto Nuevo RWWTP and Bacardi Corporation WWTP, compliance with effluent limitations and monitoring requirements shall be determine at an effluent sampling point at the Bayamón RWWTP for Discharge 001, pursuant to EQB's Final WQC. EQB has defined the sampling point for Discharge 001 to be located immediately after the primary flow measuring device of the effluent treatment system.

The following are the proposed effluent limitations and permit conditions:

1. The proposed effluent limitations for biological oxygen demand (BOD_5) and total suspended solids (TSS) are based on the federal definition of primary or equivalent treatment (40 CFR 125.60), EPA's section 301(h) Decision Document, the Final WQC issued by EQB on June 3, 2010, and an evaluation of existing effluent quality performed by EPA.

2. Average Monthly BOD_5 Concentration - **100** mg/l

3. Average Monthly Suspended Solids Concentration - **75** mg/l
   Percent Removal - **60** %

4. Average Monthly Discharge: **40** MGD
   Maximum Daily Discharge: **68** MGD

5. The draft permit includes a Mixing Zone (MZ) which has been defined and authorized by the EQB pursuant to Rule 1305 of the Puerto Rico Water Quality Standards Regulations (PRWQSR). The MZ is delineated by the following points:

	Geographic Coordinates* New WQC
Point 1	Lat. 18º 29.181' Long. 66º 08.518'
Point 2	Lat. 18º 29.202' Long. 66º 08.503'

	Geographic Coordinates* New WQC
Point 3	Lat. 18º 29.100 Long. 66º 08.340'
Point 4	Lat. 18º 29.097' Long. 66º 08.150'
Point 5	Lat. 18º 29.072' Long. 66º 08.150'
Point 6	Lat. 18º 29.075' Long. 66º 08.348'

* NAD 83 State Plane Coordinates

6. The MZ has been defined by EQB for the following parameters that have has been included in the draft permit: **Cadmium**, **Color**, **Copper**, **Free Cyanide**, **Dissolved Oxygen**, **Lead**, **Mercury**, **Nickel**, **Nitrogen (NO_2, NO_3, NH_3)**, **pH**, **Silver**, **Sulfide**, **Surfactants**, **Temperature**, **Thallium**, **Turbidity** and **Zinc**.

7. The water quality-based effluent limitation from the previous permit for **Color**, **Copper**, **Lead**, **Nickel**, **Nitrogen**, **Silver**, and **Zinc** have been replaced with a less stringent water quality-based limitation in the Final WQC issued by the EQB. EPA has determined that it is appropriate to relax the effluent limitation for these parameters without violating anti-backsliding provisions of the Act, in accordance with section 402(o), since one of the exceptions to the provisions has been satisfied. The EQB Final WQC constitutes a determination that the limit is sufficient to assure that the water quality standards will be attained.

8. The water quality-based effluent limitations from the previous permit for Arsenic and Total Coliform are not included in the Final WQC issued by the EQB. EPA has determined that it is appropriate to remove the effluent limitations for these parameters without violating the anti-backsliding provisions of the Act, in accordance with section 402(o), because one of the exceptions to the provisions has been satisfied. Section 402(o)(2)(B)(i) of the Act allows backsliding if information is available which was not available at the time of permit issuance and would have justified the application of a less stringent effluent limitation at the time of permit issuance. Information submitted indicates that the discharge from Outfall No. 001 is not reasonably expected to contribute to a water quality exceedance for these parameters. Therefore, a water quality-based effluent limitation is not necessary for

these parameters. Antidegradation requirements are not violated by removing the limits for these parameters. The permittee will be maintaining the same level of treatment and discharging the pollutants at the same level. Therefore, the discharge would not contribute to further degradation of the receiving water and existing uses would be maintained.

9. The water quality-based effluent limitation from the previous permit for BOD_5, Cyanide, Sulfide, Surfactants, Thallium and Turbidity have been replaced with a more stringent water quality-based limitation in the WQC issued by the EQB. Pursuant to section 401(d) of the Act and 40 CFR 122.44(d) and 124.55, all State certified limitations and requirements contained in a section 401 certification must be incorporated into a NPDES permit issued by EPA. The water quality-based effluent limitations referenced in this paragraph have been included in the draft permit, based on EQB's Final WQC.

10. The effluent limitation for Oil & Grease, Residual Chlorine, Solids and other Matter, Suspended, Colloidal or Settleable Solids, and Taste and Odor-producing Substances are based on EQB's Final WQC.

11. The following Special Conditions were included as written in the Final WQC issued by the EQB dated June 3, 2010, with the following additions/clarifications:

Special Condition 6: Sulfide (Undissociated H_2S)

The Final WQC issued by EQB includes an effluent limitation and monitoring requirement for sulfide (undissociated H_2S). The Final WQC does not specify an analytical method for sulfide (as undissociated H_2S) in Special Condition No. 6 of the WQC, only that an approved EPA analytical method must be utilized that achieves the lowest possible detection level. EPA has included footnote "@" for sulfide in Table A.1 of the draft permit which specifies the methodology that must be used for calculating undissociated H_2S from the dissolved Sulfide concentration and clarification to Special Condition No. 6 for reporting sulfide (undissociated H_2S) concentrations when sample results are below detection limits.

Special Condition 20: Whole Effluent Toxicity

EPA has included an effluent limitation for Whole Effluent Toxicity (WET) for the combined discharge of the Bacardi WWTP, PRASA Bayamón RWWTP, and Puerto Nuevo RWWTP. WET monitoring requirements have also been included for the combined discharge and for effluent sampling point No. 001 for the Bayamón RWWTP. Similar monitoring requirements have been incorporated into the permits for the Puerto Nuevo RWWTP and Bacardi WWTP. Attachment II of this Fact Sheet provides a summary of WET requirements established in the draft permit.

12. The draft permit requires the permittee to comply with the requirements of the **Urban Area Pretreatment Program** as established in 40 CFR 125.65 and 40 CFR Part 403. The implementation of an Urban Area Pretreatment Program is one of the nine section 301(h) criteria and the Urban Area Pretreatment Program is established to control the entrance of toxic pollutants into the Bayamon RWWTP.

13. The draft permit requires the permittee to comply with the **Sanitary Sewage Sludge** requirements as established in 40 CFR Part 503. As required by the 1987 amendments to the Act, EPA developed this regulation to protect public health and the environment from any reasonably anticipated adverse effects of certain pollutants that might be present in sewage sludge biosolids.

14. As required in 40 CFR 125.62, the draft permit includes the requirement for the permittee to continue to implement a receiving water monitoring program referred to as **Section 301(h) Waiver Demonstration Studies**. This monitoring program is designed to provide data to demonstrate compliance with applicable Puerto Rico Water Quality Standards and section 301(h) criteria, to evaluate the impact of the facility's discharge on the marine biota, and to measure the potential toxic substances in the discharge. Under 40 CFR 125.62, the goals of this program are to: document short and long term effects of the discharge in the receiving waters, sediments, biota and on beneficial uses of the receiving waters; determine compliance with permit terms and conditions and the applicable Puerto Rico water quality standards and EPA marine criteria; and to assess the effectiveness of the applicant's toxic control program.

15. As required in 40 CFR 125.66, the draft permit requires the permittee to implement a **Non-Industrial Source Control Program** so that the permittee, to the extent practicable, can eliminate the entrance of toxic pollutants from non-industrial sources into such treatment works.

16. Based on professional judgment, EPA has established a permit condition that requires that permittee continue the use of chemical addition to enhance solids sedimentation and that any chemical addition shall be flow proportional.

ATTACHMENT II

Whole Effluent Toxicity Requirements

Rule 1303.1(I) of PRWQS provides all waters of Puerto Rico shall not contain any substance at such concentration which, either alone or as result of synergistic effects with other substances is toxic or produces undesirable physiological responses in human, fish or other fauna or flora. This is generally referred to as a narrative water quality criterion "no toxics in toxic amounts". PRWQS do not provide a numeric criterion for toxicity. Since controls on individual pollutants may not always adequately protect water quality, toxicity testing is used to assess and control whole effluent toxicity (WET) which is necessary to reduce or eliminate the toxic impact of the effluent and meet narrative water quality criteria (54 FR 23868, June 2, 1989). NPDES regulations define WET as the whole or aggregate toxic effect of an effluent measured directly by a toxicity test.

Pursuant to the current modified permits, PRASA is required to conduct acute and chronic WET testing on the combined effluent and chronic only WET testing on individual effluent samples from the Bayamón RWWTP, Puerto Nuevo RWWTP, and the Bacardi WWTP. Since 2007, PRASA has conducted four acute WET monitoring events for the combined effluent using the mysid shrimp (*Mysidopsis bahia*) and sheepshead minnow (*Cyprinidon variegates*) and 11 chronic WET monitoring events using these WET test species and the sea urchin (*Arbacia punctulata)*. Five of the most recent 11 chronic WET monitoring events also included testing on individual effluent using the sea urchin. Since effluent toxicity is inversely related to the effect concentration (the lower the effect concentration, the higher the toxicity in the effluent), WET test data are typically expressed as toxic units (TUs) to better illustrate the magnitude of potential toxicity. Rule 1301.1 of PRWQS defines acute TU (TUa) and chronic TU (TUc) values as the Lethal Concentration (LC_{50}) of the tested effluent at which 50 percent of the test organisms die, where $TUa = 100 \div LC_{50}$; and the No Observed Effect Concentration (NOEC), where $TUc = 100 \div NOEC$, respectively.[1] To assess WET test data, EPA recommends a criterion maximum concentration (CMC) of 0.3 TUa and criterion continuous concentration (CCC) of 1.0 TUc be used to ensure aquatic life protection against toxicity in the receiving water. For the purpose of the section 301(h) evaluation, EPA determined the maximum allowable level of effluent toxicity or wasteload allocation (WLA) at the edge of the mixing zone that would still ensure attainment of water quality criteria for toxicity. With consideration of dilution and CMC and CCC values, EPA calculated acute and chronic WLAs of 30.6 TUa and 102 TUc, respectively, and then compared the WLAs to effluent WET test data.

A comparison of acute and chronic WET test data and WLAs is presented in Appendix A of EPA's 2011 Decision Document. For the combined effluent, no acute toxicity was observed although several chronic WET tests reported TUc values based on the NOEC that exceeded the chronic WLA. Of the 30 chronic WET tests conducted on the combined effluent since 2007, 30 percent (or

[1] The NOEC is the highest tested effluent concentration (in percent effluent) that does not cause an adverse effect on the test organism (i.e., the highest effluent concentration at which the values for the observed responses are not statistically different from the control).

10 tests) resulted in TUc values that exceeded the 102 TUc WLA. All of these tests were conducted on the sea urchin and 60 percent of them were conducted in May 2007. When compared to the permit limitation of 1.00 percent effluent or 100 TUc derived from the $IC_{25,}$ or the inhibition concentration at which a 25 percent effect occurs, no chronic toxicity is demonstrated. Based on the NOEC pursuant to PRWQS, since these tests were conducted on the combined effluent it is difficult to distinguish whether effluent from one facility or all was contributing to toxicity in these tests. In 2009, PRASA and the Bacardi Corporation began conducting chronic WET testing on individual samples of effluent from each facility in addition to the combined effluent. Between 2009 and 2011, five chronic WET tests using the sea urchin were conducted and results showed no toxicity observed in terms of the NOEC for the combined effluent but showed repeated toxicity in effluent samples from the Bacardi RWWTP. This may suggest that toxicity demonstrated in tests of combined effluent prior to 2009 may be attributed to effluent from the Bacardi WWTP. Nevertheless, nine WET monitoring events have been conducted since May 2007 and only one has demonstrated chronic toxicity on the combined effluent. Also no acute or chronic toxicity has been observed in effluent from the Bayamón RWWTP and only one effluent sample from the Puerto Nuevo RWWTP showed chronic toxicity.

Based on review of WET data, in accordance with 40 CFR 122.44(d)(v), EPA has determined that the combined discharge will cause, has the reasonable potential to cause, or contributes to an excursion above the narrative criterion for chronic toxicity and has proposed effluent limitation for the combined discharge. With consideration of dilution, EPA has proposed a maximum daily effluent limitation of 83.32 TUc (or 1.2 percent effluent) for chronic toxicity in the draft permits for the Bayamón RWWTP, Puerto Nuevo RWWTP, and Bacardi WWTP. EPA believes that the combined discharge will meet this effluent limitation upon permit issuance.

In addition to the limitation, EPA has included other toxicity testing requirements on the individual effluents from these three facilities, as these effluents combine prior to discharge. The toxicity observed in the effluent may be the result of toxicity in one or more of the discharges, or it may be the result of synergistic effects that occur when the effluents combine prior to discharge. The contemporaneous testing on each of the effluents from these facilities will provide an indication as to the source of any toxicity observed in the combined discharge.

EPA is also requiring that all three dischargers develop plans for a toxicity reduction evaluation (TRE) within the first six months of the permit term. The three dischargers may coordinate and develop one plan to meet the permit requirement in each NPDES permit. Violation of the limitation for chronic toxicity using the combined discharge would trigger accelerated monitoring of both the combined discharge and solely the Bacardi effluent for twelve weeks (PRASA would be required to test their individual effluents for the Bayamon and Puerto Nuevo facilities in addition to the combined discharge as well). During the accelerated testing period an additional violation of the limitation on the combined discharge would require these three permittees to activate their TRE workplans, and implement their strategy to identify and abate the source of toxicity.

Calculation of Waste Load Allocation (WLA)

The WLA is used to determine the level of effluent concentration that will comply with water quality standards in receiving waters. Using the information available for dilution, WLAs were calculated for WET using the complete mix equation, which simplifies to

WLA = C_r x Dilution Ratio

where C_r = the water quality criterion concentration. In Puerto Rico, a criterion continuous concentration of 1.0 TUc, and a criterion maximum concentration (CMC) of 0.3 TUa is used as the numeric interpretation of the water quality standard for toxicity.

Using a critical initial dilution (CID) ratio of 102:1, the chronic WLA would be

$$WLA_c = C_r x\ 102 = 1.0 \times 102 = 102.0\ TU_c$$

$$WLA_a = 0.3 \times 102 = 30.6\ TU_a$$

$$WLA_{a,c} = WLA_a \times ACR = 30.6 \times 10 = 306\ TU_{a,c}$$

Calculate Long-term Averages (LTAs).

To calculate the long term average (LTA):

$$LTA = WLA \times e^{[0.5\sigma 2 - z\sigma]}$$

$$LTA_{a,c} = 306 \times 0.321 = 98.23\ TU \text{ where:}$$

0.321 is the acute WLA multiplier for Cv = 0.6 at the 99th percentile (from Table 5-1, pg. 102 of the TSD)

$$LTA_c = WLA_c \times e^{[0.5\sigma_4 2 - z\sigma_4]}$$

$$LTA_c = 102 \times 0.527 = 53.75 \text{ where:}$$

0.527 is the chronic WLA multiplier at the 99th percentile (from Table 5-1, pg. 102 of the TSD)

Select the minimum LTA.

The LTA based on the chronic WLA is more limiting and will be used to develop permit limits.

Limit Calculation:

Using the 95th percentile and monthly sampling, the effluent limit is calculated as:

LTA × $e^{[z\,\sigma_n - 0.5\,\sigma_n^2]}$ where $e^{[z\,\sigma_n - 0.5\,\sigma_n^2]}$ = AML LTA multiplier

z = 1.645 for the 95th percentile occurrence probability for the AML is recommended

n = number of samples/month (the TSD recommends that a minimum n of 4 be used, even if monitoring is less frequent).

From Table 5-2, on pg. 102 of the TSD, for CV = 0.6 and n=4,

AML = 53.75 × 1.55 = **83.32 TUc**

ATTACHMENT III

Ocean Discharge Criteria

Section 403(c) of the Clean Water Act (the Act) and the Ocean Discharge Criteria regulations at 40 CFR Part 125, Subpart M (45 FR 65942, October 3, 1980) provide that no permit for a discharge to the territorial sea, the contiguous zone, or the ocean may be issued except in compliance with the Ocean Discharge Criteria in section 403(c) of the Act. Since the combined wastewater discharges to the territorial sea (i.e., the Atlantic Ocean), compliance with Ocean Discharge Criteria has been evaluated as part of the permit renewal process.

Discharges from the combined outfall for the Bayamón and Puerto Nuevo RWWTPs and the Bacardi WWTP have been evaluated for impacts to the marine environment as part of the EPA's review of PRASA's applications for a section 301(h) modification from secondary treatment requirements for the Bayamón and Puerto Nuevo RWWTPs. Under 40 CFR 125.122(b), discharges in compliance with section 301(h) shall be presumed not to cause unreasonable degradation of the marine environment. The EPA has determined that the discharges from the combined outfall meet the requirements of section 301(h) and, therefore, has concluded that discharges from the combined outfall, including those from the Bayamon RWWTP, will not cause unreasonable degradation to the marine environment.