

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION II
290 Broadway - 24th Fl.
New York, New York 10007

FACT SHEET
FOR DRAFT NPDES PERMIT TO DISCHARGE
INTO THE WATERS OF THE UNITED STATES

NPDES Application No. PR0001660 Date:

Name of Preparer: Karen O'Brien, P.E.

Name and Address of Applicant:

Puerto Rico Electric Power Authority (PREPA)
P.O. Box 364267
San Juan, Puerto Rico 00936-4267

Name and Address of Facility Where Discharge Occurs:

Aguirre Power Plant Complex
State Road No. 3 Int. 705
Salinas, Puerto Rico

Receiving Waters : Bahía de Jobos

Classification: SB

I. LOCATION OF DISCHARGES

The above-named applicant has applied for a renewal of its National Pollutant Discharge Elimination System (NPDES) permit, to the U.S. Environmental Protection Agency (EPA) to discharge into the designated receiving water. The location of the discharges, outfalls 001, 002, 003, 004 and 005, are described by the following U.S.G.S. coordinates:

<u>Discharge</u>	<u>Latitude</u>	<u>Longitude</u>
001	17° 56' 06.20"	66° 13' 40.19"
002	17° 57' 04.75"	66° 13' 36.90"
003	17° 56' 57.55"	66° 13' 34.05"
004	17° 56' 46.86"	66° 14' 00.97"
005	17° 56' 57.91"	66° 13' 34.14"

A map showing the location of the facility is found in Attachment I.

II. DESCRIPTION OF FACILITY

The Aguirre Power Plant Complex (APPC) is owned and operated by Puerto Rico Electrical Power Authority (PREPA), and is located in the Municipality of Salinas, in the Aguirre Seco Ward on the southern coast of Puerto Rico. This activity has a Standard Industrial Classification (SIC) Code of 4911, Electric Services. The Thermo-Electric plant was built in the early 1970s, and consists of two twenty (20) megawatt (MW) oil-fired turbine generators, and two oil-fired four hundred and fifty (450) MW steam-electric units. The Combined Cycle plant includes two three hundred (300) MW combined cycle oil-fired units built in 1975. The Aguirre Power Plant Complex has a total electrical output rating of 1,540 MW.

APPC withdraws approximately 652.0 million gallons per day (MGD) of seawater from the Bahía de Jobos (Jobos Bay), which is the second largest estuary in Puerto Rico, and is designated by the National Oceanic and Atmospheric Administration (NOAA) as a National Estuarine Research Reserve. Cooling water, process wastewater, and stormwater are discharged to Jobos Bay via five separate outfalls. The total length of Jobos Bay, from the eastern tip of Cayos Ratones to the eastern-most part at Puerto Jobos, is approximately 7 nautical miles. The widest area is 2.2 nautical miles from Central Aguirre to Boca del Infierno. Jobos Bay contains three times more coastline (37 mi) than any other estuary in Puerto Rico due to an extensive mangrove fringe with many channels, islets and coastal lagoons. The bay is formed by Punta Pozuelo, protruding from the east, and a series of islands (cays) on the south (Cayos Caribes) and southwesterly sides (Cayos de Barca). Water depths range from 2 to 20 feet throughout most of the bay. A maximum depth of 27 feet is maintained in the dredged ship channel with naturally occurring depths of 28-34 feet in the western bay. The receiving body of water is classified SC by the Environmental Quality Board (EQB) of the Commonwealth of Puerto Rico.

The intake structure consists of five intake channels with five bar screens, five dual flow traveling screens and five intake pumps. The heated discharge from Units 1 & 2 flows first to an open 1,775 ft long discharge canal at the end of which water is pumped through a 13-ft diameter 5,800-ft long pipe to a discharge outlet located southwest of the intake in Jobos Bay. Waste heat from the two 300 MW combined cycle units is dissipated to the air using a closed cycle cooling system employing mechanical draft cooling towers. The open discharge canal serves as both the source of cooling tower makeup water (5,800 gpm) and the discharge location of cooling tower blowdown (2,400 gpm).

III. STATE CERTIFICATION REQUIREMENTS

State certification requirements by the Environmental Quality Board (EQB) of the Commonwealth of Puerto Rico were based upon an Intent to Issue a Water Quality Certificate (draft WQC) issued on February 16, 2010. These requirements are included as Attachment II. Review and appeals of limitations and conditions attributable to this certification shall be made through the applicable procedures of the Commonwealth of Puerto Rico and may not be through EPA procedures.

IV. DESCRIPTION OF LIMITATIONS AND CONDITIONS

A brief summary of the basis of each effluent limitation, and other conditions in the draft permit is provided in Attachment III.

V. CLEAN WATER ACT SECTION 316(b) REQUIREMENTS

The Aguirre Power Plant Complex includes a cooling water intake structure governed by Section 316(b) of the Clean Water Act, which requires that the location, design, construction and capacity of the cooling water intake structures reflect the "best technology available for minimizing adverse environmental impact" (BTA). In 2004, EPA promulgated regulations implementing 316(b) requirements for existing facilities which discharge greater than 50 million gallons per day (MGD) (Phase II facilities). On January 25, 2007, the U.S. Circuit Court of Appeals for the District of Columbia remanded several provisions of the Phase II rule on various grounds. On March 20, 2007, EPA Headquarters issued a memorandum stating that the rule should be considered suspended. In the absence of a final Phase II Rule, the Clean Water Act 316(b) requirement shall be implemented based on the best professional judgement (BPJ) of the permit writer. A discussion of the 316(b) requirements for the Aguirre facility are included as Attachment IV.

VI. ENVIRONMENTAL JUSTICE ANALYSIS

The US Environmental Protection Agency (EPA), Region II, has performed an Environmental Justice (EJ) analysis in accordance with the President's Executive Order 12898 "Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations" and following EPA Region II Policy. This analysis is included as Attachment V.

VII. OCEAN DISCHARGE CRITERIA

Under Section 403(c) of the Clean Water Act, Ocean Discharge Criteria regulations (45 FR 65942, October 3, 1980, modified at 40 CFR Part 125, Subpart M), 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.

The applicant had submitted a study in July 2005 demonstrating the existence of a balanced, indigenous population of shellfish, fish, and wildlife in and on the receiving water. Based on results of the demonstration submitted by PREPA and information available in other studies, EPA has determined that sufficient information is available to establish that the proposed discharge will not cause unreasonable degradation to the marine environment.

VIII. ENDANGERED SPECIES ACT REQUIREMENTS

A portion of Jobos Bay is designated as a National Estuarine Research Reserve by the National Oceanic and Atmospheric Administration (NOAA). The Reserve is home to the endangered brown pelican, peregrine falcon, hawksbill sea turtle and West Indian manatee. EPA is currently engaged in consultation

with the National Marine Fisheries Service (NMFS) of NOAA and the U.S. Fish and Wildlife Service (FWS) under section 7 of the Endangered Species Act regarding this NPDES permit action. While EPA is reissuing the permit at this time, EPA may decide that changes to the permit are warranted based on the results of the consultation when it is completed. A reopener provision to this effect has, therefore, been included in the permit.

IX. ESSENTIAL FISH HABITAT REQUIREMENTS

As mentioned above, a portion of Jobos Bay is designated as a National Estuarine Research Reserve by NOAA. Pursuant to Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act, Federal agencies must coordinate with NMFS regarding any of their actions authorized, funded or undertaken that may adversely affect Essential Fish Habitat or species (EFH). EPA is currently coordinating with NMFS for this facility. While EPA is reissuing the permit at this time, EPA may decide that changes to the permit are warranted based EFH on discussions with NMFS. A reopener provision to this effect has, therefore, been included in the permit.

X. PROCEDURES FOR REACHING A FINAL DECISION ON THE DRAFT PERMIT

These procedures, which are set forth in 40 CFR 124, are described in the public notice of preparation of this 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.

XI. EPA CONTACT

Additional information concerning the draft Permit may be obtained between the hours of 8:00 A.M. and 4:30 P.M., Monday through Friday from:

Jeff Gratz, Chief
Clean Water Regulatory Branch
U. S. Environmental Protection Agency
290 Broadway - 24th Floor
New York, New York 10007
(212) 637-3783

Carl-Axel Soderberg, Director
U.S. Environmental Protection Agency
Caribbean Environmental Protection Division
EDIF Centro Europa Apt 417
1492 Avenida Ponce De Leon
San Juan, Puerto Rico 00907-4127
(787) 729-6951

ATTACHMENT II
DRAFT WATER QUALITY CERTIFICATE

RETURN RECEIPT REQUESTED

February 16, 2010

Eng. Jaime A. Plaza Velázquez
Chief
Environmental Protection and
Quality Assurance Division
Puerto Rico Electric Power Authority
P. O. Box 364267
San Juan, Puerto Rico 00936-4267

Dear engineer Plaza:

**RE: INTENT TO ISSUE A WATER QUALITY CERTIFICATE
PUERTO RICO ENERGY POWER AUTHORITY
AGUIRRE POWER COMPLEX
STATE ROAD NO. 3 INT. 705
SALINAS, PUERTO RICO
NPDES NO. PR0001660**

We have received and reviewed the application for a permit under Section 402, National Pollutant Discharge Elimination System (NPDES), of the Federal Clean Water Act, as amended (33 U.S.C. 466 *et seq.*) (the Act) for the discharge of the referenced facility. Also, we have received and evaluated a request for a Water Quality Certificate (WQC), submitted by the Puerto Rico Electric Power Authority (PREPA) in letter dated January 24, 2008, pursuant to Section 6.11 of the Puerto Rico Water Quality Standards Regulation (PRWQSR), as amended. In such letter, PREPA requested a mixing zone definition and authorization, for the discharge 001 of the Aguire Power Complex, pursuant to Article 5 of the PRWQSR. . For the discharges 002, 003, 004 and 005, PREPA requested water quality standards at the end of the pipe as effluent limitations in the WQC.

Therefore, the Environmental Quality Board (EQB) prepared the draft WQC, after due consideration of the applicable provisions established in the PRWQSR and in Sections 208(e), 301, 302, 303, 304 (e), 306 and 307 of the Act, with water quality based effluent limitations. Copy of the draft WQC, Public Notice and Preliminary Determinations are enclosed.

The EQB will publish the notice in a newspaper of wide circulation in Puerto Rico informing the Board's intention to issue the WQC requested pursuant to the Act. The cost of the

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publication of such notice shall be paid by the petitioner of the corresponding permit that requires the WQC as indicated in Section 6.11(2) of the PRWQSR. This Board will notify the petitioner, fifteen (15) days prior to the publishing date of the notice, of the requirement to pay for the publication of said notice in order to allow time for the payment of the publication. If the petitioner of the permit subject to the WQC does not pay the publication of the notice as required under Section 6.11(2) of the PRWQSR, the notice will not be published and the WQC will be denied. The petitioner should contact Mr. Luis A. Ocasio, Press Special Assistant of EQB at (787) 767-8181 extension 6140, to coordinate the publication of said public notice.

The EQB intends to define and authorize a mixing zone for the discharge 001 of the referenced facility, and certify, pursuant to the PRWQSR, that there is a reasonable assurance that the allowed discharges will not cause violations to the applicable water quality standards at the receiving water body, if the limitations and monitoring requirements in Tables A-1, A-2, A-3, A-4, A-5, A-6 and A-7 of the enclosed draft WQC are met. The conditions specified in the aforementioned tables shall be incorporated into the NPDES permit in order to satisfy the provisions of Section 301 (b) (1) (C) of the Act.

This Board reserves the right to comment at a later date concerning other environmental aspects of the discharge.

Cordially,

Roberto Ayala Prado
Director
Water Quality Area

LDS/dcc

c: Mr. Walter E. Andrews, EPA-Region II
Eng. Carl-Axel P. Soderberg, EPA-CEPD

**PRELIMINARY DETERMINATIONS FOR A WATER QUALITY
CERTIFICATE, DEFINE AND AUTHORIZE A MIXING ZONE**

NPDES NO. PR0001660

The Environmental Quality Board (EQB) has received a request from the the Puerto Rico Electric Power Authority (PREPA)(PO Box 364267, San Juan, Puerto Rico 00936-4267) to obtain a Water Quality Certificate (WQC) and an application for a mixing zone definition and authorization, pursuant to Article 5 of the Puerto Rico Water Quality Standards Regulation (PRWQSR) as amended, for the discharge 001 of wastewaters coming from the Aguirre Power Complex, located at State Road No. 3 Int. 705, Salinas, Puerto Rico (P.O. Box 364267, San Juan, Puerto Rico 00936-4267). For the discharges 002, 003, 004 and 005, PREPA requested water quality standards at the end of the pipe as effluent limitations. Also, PREPA have requested from the Environmental Protection Agency (EPA) a permit under the National Pollutant Discharge Elimination System (NPDES) for the referred discharge.

The applicant, PREPA, proposes to discharge wastewaters to Bahía de Jobos, consisting of the following:

<i><u>Discharge Serial Number</u></i>	<i><u>Discharge Description</u></i>	<i><u>Discharge Maximum Flow</u></i>
001	<ul style="list-style-type: none"> ▪ Thermoelectric Plant Condensers Cooling Water ▪ Thermoelectric Plant Service Water Cooling Towers Blowdown ▪ Combined Cycle Plant Sea Water Cooling Towers Make Up and Blowdown ▪ Aguirre Power Complex; Equipment Hydrostatic Test Waters ▪ Condenser Screen Washwaters ▪ Stormwater 	2.47 x 10 ⁶ m ³ /day (652.0 MGD)
002	<ul style="list-style-type: none"> ▪ Condensate of the Fuel Heaters ▪ Floor and Equipment Drains ▪ Miscellaneous Use Water ▪ Stormwater Runoff 	946.35 m ³ /day (0.25 MGD)

Preliminary Determinations for a
 Water Quality Certificate, Define and Authorize a
 Mixing Zone and Approve a Compliance Plan
 NPDES No. PR0001660
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<u><i>Discharge Serial Number</i></u>	<u><i>Discharge Description</i></u>	<u><i>Discharge Maximum Flow</i></u>
003	<ul style="list-style-type: none"> ▪ Wastewater Treatment Plant Effluent ▪ Stormwater Runoff ▪ Condenser Screen Washwater 	6,245.93 m ³ /day (1.65 MGD)
004	<ul style="list-style-type: none"> ▪ Combined Cycle Plant Service Water Cooling Towers Blowdown ▪ Combined Cycle Plant Miscellaneous Use Water ▪ Stormwater from the Fuel Tanks Dikes ▪ Stormwater Runoff ▪ Groundwater ▪ Combined Cycle Equipment Hydrostatic Test Waters 	151.42 m ³ /day (0.04 MGD)
005	<ul style="list-style-type: none"> ▪ Stormwater Runoff 	N/A

The receiving body of water, Bahía de Jobos, is classified as SB by the Puerto Rico Water Quality Standards Regulation (PRWQSR), as amended.

After the corresponding evaluation of the application for the NPDES permit, the mixing zone application, other available information, and the applicable provisions established in the PRWQSR and in Sections 208(e), 301, 302, 303, 304(e), 306 and 307 of the Federal Clean Water Act as amended (33 U.S.C. 466 *et seq.*) (the Act); the EQB intends to issue a WQC, and define and authorize a mixing zone for discharge 001 subject to compliance with all the conditions specified in Tables A-1, A-2, A-3, A-4, A-5, A-6 and A-7. In this manner, EQB intends to certify that there is a reasonable assurance that the allowed discharges will not cause violations to the applicable water quality standards at the receiving water body.

The conditions specified in the aforementioned tables shall be incorporated into the applicable NPDES permit in order to satisfy the provisions of Section 301 (b) (1) (C) of the Act.

SPECIAL CONDITIONS

NPDES No. PR0001660

These special conditions are an integral part of the Water Quality Certificate (WQC) and shall be incorporated into the NPDES permit in order to satisfy the provisions of Section 301 (b) (1) (C) of the Federal Clean Water Act (CWA) as amended (33 U.S.C. 466 *et seq.*):

1. The flow of discharge 001, 002, 003 and 004 shall not exceed the limitation of 2.47×10^6 m³/day (652.0 MGD), 946.35 m³/day (0.25 MGD), 6,245.93 m³/day (1.65 MGD) and 151.42 m³/day (0.04 MGD) as daily maximum, respectively. No increase in flow of the aforementioned discharges shall be authorized without a recertification from the Puerto Rico Environmental Quality Board (EQB). ^{1,4,6}
2. The discharge 005 will only consist of waters composed entirely of storm water. ⁴
3. No toxic substances shall be discharged, in toxic concentrations, other than those allowed as specified in the NPDES permit. Those toxic substances included in the Permit Renewal Application, but not regulated by the permit, shall not exceed those concentrations as specified in the applicable regulatory limitations. ^{1,2}
4. Within thirty (30) days after the Effective Date of the NPDES Permit (EDP), the permittee shall submit, for EPA approval, a modified method to analyze Free Cyanide with a detection level lower than the applicable water quality standard (1.0 µg/L). No later than sixty (60) days after the EPA approval of such method, the permittee should take Free Cyanide samples at the sampling points for discharges 003 and 004, according to the requirements of Tables A-3 and A-4. ⁴
5. The waters of Puerto Rico shall not contain any substance attributable to discharge 001, 002, 003, 004 and 005 at such concentration which, either alone or as a result of synergistic effect with other substances, is toxic or produces undesirable physiological responses in human, fish or other fauna or flora. ²
6. All sample collection, preservation, and analysis shall be carried out in accordance with the Title 40 of the Code of Federal Regulations (40 CFR) Part 136. A licensed chemist authorized to practice the profession in Puerto Rico shall certify all chemical analyses. All bacteriological tests shall be certified by a microbiologist or a medical technician licensed to practice the profession in Puerto Rico. ^{1,3}
7. The solid wastes (sludge, screenings and grit) generated due to the treatment system operation shall be:
 - a. Disposed in compliance with the applicable requirements established in the 40 CFR Part 257. A semiannual report shall be submitted to EQB and EPA

notifying the methods used to dispose the solid wastes generated in the facility. Also, copy of the approval or permit applicable to the disposal method used shall be submitted, if any.

- b. Transported adequately in such way that access is not gained to any body of water or soil. In the event of a spill of solid waste on land or into a body of water, the permittee shall notify the Point Sources Permits Division of the EQB's Water Quality Area in the following manner:
 - 1) By telephone communication within a term no longer than twenty four (24) hours after the spill (787-767-8073).
 - 2) By letter, within a term no longer than five (5) days after the spill.

These notifications shall include the following information:

- a) Spill material
- b) Spill volume
- c) Measures taken to prevent the spill material to gain access to any body of water.

This special condition does not relieve the permittee from its responsibility to obtain the corresponding permits from the EQB's Solid Wastes Program and other state and federal agencies, if any. ^{4,7}

8. A log book should be kept for the material removed from the treatment system, such as sludge, screenings and grit, detailing the following items:
 - a. Removed material, date and source of it.
 - b. Approximate volume and weight.
 - c. Method by which it is removed and transported.
 - d. Final disposal and location.
 - e. Person that offers the service.

A copy of the Non-Hazardous Solid Wastes Collection and Transportation Service Permit issued by the authorized official from the EQB should be attached to the log book. ³

9. The sludge produced within the facility due to the operation of the treatment system shall be analyzed and all constituents shall be identified as required by “Standards for the Use or Disposal of Sewage Sludge” (40 CFR, Part 503). The sludge shall be disposed properly in such manner that water pollution or other adverse effects to surface waters or to ground water do not occur. ^{4,7}
10. No changes in the design or capacity of the treatment system will be permitted without the previous authorization of EQB. ⁶
11. Prior to the construction of any additional treatment system or prior to the modification of the existing one, the permittee shall obtain the approval of the engineering report, plans and specifications from EQB. ⁶
12. The permittee shall install, maintain and operate all water pollution control equipment in such manner as to be in compliance with the applicable Rules and Regulations. ^{1,4}
13. The discharges 001, 002, 003, 004 and 005 shall not cause the presence of oil sheen in the receiving water body. ²
14. The rain gauge installed in the facility shall be properly maintained. Maintenance records of the rain gauge must be kept. In case of the modification, repair or replacement of such measuring device, it shall be calibrated again if it is necessary. ^{3,4}
15. The permittee should keep daily records of rain, indicating the date, reading of the rain gauge and duration for such events during normal business hours of the facility. Copy of these records shall be submitted monthly to EQB. ³
16. BEST MANAGEMENT PRACTICES PLAN (BMP PLAN) ⁴
 - A. A copy of the most recent version of the approved BMP Plan shall be maintained at the facility and shall be available upon request.
 - B. The BMP Plan shall be reviewed each five year and modified if necessary. A certification that the BMP Plan was reviewed shall be submitted not later than ninety (90) days after the EDP.
 - C. Whenever changes occur at the facility that materially increase the potential for releases of pollutants or when situations occur that reflect that the plan is inadequate, the BMP Plan shall be modified to include preventive measurements in order to address those situations.

- D. If a modification of the BMP Plan is necessary, the permittee shall submit the modified BMP Plan to EQB for review and approval within ninety (90) days from the date when the Plan was revised or changes in the facility occurred. The modified BMP Plan shall be implemented within ninety (90) days after the EQB has approved the modified BMP Plan.
17. The permittee shall comply at all times with the provisions, measures or practices included in the most recent version of the BMP Plan (Special Condition 16) approved by EQB. ⁴
18. WHEN FLOW OCCURS (WFO) ⁴

WFO - For our purposes means when flow occurs during normal business hours of the facility, but not more often than one rainfall sampling per month.

A. First Half of Month

During the first fifteen (15) days of the month, sampling shall be as follows: A minimum period of 48 hours without measurable precipitation (measurable precipitation being rainfall greater than 0.1 inch) shall precede the storm event to be sampled. For parameters, which require grab samples, the sample shall be taken during the first thirty (30) minutes of entirely storm water discharge.

B. Second Half of Month

In the event that the permittee is unable to satisfy the above condition during the first fifteen (15) days of the month, beginning on the sixteenth (16th) day of the month, the permittee shall sample any entirely storm water discharge which occurs during normal business hours of the facility.

C. General Requirements

The permittee must report in a cover letter attached to each Discharge Monitoring Report (DMR), details of the conditions under which the entirely storm water samples were taken and the date of sampling.

Alternatively, if no samples are taken during the month, the permittee will be considered to have met its sampling requirement if the permittee certifies that it was not possible to meet the specified sampling protocol during the first fifteen

(15) days of the month and that there was no appreciable discharge of storm water during normal business hours from the sixteenth (16th) day of the month to the last day of the month.

19. The storm water discharges associated with industrial activities covered by this WQC will not cause violations to the applicable water quality standards at the receiving water body. ³
20. The flow measurement devices for the discharges 001, 002, 003, 004 and 005 shall be periodically calibrated and properly maintained. Calibration and maintenance records must be kept in compliance with the applicable Rules and Regulations. ^{4,6}
21. The sampling points for discharges 001, 002, 003, 004 and 005 shall be located immediately after the primary flow measuring devices of the effluents.
22. The sampling points for discharges 001, 002, 003, 004 and 005 shall be labeled with a 18 inches x 12 inches (minimum dimensions) sign that reads as follows:

"PUNTO DE MUESTREO PARA LA DESCARGA 001"
"PUNTO DE MUESTREO PARA LA DESCARGA 002"
"PUNTO DE MUESTREO PARA LA DESCARGA 003"
"PUNTO DE MUESTREO PARA LA DESCARGA 004"
"PUNTO DE MUESTREO PARA LA DESCARGA 005"
23. All water or wastewater treatment facility, whether publicly or privately owned, must be operated by a person licensed by the Potable Water and Wastewaters Treatment Plants Operators Examining Board of the Commonwealth of Puerto Rico. ⁴
24. The EQB has defined and authorized an Interim Mixing Zone (IMZ) pursuant to Article 5 of the Puerto Rico Water Quality Standards Regulation (PRWQSR), as amended. ³
 - a. The IMZ is delineated by the following points (See Diagram I):

Geographic Coordinates

Point 1

Lat. 17° 56' 5.02"
Long. 66° 13' 38.08"

Geographic Coordinates

Point 2	Lat. 17° 56' 4.16" Long. 66° 13' 41.38"
Point 3	Lat. 17° 56' 7.37" Long. 66° 13' 42.29"
Point 4	Lat. 17° 56' 8.23" Long. 66° 13' 38.99"

The submerged outfall has a length of five thousand eight hundred (5,800) feet long and a diameter of thirteen (13) feet. The diffuser has one port at the end that is a ten (10) feet restrictor.

- b. The interim mixing zone sampling stations shall be located at the four (4) points described in Part "a" of this special condition.
- c. The background sampling station shall be located one hundred (100) meters from Point 1 or Point 2 of the mixing zone, depending of the current direction at the time of sampling. The petitioner shall determine and submit to EQB the geographic coordinates of both background stations.
- d. The permittee shall maintain records of the equipment used to situate at the mixing zone boundaries. Such records shall include the date when the equipment was obtained or leased, calibration date, serial number, model, etc.

To identify the location of the sampling points of the mixing zone and the background, the permittee shall use the procedure established in the EPA-QA/QC for 301(h) Cocument (Table D-1 Example ZID Boundary Stations Locations).

If the permittee determines to use another method to identify the sampling points of the mixing zone, the permittee shall, prior to the utilization of such method, obtain written approval from EQB.

- e. The IMZ is defined for the following parameter:

<u>Parameter</u>	<u>Daily Maximum Discharge Limitation at Outfall Serial Number 001</u>	<u>Daily Maximum Limitation at the Edge of the IMZ</u>
Temperature (°C)	38.5	32.2
f.	Monitoring samples for this parameter shall be taken at the sampling point 001, the background monitoring station and at the sampling points of the IMZ. The discharge shall comply with the water quality standards at sampling point 001, for all the other substances.	
g.	The monitoring samples at the four (4) stations in the boundaries of the IMZ and the background monitoring station shall be taken at three (3) depths in each station: 10%, 50%, 90% of the depth.	
h.	Solids from wastewater sources shall not cause deposition in, or be deleterious to the existing or designated uses of the waters.	
i.	The discharge shall not cause the growth or propagation of organisms that negatively disturb the ecological equilibrium in the areas adjacent to the mixing zone.	
j.	The mixing zone shall be free of debris, scum, floating oil and any other substance that produce objectionable odors.	
k.	The permittee shall maintain in good operating conditions the discharge system [discharge outfall (land and submarine), diffuser, ports, etc.]. At least once a year, the discharge system shall be inspected to determine if some repairs, replacing, etc., on the discharge system is required. A report of such inspections shall be submitted to EPA and EQB not later than sixty (60) days after the performance of the inspection.	
l.	The EQB can require that the permittee conduct bioaccumulation studies, dye studies, water quality studies or any other pertinent studies. If the EQB require one or more of the aforementioned studies, the permittee will be notified to conduct such study(ies). One hundred and twenty (120) days after the notification of the EQB, the permittee shall submit, for evaluation and approval of the EQB, a protocol to conduct such study(ies). Sixty (60) days after the EQB approval, the permittee shall initiate such study(ies). Ninety (90) days after	

conducting such study(ies), the permittee shall submit a report that includes the results of such study(ies).

- m. The permittee shall implement a one year monitoring program to obtain the necessary data to validate the IMZ. The monitoring program shall consist of the sampling of the parameters included in Part “e” of this special condition to verify compliance with the applicable provisions of the PRWQSR and a dye study to validate the mathematical model used to determine the critical initial dilution and verify the behavior of the plume within the mixing zone. The monitoring program shall be conducted as follows:
 - 1. The permittee shall conduct four (4) sampling events at the four (4) stations at the boundaries of the IMZ, at the background sampling station and at the sampling point of discharge 001, during two seasons (summer and winter). Two sampling events shall be conducted during each season.
 - 2. The dye study shall be conducted twice, one event during each season, the same time as one of the sampling events of the season.
- n. The monitoring program shall commence ninety (90) days after the written approval of the corresponding Protocol and Quality Assurance Project Plan (QAPP). Such Protocol and QAPP shall be submitted to EQB ninety (90) days after the EDP.
- o. If the mathematical model is validated as established in the applicable provisions of the PRWQSR and in the Mixing Zone and Bioassays Guidelines, a final mixing zone authorization will be issued by EQB. Nevertheless, if the mathematical model is not validated, the EQB may revoke the IMZ authorization in accordance with Article 5.14 of the PRWQSR. In such case, the permittee must submit a compliance plan according to Article 5.16 of the PRWQSR.
- p. The EQB can allow that the permittee use alternative methods for the mixing zone validation if such methods comply with the applicable federal and state regulations or when new technology is developed that produce results technically and environmentally more reliable than those produced by the methods described in this special condition.

- q. The EQB will determine if the effluent limitations will be final or if it is necessary to reopen the WQC to modify (increase or decrease) the effluent limitation for the aforementioned parameter after the revision of the results obtained in the studies required in this special condition.
 - r. The authorization for the mixing zone will not be transferable and does not convey any property rights of any sort or any exclusive privileges, nor it authorizes any injury to persons or property or invasion of other private rights, or any infringement of Federal or State laws or regulations.
25. The permittee shall conduct quarterly definitive acute and chronic toxicity tests using the organisms Mysidopsis bahia, Cyprinodon variegatus and Arbacia punctulata for the wastewater discharges identified as 001, 002, 003 and 004.
- a. Thirty (30) days from the EDP, the permittee shall submit, for evaluation and approval by EQB, a protocol to conduct such toxicity tests.

Such protocol shall include, but will not be limited to:

- 1. An identification of the organizations responsible for conducting the tests, including a full description of the laboratory capabilities and personnel expertise and the species to be tested.
 - 2. A detailed description of the methodology to be utilized in the conduct of the tests, including equipment, sample collection, dilution water and source of test organisms.
 - 3. A schematic diagram which depicts the effluent sampling location in relation to the wastewater treatment facility and discharge point 001.
- b. The toxicity tests shall be conducted quarterly beginning not later than one hundred eighty (180) days from the EDP, for a one (1) year period, after which the tests will be conducted annually.
 - c. The toxicity tests shall be conducted according to the most recent editions of the following publications of the EPA:
 - 1. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (EPA-821-R-02-012), Fifth Edition,

October 2002, or the most recent edition of this publication, if such edition is available.

2. Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms (EPA-821-R-02-013), Fourth Edition, October 2002, or the most recent edition of this publication, if such edition is available.

- d. The procedures, methods, techniques, conditions, etc., included in the above mentioned publications shall be followed at all times. If the permittee determines to use other procedures, methods, etc., because the permittee understands that:

1. by the nature or conditions of this case is impossible to follow such publications;
2. other procedures, methods, etc., are adequate,

then, the permittee shall, prior to the utilization of other procedures, methods, etc., obtain the written approval from the EPA and EQB.

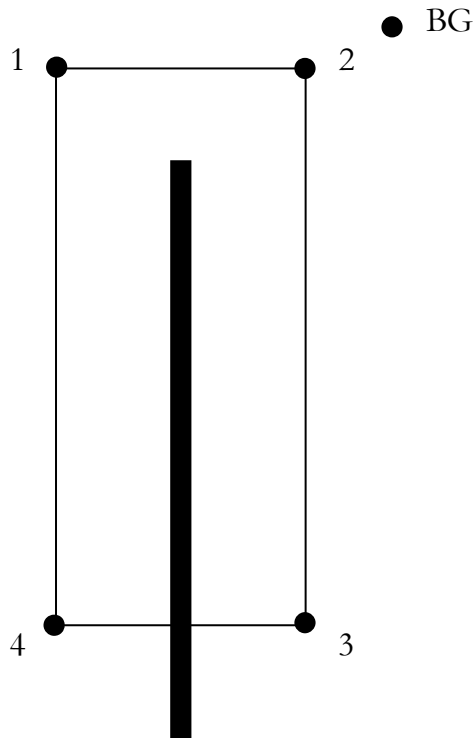
- e. The effluent samples for the toxicity tests shall be used in or before 36 hours after being collected.
 - f. A report on the toxicity tests conducted shall be submitted to the EQB, during the sixty (60) days period after the tests were conducted. This report shall be prepared according to the aforementioned publications of EPA.
 - g. Based on the review of the test results, the EQB can require additional toxicity tests, including toxicity/treatability studies and can revoke the interim or final mixing zone authorization according with Section 5.14 of the PRWQSR.
26. The permittee shall comply with all the applicable provisions established in the amendment of the Puerto Rico Water Quality Standards Regulation immediately upon the date of effectiveness of such amendment, unless the permittee requests and obtains a Compliance Plan in accordance with the applicable Rules and Regulations. ⁵

27. The conditions of this WQC are considered as separate. Therefore, if the applicability of any condition of this WQC is stayed due to any circumstance, the remaining conditions of this WQC will not be affected. ⁶
28. The EQB, by the issuance of the WQC, does not relieve the applicant from its responsibility to obtain additional permits or authorizations from the EQB as required by law. The issuance of the WQC shall not be construed as an authorization to conduct activities not specifically covered in the WQC, which will cause water pollution as defined by the PRWQSR. ⁶

For 1, 2, 3, 4, 5, 6, 7 and 8 see page 13

DIAGRAM-I

Aguirre Power Complex Mixing Zone



Geographic Coordinates

Point 1	Lat. 17° 56' 5.02" Long. 66° 13' 38.08"
Point 2	Lat. 17° 56' 4.16" Long. 66° 13' 41.38"
Point 3	Lat. 17° 56' 7.37" Long. 66° 13' 42.29"
Point 4	Lat. 17° 56' 8.23" Long. 66° 13' 38.99"

1. According to Article 1, Puerto Rico Water Quality Standards Regulation as Amended.
2. According to Article 3, Puerto Rico Water Quality Standards Regulation as Amended.
3. According to Article 5, Puerto Rico Water Quality Standards Regulation as Amended.
4. According to Article 6, Puerto Rico Water Quality Standards Regulation as Amended.
5. According to Article 8, Puerto Rico Water Quality Standards Regulation as Amended.
6. According to the Environmental Public Policy Act of September 22, 2004, Act No. 416, effective since March 22, 2005.
7. According to the Section 405 (d)(4) of the Federal Clean Water Act as Amended (33 U.S.C. 466 *et seq.*).
8. According to the Code of Federal Regulation Number 40 (40 CFR), Part 131.40, as amended (Federal Register/Volume 69, No. 16/Monday, January 26, 2004).

TABLE A-1 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

NPDES NO. PR0001660

During the period beginning on the EDP and lasting through the EDP + 5 years, the permittee is authorized to discharge from outfall serial number 001 Thermoelectric Plant condensers cooling water, Thermoelectric Plant service water cooling towers blowdown, Combined Cycle Plant sea water cooling towers make up and blowdown, Thermoelectric Plant tanks and condensers hydrostatic test waters, condensers screen washwater and stormwater. Such discharge shall be limited and monitored by the permittee as specified below:

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
BOD ₅ (mg/L) ^{1,2,3}	30.0		Monthly	Composite
Color (Pt-Co Units) β ^{2,3}	Shall not be altered except by natural causes.		Monthly	Grab
Dissolved Oxygen (mg/L) ^{1,2,3}	Shall not contain less than 5.0.		Daily	Grab
Flow m ³ /day (MGD) ^{3,4}		2.47 x 10 ⁶ (652.0)*	Daily	Estimate
Oil and Grease (mg/L) ^{2,3}	The waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oils and greases.		Monthly	Grab
pH (SU) ^{2,3}	Shall always lie between 7.3 and 8.5.		Daily	Grab
Solids and Other Matter ^{2,3}	The waters of Puerto Rico shall not contain floating debris, scum or other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the water body.		----	----

TABLE A-1 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

NPDES NO. PR0001660

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
Suspended, Colloidal or Settleable Solids (mL/L) ^{1,2,3}	Solids from wastewater source shall not cause deposition in or be deleterious to the existing or designated uses of the waters.		Daily	Grab
Taste and Odor Producing Substances ^{2,3}	Shall not be present in amounts that will interfere with the primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		----	----
Temperature °F (°C) ^{2,3}	101.30 (38.5)		Daily	Grab
Special Conditions	See attached sheet, which contains special conditions that constitute part of this certification.		----	----

Notes:

To comply with the monitoring requirements specified above, samples shall be taken at point of discharge 001. All flow measurements shall achieve accuracy within the range $\pm 10\%$.

* The daily maximum flow limitation does not consider the stormwater discharged through discharge point 001.

β Color shall be monitored at the effluent and the receiving water body.

1, 2, 3 and 4 see page 13 of the Special Conditions.

**TABLE A-2 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS
AT THE EDGE OF THE MIXING ZONE**

NPDES NO. PR0001660

During the period beginning on EDP + 4 months and lasting through EDP + 16 months, the permittee shall perform monitoring at the mixing zone monitoring stations as specified below:

Receiving Waters Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	Gross Discharge Limitations ^α		Monitoring Requirements	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
Temperature °F (°C) ^{2,3,4}		90°F (32.2°C)	λ	Grab

Notes:

α See Special Condition 24.

λ See Special Condition 24.m.

2, 3 and 4 see page 13 of Special Conditions

TABLE A-3

**MONITORING REQUIREMENTS AT THE
BACKGROUND SAMPLING STATION**

NPDES NO. PR0001660

During the period beginning on EDP + 4 months and lasting through EDP + 16 months, the permittee shall perform monitoring at the background sampling station as specified below:

Receiving Waters Name and Classification: Bahía de Jobos, SB

Effluent Characteristics

Monitoring Requirements	
Measurements Frequency	Sample Type
λ	Grab

Temperature °F (°C) ^{2,3,4}

Notes:

λ See Special Condition 24.m.

1, 2, 3 and 4 see page 13 of Special Condition

TABLE A-4 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

NPDES NO. PR0001660

During the period beginning on the EDP and lasting through the EDP + 5 years, the permittee is authorized to discharge from outfall serial number 002 condensate of the fuel heaters, floor and equipment drains, miscellaneous use water and storm water runoff. Such discharge shall be limited and monitored by the permittee as specified below:

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
BOD ₅ (mg/L) ^{1,2,3}	30.0		Monthly	Composite
Color (Pt-Co Units) β ^{2,3}	Shall not be altered except by natural causes.		Monthly	Grab
Dissolved Oxygen (mg/L) ^{1,2,3}	Shall not contain less than 5.0.		Daily	Grab
Flow m ³ /day (MGD) ^{3,4}		946.35 (0.25)*	Continuous Recording	
Oil and Grease (mg/L) ^{2,3}	The waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oils and greases.		Monthly	Grab
pH (SU) ^{2,3}	Shall always lie between 7.3 and 8.5.		Daily	Grab
Solids and Other Matter ^{2,3}	The waters of Puerto Rico shall not contain floating debris, scum or other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the water body.		----	----

TABLE A-4 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

NPDES NO. PR0001660

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
Suspended, Colloidal or Settleable Solids (mL/L) ^{1,2,3}	Solids from wastewater source shall not cause deposition in or be deleterious to the existing or designated uses of the waters.		Daily	Grab
Taste and Odor Producing Substances ^{2,3}	Shall not be present in amounts that will interfere with the use of primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		----	----
Temperature °F (°C) ^{2,3}	Except by natural causes, no heat may be added to the waters of Puerto Rico, which would cause the temperature of any site to exceed 90°F (32.2°C).		Daily	Grab
Total Suspended Solids (mg/L) ³			Monthly	Grab
Turbidity (NTU) ^{2,3}			Monthly	Grab
Special Conditions	See attached sheet, which contains special conditions that constitute part of this certification.		----	----

TABLE A-4 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

NPDES NO. PR0001660

Receiving Water Name and Classification: Bahía de Jobos, SB

Notes:

To comply with the monitoring requirements specified above, samples shall be taken at point of discharge 002.
All flow measurements shall achieve accuracy within the range $\pm 10\%$.

* The daily maximum flow limitation does not consider the stormwater discharged through discharge point 002.

β Color shall be monitored at the effluent and the receiving water body.

1, 2, 3 and 4 see page 13 of the Special Conditions.

TABLE A-5 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

NPDES NO. PR0001660

During the period beginning on the EDP and lasting through the EDP + 5 years, the permittee is authorized to discharge from outfall serial number 003 wastewater treatment plant effluent, storm water runoff and condenser screen washwater. Such discharge shall be limited and monitored by the permittee as specified below:

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
BOD ₅ (mg/L) ^{1,2,3}	30.0		Monthly	Composite
Color (Pt-Co Units) ^{β 2,3}	Shall not be altered except by natural causes.		Monthly	Grab
Cyanide, Free (CN) (μg/L) ^{ε 2,3}		----	φ	Grab
Dissolved Oxygen (mg/L) ^{1,2,3}	Shall not contain less than 5.0.		Daily	Grab
Flow m ³ /day (MGD) ^{3,4}		6,245.93 (1.65)*	Continuous Recording	
Oil and Grease (mg/L) ^{2,3}	The waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oils and greases.		Monthly	Grab
pH (SU) ^{2,3}	Shall always lie between 7.3 and 8.5.		Daily	Grab

TABLE A-5 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

NPDES NO. PR0001660

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>		
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type	
Solids and Other Matter ^{2,3}	The waters of Puerto Rico shall not contain floating debris, scum or other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the water body.		----	----	
Suspended, Colloidal or Settleable Solids (mL/L) ^{1,2,3}	Solids from wastewater source shall not cause deposition in or be deleterious to the existing or designated uses of the waters.		Daily	Grab	
Taste and Odor Producing Substances ^{2,3}	Shall not be present in amounts that will interfere with the use of primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		----	----	
Temperature °F (°C) ^{2,3}	Except by natural causes, no heat may be added to the waters of Puerto Rico, which would cause the temperature of any site to exceed 90°F (32.2°C).		Daily	Grab	
Total Suspended Solids (mg/L) ³			----	Monthly	Grab
Special Conditions	See attached sheet, which contains special conditions that constitute part of this certification.		----	----	

TABLE A-5 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**NPDES NO. PR0001660**

Receiving Water Name and Classification: Bahía de Jobos, SB

Notes:

To comply with the monitoring requirements specified above, samples shall be taken at point of discharge 003.
All flow measurements shall achieve accuracy within the range $\pm 10\%$.

* The daily maximum flow limitation does not consider the stormwater discharged through discharge point 003.

β Color shall be monitored at the effluent and the receiving water body.

ε See Special Condition 4.

ϕ The permittee shall implement a monthly monitoring program using the analytical method approved by EPA with the lowest possible detection level, in accordance with Section 6.2.3 of the PRWQSR, as amended, for one (1) year period, after which they will be conducted annually. The monitoring program shall commence not later than thirty (30) days after the EQB's written approval of the Quality Assurance Project Plan (QAPP). The QAPP must be submitted for evaluation and approval of EQB not later than thirty (30) days after the EDP. The results of the monitoring program shall be submitted to EQB and EPA-Region II no later than sixty (60) days of completion of the one year monitoring program. Based on the evaluation of the results obtained, EQB will determine if an effluent limitation is necessary for this parameter. In such case, the WQC will be reopened to include the applicable effluent limitation.

1, 2, 3 and 4 see page 13 of the Special Conditions.

TABLE A-6

**EFFLUENT LIMITATIONS AND MONITORING
REQUIREMENTS**

NPDES NO. PR0001660

During the period beginning on the EDP and lasting through the EDP + 5 years, the permittee is authorized to discharge from outfall serial number 004 Combined Cycle Plant service water cooling towers blowdown, Combined Cycle equipment hydrostatic test waters, Combined Cycle Plant miscellaneous use water, stormwater from the fuel tanks dikes, stormwater runoff and groundwater. Such discharge shall be limited and monitored by the permittee as specified below:

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
BOD ₅ (mg/L) ^{1,2,3}	30.0		Monthly	Composite
Color (Pt-Co Units) β ^{2,3}	Shall not be altered except by natural causes.		Monthly	Grab
Cyanide, Free (CN) ($\mu\text{g/L}$) ϵ ^{2,3}		----	ϕ	Grab
Dissolved Oxygen (mg/L) ^{1,2,3}	Shall not contain less than 5.0.		Daily	Grab
Flow m ³ /day (MGD) ^{3,4}		151.42 (0.04)*	Continuous Recording	
Oil and Grease (mg/L) ^{2,3}	The waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oils and greases.		Monthly	Grab
Pentachlorophenol ($\mu\text{g/L}$) ^{2,3}		----	ϕ	Grab
pH (SU) ^{2,3}	Shall always lie between 7.3 and 8.5.		Daily	Grab

TABLE A-6

**EFFLUENT LIMITATIONS AND MONITORING
REQUIREMENTS**

NPDES NO. PR0001660

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
Solids and Other Matter ^{2,3}	The waters of Puerto Rico shall not contain floating debris, scum or other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the water body.		----	----
Suspended, Colloidal or Settleable Solids (mL/L) ^{1,2,3}	Solids from wastewater source shall not cause deposition in or be deleterious to the existing or designated uses of the waters.		Daily	Grab
Taste and Odor Producing Substances ^{2,3}	Shall not be present in amounts that will interfere with the use of primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		----	----
Temperature °F (°C) ^{2,3}	Except by natural causes, no heat may be added to the waters of Puerto Rico, which would cause the temperature of any site to exceed 90°F (32.2°C).		Daily	Grab
Total Suspended Solids (mg/L) ³			Monthly	Grab
Turbidity (NTU) ^{2,3}			Monthly	Grab
Zinc (Zn) (µg/L) ^{2,3}			Monthly	Grab

**EFFLUENT LIMITATIONS AND MONITORING
REQUIREMENTS**

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
Special Conditions	See attached sheet, which contains special conditions that constitute part of this certification.		----	----

Notes:

To comply with the monitoring requirements specified above, samples shall be taken at point of discharge 004. All flow measurements shall achieve accuracy within the range $\pm 10\%$.

- * The daily maximum flow limitation does not consider the stormwater discharged through discharge point 004.
- β Color shall be monitored at the effluent and the receiving water body.
- ϵ See Special Condition 4.

ϕ The permittee shall implement a monthly monitoring program using the analytical method approved by EPA with the lowest possible detection level, in accordance with Section 6.2.3 of the PRWQSR, as amended, for one (1) year period, after which they will be conducted annually. The monitoring program shall commence not later than thirty (30) days after the EQB's written approval of the Quality Assurance Project Plan (QAPP). The QAPP must be submitted for evaluation and approval of EQB not later than thirty (30) days after the EDP. The results of the monitoring program shall be submitted to EQB and EPA-Region II no later than sixty (60) days of completion of the one year monitoring program. Based on the evaluation of the results obtained, EQB will determine if an effluent limitation is necessary for this parameter. In such case, the WQC will be reopened to include the applicable effluent limitation.

1, 2, 3 and 4 see page 13 of the Special Conditions.

TABLE A-7 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

NPDES NO. PR0001660

During the period beginning on the EDP and lasting through the EDP + 5 years, the permittee is authorized to discharge from outfall serial number 005 stormwater runoff treated in an oil water separator prior to be discharged. Such discharge shall be limited and monitored by the permittee as specified below:

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
Flow m ³ /day (MGD) ^{3,4}		N/A	WFO	Estimated
Oil and Grease (mg/L) ^{2,3}	The waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oils and greases.		WFO	Grab
pH (SU) ^{2,3}	Shall always lie between 7.3 – 8.5		WFO	Grab
Solids and Other Matter ^{2,3}	The waters of Puerto Rico shall not contain floating debris, scum or other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the water body.		----	----
Suspended, Colloidal or Settleable Solids (mL/L) ^{1,2,3}	Solids from wastewater source shall not cause deposition in or be deleterious to the existing or designated uses of the waters.		WFO	Grab

TABLE A-7 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

NPDES NO. PR0001660

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
Taste and Odor Producing Substances ^{2,3}	Shall not be present in amounts that will interfere with the primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		----	----
Temperature °F (°C) ^{2,3}	Except by natural causes, no heat may be added to the waters of Puerto Rico, which would cause the temperature of any site to exceed 90°F (32.2°C).		WFO	Grab
Special Conditions	See attached sheet, which contains special conditions that constitute part of this certification.		----	----

Notes:

To comply with the monitoring requirements specified above, samples shall be taken at point of discharge 005. All flow measurements shall achieve accuracy within the range ± 10%.

N/A Not applicable.

WFO See Special Condition 18.

1, 2, 3 and 4 see page 13 of the Special Conditions.

CERTIFICADA CON ACUSE DE RECIBO

16 de febrero de 2010

Ing. Jaime A. Plaza Velásquez
Jefe
División de Protección Ambiental y
Confiabilidad de Calidad
Autoridad de Energía Eléctrica de Puerto Rico
P.O. Box 364267
San Juan, Puerto Rico 00936-4267

Estimado ingeniero Plaza:

**RE: INTENTO DE EMITIR UN CERTIFICADO DE CALIDAD DE AGUA
AUTORIDAD DE ENERGÍA ELÉCTRICA DE PUERTO RICO
COMPLEJO GENERATRIZ AGUIRRE
CARRETERA ESTATAL NÚM. 3 INT. 705
SALINAS, PUERTO RICO
NPDES NÚM. PR0001660**

Hemos recibido y evaluado la solicitud para un permiso bajo la Sección 402, Sistema Nacional para la Eliminación de Descargas Contaminantes (NPDES, por sus siglas en inglés), de la Ley Federal de Agua Limpia, según enmendada (33 U.S.C. 466 *et seq.*) (la Ley) para la descarga de la instalación en referencia. Además, hemos recibido y evaluado una solicitud de Certificado de Calidad de Agua (CCA) sometida por la Autoridad de Energía Eléctrica de Puerto Rico (AEE) en carta fechada el 24 de enero de 2008, a tenor con la Sección 6.11 del Reglamento de Estándares de Calidad de Agua de Puerto Rico (RECA), según enmendado. En dicha carta la AAA solicitó la definición y autorización de una zona de mezcla para la descarga 001 del Complejo Generatriz Aguirre, a tenor con el Artículo 5 del RECA. Para las descargas 002, 003, 004 and 005 la AEE solicitó estándares de calidad de agua como límites de efluente al final del tubo de descarga en el CCA.

A tales efectos, la Junta de Calidad Ambiental (JCA) preparó el borrador del CCA luego de la debida evaluación de las disposiciones aplicables establecidas en el RECA y en las Secciones 208(e), 301, 302, 303, 304(e), 306 y 307 de la Ley, con límites de efluente basados en calidad de agua. Copia del borrador del CCA, Aviso Público y Determinaciones Preliminares están anejadas.

Ing. Jaime A. Plaza Velázquez
Complejo Generatriz Aguirre
NPDES Núm. PR0001660
Página 2

La JCA publicará el aviso en un periódico de amplia circulación en Puerto Rico, informando la intención de la Junta de otorgar el CCA solicitado conforme a la Ley. El costo de la publicación de dicho aviso será sufragado por el peticionario del permiso, objeto del referido CCA, según indicado en la Sección 6.11(2) del RECA. Esta Junta le notificará al peticionario, quince (15) días antes de la fecha de publicación del aviso sobre el requisito de pago del mismo para permitirle el trámite del pago correspondiente. Si el peticionario del permiso objeto del CCA no sufraga el costo de publicación del aviso, según requerido bajo la Sección 6.11(2) del RECA, el referido aviso no será publicado y el CCA será denegado. El peticionario deberá comunicarse con el Sr. Luis A. Ocasio, Ayudante Especial de Prensa de la JCA al (787) 767-8181 extensión 6140, para coordinar la publicación del mencionado aviso público.

La JCA se propone definir y autorizar una zona de mezcla para la descarga 001 de la instalación de referencia y certificar, conforme al RECA, que existe una seguridad razonable de que las descargas permitidas no causarán violaciones a los estándares de calidad de agua aplicables al cuerpo de agua receptor, si se cumple con todas las limitaciones y requisitos de muestreo de las Tablas A-1, A-2, A-3, A-4, A-5, A-6 y A-7 del borrador del CCA anejado. Las condiciones especificadas en las tablas antes mencionadas deberán ser incorporadas en el permiso NPDES para satisfacer las disposiciones de la Sección 301(b)(1)(C) de la Ley.

Esta Junta se reserva el derecho de comentar en fecha posterior sobre cualquier otro asunto ambiental de la descarga.

Cordialmente,

Roberto Ayala Prado
Director
Area de Calidad de Agua

LDS/dcc

c: Ing. Carl-Axel P. Soderberg, EPA-CEPD

**DETERMINACIONES PRELIMINARES PARA
CERTIFICADO DE CALIDAD DE AGUA
DEFINIR Y AUTORIZAR UNA ZONA DE MEZCLA**

NPDES Núm. PR0001660

La Junta de Calidad Ambiental (JCA) ha recibido de la Autoridad de Energía Eléctrica de Puerto Rico (AEE) una solicitud de Certificado de Calidad de Agua (CCA) y una solicitud de definición y autorización de una zona de mezcla, a tenor con el Artículo 5 del Reglamento de Estándares de Calidad de Agua de Puerto Rico (RECA) según enmendado, para la descarga 001 de desperdicios líquidos provenientes del Complejo Generatriz Aguirre, localizada en la Núm. 3 Int. 705, Salinas, Puerto Rico (P.O. Box 364267, San Juan, Puerto Rico 00936-4267). Para las descargas 002, 003, 004 y 005, la AEE solicitó estándares de calidad de agua como límites de efluente al final del tubo. Además, la AEE ha solicitado de la Agencia Federal para la Protección Ambiental (*Environmental Protection Agency, EPA*) un permiso bajo el Sistema Nacional para la Eliminación de Descargas Contaminantes (*National Pollutant Discharge Elimination System, NPDES*) para la referida instalación

El peticionario, la AEE, se propone descargar aguas usadas a la Bahía de Jobos, consistentes de lo siguiente:

<u>Número de la Descarga</u>	<u>Descripción de la Descarga</u>	<u>Flujo Máximo de la Descarga</u>
001	<ul style="list-style-type: none">▪ Aguas de Enfriamiento de los Condensadores de la Planta Termoeléctrica▪ Purgas de las Torres de Enfriamiento de la Planta Termoeléctrica▪ Aguas de Reemplazo y Purga de Aguas de Enfriamiento de las Torres de Agua Salada de la Planta de Ciclo Combinado▪ Aguas de Pruebas Hidrostáticas de los Equipos del Complejo Generatriz Aguirre▪ Lavado de Parrillas y Cedazos Rotativos (agua salada) de la Entrada de Agua para los Condensadores▪ Agua de Lluvia	2.47 x 10 ⁶ m ³ /día (652.0 MGD)
002	<ul style="list-style-type: none">▪ Condensado de los Calentadores de Combustible▪ Desagüe de Pisos y Equipos▪ Aguas de Usos Misceláneos▪ Agua de Escorrentía Pluvial	946.35 m ³ /día (0.25 MGD)

<u>Número de la Descarga</u>	<u>Descripción de la Descarga</u>	<u>Flujo Máximo de la Descarga</u>
003	<ul style="list-style-type: none"> ▪ Efluente de la Planta de Tratamiento de Aguas Usadas ▪ Agua de Escorrentía Pluvial ▪ Lavado de Parrillas y Cedazos Rotativos (agua salada) de la Entrada de Agua para los Condensadores 	6,245.93 m ³ /día (1.65 MGD)
004	<ul style="list-style-type: none"> ▪ Purga de las Torres de Enfriamiento de la Planta de Ciclo Combinado ▪ Aguas de Usos Misceláneos de la Planta de Ciclo Combinado ▪ Agua de Escorrentía Pluvial de los Diques de los Tanques de Combustible ▪ Aguas de Escorrentía Pluvial ▪ Agua Subterránea ▪ Aguas de Pruebas Hidrostáticas del Equipo del Ciclo Combinado 	151.42 m ³ /día (0.04 MGD)
005	<ul style="list-style-type: none"> ▪ Aguas de Escorrentía Pluvial 	N/A

El cuerpo de agua receptor, Bahía de Jobos, está clasificado como SB por el Reglamento de Estándares de Calidad de Agua (RECA), según enmendado.

Luego de la debida evaluación de la solicitud del permiso *NPDES*, la solicitud de zona de mezcla, otra información disponible y las disposiciones aplicables establecidas en el RECA y en las Secciones 208(e), 301, 302, 303, 304(e), 306 y 307 de la Ley Federal de Agua Limpia, según enmendada (33 U.S.C. 466 *et seq.*) (la Ley); la JCA se propone emitir el CCA, y definir y autorizar una zona de mezcla para la descarga 001, sujeto a que se cumplan todas las condiciones especificadas en las Tablas A-1, A-2, A-3, A-4, A-5, A-6 y A-7. De esta forma, la JCA se propone certificar que existe una seguridad razonable de que las descargas permitidas no causarán violaciones a los estándares de calidad de agua aplicables en el cuerpo de agua receptor.

Las condiciones especificadas en las tablas antes mencionadas, deberán incorporarse en el permiso *NPDES* aplicable para satisfacer las disposiciones de la Sección 301 (b) (1) (C) de la Ley.

CONDICIONES ESPECIALES

***NPDES* Núm. PR0001660**

Estas condiciones especiales son parte integral del Certificado de Calidad de Agua (CCA) y deberán ser incorporadas al permiso *NPDES* para satisfacer las disposiciones de la Sección 301 (b) (1) (C) de la Ley Federal de Agua Limpia (LAL), (*Federal Clean Water Act*, (*CWA*) según enmendada (33 U.S.C. 466 *et seq.*):

1. El flujo de la descarga 001, 002, 003 y 004 no deberá exceder el límite de 2.47×10^6 m³/día (652.0 MGD), 946.35 m³/día (0.25 MGD), 6,245.93 m³/día (1.65 MGD) y 151.42 m³/día (0.04 MGD), respectivamente, como máximo diario. No se autorizará aumento en el flujo de las descargas antes indicadas sin una recertificación de la Junta de Calidad Ambiental (JCA). ^{1,4,6}
2. La descarga 005 consistirá de aguas compuestas enteramente de aguas de lluvia. ⁴
3. No se permitirá la descarga de sustancias tóxicas, en concentraciones tóxicas, excepto aquellas aceptadas como se especifican en el permiso *NPDES*. Aquellas sustancias tóxicas identificadas en la solicitud de renovación del permiso, pero no controladas por el permiso, no deberán exceder las concentraciones que se especifiquen por las limitaciones aplicables. ^{1,2}
4. Dentro de treinta (30) días a partir de la Fecha de Efectividad del Permisos *NPDES* (FEP), el peticionario deberá someter, para la aprobación de la *EPA*, un método modificado para analizar Cianuro Libre con un nivel de detección menor que el estándar de calidad de agua aplicable (1.0 µg/L). No más tarde de sesenta (60) días luego de la aprobación de la *EPA* de dicho método, el peticionario deberá realizar los muestreos para Cianuro Libre en los puntos de muestreo de las descargas 003 y 004, de acuerdo a los requisitos de las Tablas A-3 y A-4. ⁴
5. Las aguas de Puerto Rico no contendrán ninguna sustancia atribuible a las descargas 001, 002, 003, 004 y 005 a una concentración tal que sola o como resultado de efectos sinérgicos con otras sustancias, sea tóxica o produzca reacciones fisiológicas indeseables en humanos, peces u otra fauna o flora. ²
6. Las operaciones de recolección, preservación y análisis de las muestras se efectuarán conforme a la disposición del Capítulo 40 del Código de Reglamentación Federal (40 *CFR*, por sus siglas en inglés) Parte 136. Todos los análisis químicos deberán ser certificados por un químico licenciado autorizado a practicar su profesión en Puerto Rico. Todos lo análisis bacteriológicos deberán ser certificados por un microbiólogo o un tecnólogo médico con licencia para practicar su profesión en Puerto Rico. ^{1,3}
7. Los desperdicios sólidos (lodos, material cernido y arenillas) generados debido a la operación del sistema de tratamiento deberán:

- a. Disponerse en cumplimiento con los requisitos aplicables establecidos en el 40 *CFR* Parte 257. Se deberá someter a la *JCA* y a la *EPA* un informe semianual de los métodos utilizados para disponer los desperdicios sólidos generados en la instalación. Además, deberán someter copia de la autorización o permiso aplicable al método de disposición utilizado, si alguno.
- b. Transportarse adecuadamente de manera tal que no ganen acceso al terreno o a ningún cuerpo de agua. De ocurrir cualquier derrame de desperdicios sólidos sobre el terreno o algún cuerpo de agua, el peticionario deberá notificar a la División de Permisos para Fuentes Precisadas del Area de Calidad de Agua de la *JCA* de las siguientes maneras:
 - 1) Mediante comunicación telefónica, en un término no mayor de veinticuatro (24) horas posterior al derrame (787-767-8073).
 - 2) Por escrito, en un término no mayor de cinco (5) días después del derrame.

Estas notificaciones deberán incluir la siguiente información:

- a) Material derramado
- b) Volumen derramado
- c) Medidas tomadas para evitar que el material derramado gane acceso a cualquier cuerpo de agua.

Esta condición especial no releva al peticionario de su responsabilidad de obtener los permisos correspondientes del Area de Control de Contaminación de Terrenos de la *JCA* y de otras agencias federales y estatales, si alguno ^{4,7}

8. Se deberá llevar una bitácora del material extraído como los lodos, cerniduras y arenillas del sistema de tratamiento donde se detalle lo siguiente:
 - a. Material removido, fecha y origen de éste.
 - b. Volumen y peso aproximado.
 - c. Método por el cual éste es removido y transportado.
 - d. Disposición final de dicho material y localización.
 - e. Persona que lleva a cabo el servicio.

Copia del permiso para operar un Servicio de Recolección de Desperdicios Sólidos No-Peligrosos emitido por el oficial autorizado de la JCA deberá ser anexado a la bitácora. ³

9. Los lodos producidos en la instalación debido a la operación del sistema de tratamiento, deberán analizarse y todos sus constituyentes deberán ser identificados, según requerido por "Los Estándares para el Uso y la Disposición de Lodos" (40 CFR Parte 503). Los lodos deberán disponerse apropiadamente de forma tal que no cause contaminación o efecto adverso a las aguas superficiales o a las aguas subterráneas. ^{4,7}
10. No se permitirán cambios en el diseño o capacidad del sistema de tratamiento sin la previa autorización de la JCA. ⁶
11. Previo a la construcción de cualquier sistema de tratamiento adicional o la modificación del sistema de tratamiento existente, el solicitante deberá obtener la aprobación del informe de ingeniería, los planos y especificaciones de la JCA. ⁶
12. El peticionario deberá instalar, mantener y operar todo equipo de control de contaminación de agua de forma tal que le permita cumplir con las Reglas y Reglamentos aplicables. ^{1,4}
13. Las descargas 001, 002, 003, 004 y 005 no deberán causar la presencia de visos de aceite en el cuerpo de agua receptor. ²
14. El pluviómetro instalado en la facilidad deberá ser mantenido adecuadamente. Se deberá mantener un registro de mantenimiento del pluviómetro. En caso de modificación, reparación o reemplazo del mismo, éste deberá ser calibrado nuevamente si es necesario. ^{3,4}
15. El peticionario deberá mantener registro diario sobre eventos de lluvia en donde se identifique la fecha, lectura del pluviómetro y duración de dichos eventos durante el horario normal de trabajo de la instalación. Copia de estos registros deberá ser sometida a la JCA mensualmente. ³
16. PLAN DE MEJORES PRACTICAS DE MANEJO (Plan MPM) ⁴
 - A. Una copia de la versión más reciente del Plan MPM aprobado se mantendrá en la instalación y estará disponible cuando fuese solicitado.

- B. El Plan MPM deberá ser revisado cada cinco años y modificado de ser necesario. Una certificación de que el Plan fue revisado deberá ser sometida en un término no mayor de noventa (90) días a partir de la FEP.
 - C. De ocurrir cambios en la instalación que materialmente aumenten el potencial de que ocurran descargas de contaminantes o cuando ocurran situaciones que reflejen que el plan es inadecuado para atender las mismas, el Plan MPM deberá ser modificado para incluir medidas de prevención dirigidas a atender dichas situaciones.
 - D. Si una modificación del Plan MPM es necesaria, el peticionario deberá someter el Plan MPM modificado a la JCA para revisión y aprobación en un término no mayor de noventa (90) días a partir de la fecha en que se revisó el Plan u ocurrieron cambios en la instalación. El Plan MPM modificado deberá ser implantando en un término no mayor de noventa (90) días a partir de la aprobación de la JCA.
17. El peticionario deberá cumplir en todo momento con las disposiciones, medidas o prácticas incluidas en la versión más reciente del Plan MPM (Condición Especial 16) aprobado por la JCA. ⁴

18. CUANDO OCURRA FLUJO (COF) ⁴

COF- Para nuestros propósitos significa cuando ocurra flujo durante el horario normal de trabajo de la instalación, pero no más de un evento de muestreo de lluvia por mes.

A. Primera Mitad del Mes

Durante los primeros quince (15) días del mes, el muestreo deberá ser como sigue: Un periodo mínimo de 48 horas sin precipitación medible (entiéndase por precipitación medible lluvias mayores de 0.1 pulgada) deberá preceder el evento de lluvia a ser muestreado. Para aquellos parámetros que se requieran muestras fortuitas (*grab*), la muestra deberá ser tomada durante los primeros treinta (30) minutos de la descarga de aguas enteramente pluviales.

B. Segunda Mitad del Mes

En el caso que el peticionario sea incapaz de satisfacer la condición antes mencionada durante los primeros quince (15) días del mes, comenzando en el

día dieciséis (16) del mes, el peticionario deberá tomar muestras de cualquier descarga de aguas enteramente pluviales que ocurra durante el horario normal de trabajo de la instalación.

C. Requisitos Generales

El peticionario deberá informar mediante carta que acompaña cada uno de los Informes de Automonitoría (*Discharge Monitoring Report (DMR)*), detalles de las condiciones bajo las cuales se tomaron las muestras de las aguas enteramente pluviales así como la fecha del muestreo.

Como alternativa, si no se tomara ninguna muestra durante el mes, el peticionario se considerará que ha cumplido con los requisitos de muestreo, si el peticionario certifica que no fue posible satisfacer el protocolo especificado para realizar el muestreo durante los primeros quince (15) días del mes y que no hubo una descarga significativa de aguas enteramente pluviales durante el horario normal de trabajo en la instalación desde el día dieciséis (16) del mes hasta el último día del mes.

19. La descarga de agua de lluvia asociada con actividades industriales cubiertas por este CCA no causará violaciones a los estándares de calidad de agua aplicables al cuerpo de agua receptor. ³
20. Los sistemas para medir flujo para las descargas 001, 002, 003, 004 y 005 deberá ser calibrado periódicamente y mantenido adecuadamente. Se deberá mantener un registro de calibración y mantenimiento en cumplimiento con las Reglas y Reglamentos aplicables. ^{4,6}
21. Los puntos de muestreo para las descargas 001, 002, 003, 004 y 005 deberán estar localizados inmediatamente después del medidor de flujo primario del efluente.
22. Los puntos de muestreo para las descargas 001, 002, 003, 004 y 005 deberán tener un rótulo con unas dimensiones mínimas de 18 pulgadas por 12 pulgadas que lea como sigue:

"PUNTO DE MUESTREO PARA LA DESCARGA 001"
"PUNTO DE MUESTREO PARA LA DESCARGA 002"
"PUNTO DE MUESTREO PARA LA DESCARGA 003"
"PUNTO DE MUESTREO PARA LA DESCARGA 004"
"PUNTO DE MUESTREO PARA LA DESCARGA 005"

23. Toda instalación de tratamiento de agua potable o aguas usadas, ya sea propiedad pública o privada, deberá ser operada por una persona licenciada por la Junta Examinadora de Operadores de Plantas de Tratamiento de Agua Potable y de Aguas Usadas del Estado Libre Asociado de Puerto Rico. ⁴
24. La JCA ha definido y autorizado una zona de mezcla interina (ZMI) de acuerdo al Artículo 5 del Reglamento de Estándares de Calidad de Agua de Puerto Rico (RECA), según enmendado. ³
- a. La ZMI está delimitada por los siguientes puntos (ver Diagrama I):

Coordenadas Geográficas

Punto 1	Lat. 17° 56' 5.02" Long. 66° 13' 38.08"
Punto 2	Lat. 17° 56' 4.16" Long. 66° 13' 41.38"
Punto 3	Lat. 17° 56' 7.37" Long. 66° 13' 42.29"
Punto 4	Lat. 17° 56' 8.23" Long. 66° 13' 38.99"

El emisario sumergido tiene un largo de cinco mil ochosientos (5,800) pies y un diámetro de trece (13) pies. El difusor cuenta con un orificio al final del mismo con un diámetro de diez (10) pies

- b. Las estaciones de muestreo de la zona de mezcla interina estarán localizadas en los cuatro (4) puntos descritos en el Inciso "a" de esta condición especial.
- c. La estación de muestreo de trasfondo estará localizada a cien (100) metros del Punto 1 o del Punto 2 de la zona de mezcla, dependiendo de la dirección de la corriente al momento del muestreo. El peticionario deberá determinar y someter a la JCA las coordenadas geográficas de ambas estaciones de trasfondo.
- d. El peticionario deberá mantener un registro del equipo utilizado para uicarse en los límites de la zona de mezcla. Dicho registro deberá incluir la fecha en que el

equipo fue adquirido o alquilado, fecha de calibración, número de serie, modelo, etc.

Para identificar la localización de los puntos de muestreo de la zona de mezcla y de trasfondo, el peticionario deberá utilizar el procedimiento establecido en el Documento EPA-QA/QC para 301(h) (Tabla D-1 Ejemplo *ZID Boundary Stations Location*).

Si el peticionario desea utilizar otro método para identificar los puntos de muestreo de la zona de mezcla, previo a la utilización de dicho método, deberá obtener la aprobación escrita de la JCA.

- e. La ZMI está definida para el siguiente parámetro:

<u>Parámetro</u>	<u>Limitación de Descarga Máxima Diaria en Salida con Número de Serie 001</u>	<u>Limitación Máxima Diaria en los Bordes de ZMI</u>
Temperatura (°C)	38.5	32.2

- f. Las muestras para la monitoría del parámetro antes mencionado deberán ser tomadas en el punto de muestreo 001, la estación de muestreo de trasfondo y en los puntos de muestreo de la ZMI. La descarga deberá cumplir con los estándares de calidad de agua en el punto de muestreo 001 para todas las otras sustancias.
- g. Las muestras en las cuatro (4) estaciones de muestreo en el perímetro de la ZMI y la estación de muestreo de trasfondo, se tomarán a tres (3) profundidades en cada estación: 10%, 50% y 90% de la profundidad.
- h. Los sólidos provenientes de aguas usadas no deberán ocasionar asentamientos o perjudicar los usos existentes o designados de los cuerpos de agua.
- i. La descarga no causará el crecimiento o propagación de organismos que perturben el equilibrio ecológico negativamente en áreas adyacentes a la zona de mezcla.

- j. La zona de mezcla se mantendrá libre de espuma, desechos, aceite flotante y cualquier otra sustancia que produzca olores objetables.
- k. El peticionario deberá mantener en buenas condiciones operacionales el sistema de descarga [emisario de descarga, (terrestre y submarina), difusor, orificios de salida, etc.]. Por lo menos una vez al año, se deberá realizar una inspección al sistema de descarga para determinar si es necesario realizar alguna reparación, reemplazo, etc., en el sistema. Un informe de dichas inspecciones deberá ser sometido a la JCA y a la *EPA* no más tarde de sesenta (60) días después de realizada la inspección.
- l. La JCA podrá requerir que el peticionario realice estudios de bioacumulación, estudios de tinte, estudios de calidad de agua o cualquier otro estudio pertinente. Si la JCA requiere uno o más de los estudios antes mencionados, notificará al peticionario para que realice dicho(s) estudio(s). Ciento veinte (20) días a partir de la notificación de la JCA, el peticionario deberá someter para evaluación y aprobación de la JCA, un protocolo para realizar dicho(s) estudio(s). Sesenta (60) días después de la aprobación de la JCA, el peticionario deberá iniciar dicho(s) estudio(s). Noventa (90) días después de realizar dicho(s) estudio(s), el peticionario deberá someter un informe que incluya los resultados de dicho(s) estudio(s).
- m. El peticionario deberá implementar un programa de muestreo de un año para obtener los datos necesarios para validar la ZMI. El programa de muestreo deberá consistir en el muestreo de los parámetros incluidos en el Inciso “e” de esta condición especial para verificar el cumplimiento con las disposiciones aplicables del RECA y un estudio de tinte para validar el modelo matemático utilizado para determinar la dilución inicial crítica y verificar el comportamiento del plumacho dentro de la zona de mezcla. El programa de muestreo deberá ser realizado como sigue:
 - 1. El peticionario deberá realizar cuatro (4) eventos de muestreo en las cuatro (4) estaciones en los bordes de la ZMI, en la estación de muestreo de trasfondo y en el punto de muestreo de la descarga 001, durante dos estaciones del año (verano e invierno). Dos eventos de muestreo deberán ser realizados durante cada estación del año.

2. El estudio de tinte deberá ser realizado dos veces, un evento durante cada estación del año, al mismo tiempo que uno de los eventos de muestreo de la estación del año.
 - n. El programa de muestreo deberá comenzar noventa (90) días luego de la aprobación por escrito del Protocolo y Plan de Aseguramiento de Calidad del Proyecto (*QAPP*, por sus siglas en inglés) correspondiente. Dicho Protocolo y *QAPP* deberá ser sometido a la JCA noventa (90) días luego de la FEP.
 - o. Si el modelo matemático es validado como se establece en las disposiciones aplicables del RECA y en las Guías de Zonas de Mezcla y Bioensayos, la JCA emitirá una autorización final para la zona de mezcla. Sin embargo, si el modelo matemático no es validado, la Junta podrá revocar la autorización de ZMI de acuerdo al Artículo 5.14 del RECA. En este caso, el peticionario tendrá que someter un plan de cumplimiento de acuerdo al Artículo 5.16 del RECA.
 - p. La JCA podrá permitir que el peticionario utilice métodos alternos para la validación de la zona de mezcla, siempre y cuando los mismos cumplan con la reglamentación estatal y federal aplicable, o cuando surja nueva tecnología que produzca unos resultados técnica y ambientalmente mejores que los obtenidos con los métodos descritos en esta condición especial.
 - q. La JCA determinará si los límites de efluente serán finales o si es necesario reabrir el CCA para modificar (aumentar o reducir) el límite de efluente para el parámetro antes mencionado una vez revise los resultados obtenidos de los estudios requeridos en esta condición especial.
 - r. La autorización de zona de mezcla no será transferible y no conlleva ningún derecho de propiedad de cualquier tipo o ningún privilegio exclusivo, ni autoriza ningún daño a personas o propiedad o la invasión de otros derechos privados, o ninguna infracción de leyes o reglamentos federales o estatales.
25. El peticionario deberá realizar trimestralmente pruebas definitivas de toxicidad aguda y crónica, utilizando los organismos *Mysidopsis bahia*, *Cyprinodon variegatus* y *Arbacia punctulata* para las descargas de aguas usadas identificadas como 001, 002, 003 y 004.
- a. Treinta (30) días a partir de la FEP, el peticionario deberá someter, para la evaluación y aprobación de la JCA, un protocolo para realizar dichas pruebas de toxicidad.

Dicho protocolo deberá incluir, pero no limitarse a:

1. Una identificación de las organizaciones responsables de realizar las pruebas, incluyendo una descripción completa de la capacidad del laboratorio y experiencia del personal y las especies a ser utilizadas.
 2. Una descripción detallada de la metodología a ser utilizada en la realización de las pruebas, incluyendo equipo, recolección de muestras, agua de dilución y origen de los organismos de prueba.
 3. Un diagrama esquemático que indique el punto de muestreo del efluente en relación a la facilidad de tratamiento de aguas usadas y al punto de descarga 001.
- b. Las pruebas de toxicidad deberán ser realizadas trimestralmente comenzando no más tarde de ciento ochenta (180) días a partir de la FEP, por un periodo de (1) un año y de ahí en adelante se realizarán anualmente.
- c. Las pruebas de toxicidad deberán ser realizadas conforme a la edición más reciente de las siguientes publicaciones de la *EPA*.
1. *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA-821-R-02-012), Quinta Edición, Octubre 2002, o la edición más reciente de dicha publicación si la misma está disponible.
 2. *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA-821-R-02-013) 4^{ta} Edición, Octubre 2002, o la edición más reciente de dicha publicación si la misma está disponible.
- d. Los procedimientos, métodos, técnicas, condiciones, etc., contenidas en las publicaciones antes mencionadas deberán ser seguidos en todo momento. Si el peticionario desea utilizar otros procedimientos, métodos, etc., porque entiende:
1. que por la naturaleza o condiciones de este caso es imposible seguir dichas publicaciones;

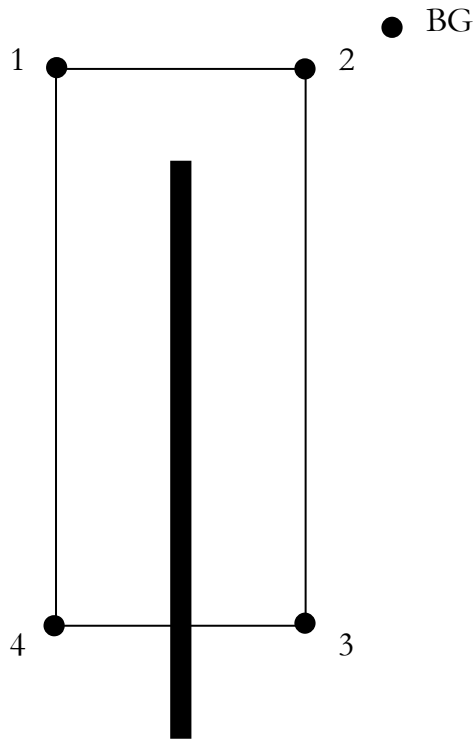
2. que otros procedimientos, métodos, etc., son adecuados;

entonces el peticionario deberá, previo a la utilización de otros procedimientos, métodos, etc., obtener la aprobación escrita de la *EPA* y de la JCA.
 - e. Las muestras de efluente para las pruebas de toxicidad deberán ser utilizadas en o antes de 36 horas de haber sido recogidas.
 - f. Se deberá someter a la JCA, el informe de las pruebas de toxicidad realizadas, dentro del periodo de sesenta (60) días luego de haberse realizado las pruebas. Este informe deberá ser preparado conforme a las publicaciones de la *EPA* antes mencionadas.
 - g. Basándose en la revisión de los resultados de las pruebas, la JCA podrá requerir pruebas de toxicidad adicionales incluyendo estudios de toxicidad/tratabilidad y podrá revocar la autorización de la zona de mezcla interina o final, de acuerdo a la Sección 5.14 del RECA.
26. El peticionario deberá cumplir con las disposiciones aplicables establecidas en las enmiendas al Reglamento de Estándares de Calidad de Agua de Puerto Rico inmediatamente a la fecha de vigencia de dicha enmienda, a menos que el peticionario solicite y obtenga un Plan de Cumplimiento conforme a las Reglas y Reglamentos aplicables. ⁵
 27. Las condiciones de este CCA son consideradas cada una independientemente de las demás. Por lo tanto, si la aplicación de cualquier condición de este CCA quedara sin efecto debido a cualquier circunstancia, las restantes condiciones de este CCA no se verán afectadas. ⁶
 28. La JCA, al emitir este CCA, no releva al solicitante de su responsabilidad de obtener permisos o autorizaciones adicionales de la JCA, según requerido por Ley. La emisión del CCA no debe considerarse como una autorización para llevar a cabo actividades que no están específicamente cubiertas en el CCA, las cuales pueden causar contaminación de agua, según definido en el RECA. ⁶

Para 1, 2, 3, 4, 5, 6, 7 y 8 véase página 13

DIAGRAMA-I

Zona de Mezcla Complejo Generatriz Aguirre



Coordenadas Geográficas

Punto 1	Lat. 17° 56' 5.02" Long. 66° 13' 38.08"
Punto 2	Lat. 17° 56' 4.16" Long. 66° 13' 41.38"
Punto 3	Lat. 17° 56' 7.37" Long. 66° 13' 42.29"
Punto 4	Lat. 17° 56' 8.23" Long. 66° 13' 38.99"

1. Conforme al Artículo 1, Reglamento de Estándares de Calidad de Agua de Puerto Rico según enmendado.
2. Conforme al Artículo 3, Reglamento de Estándares de Calidad de Agua de Puerto Rico según enmendado.
3. Conforme al Artículo 5, Reglamento de Estándares de Calidad de Agua de Puerto Rico según enmendado.
4. Conforme al Artículo 6, Reglamento de Estándares de Calidad de Agua de Puerto Rico según enmendado.
5. Conforme al Artículo 8, Reglamento de Estándares de Calidad de Agua de Puerto Rico según enmendado.
6. Conforme a la Ley de Política Pública Ambiental del 22 de septiembre de 2004, Ley Núm. 416, efectiva desde el 22 de marzo de 2005.
7. Conforme a la Sección 405 (d)(4) de la Ley Federal de Agua Limpia según enmendada (33 U.S.C. 466 *et seq.*).
8. Conforme al Código de Registro Federal Número 40 (40 CRF) Parte 131.40, según enmendado (Registro Federal/Volumen 69, Núm. 16/lunes, 26 de enero de 2004).

TABLA A-1 LÍMITES DE EFLUENTE Y REQUISITOS DE MUESTREO

NPDES NÚM. PR0001660

Durante el periodo comenzando en la FEP y terminando en la FEP + 5 años, el peticionario está autorizado a descargar a través del punto de descarga 001 aguas de enfriamiento de los condensadores de la Planta Termoeléctrica, purgas de las torres de enfriamiento de la Planta Termoeléctrica, aguas de reemplazo y purga de aguas de enfriamiento de las torres de agua salada de la Planta de Ciclo Combinado, aguas de pruebas hidrostáticas a los equipos del Complejo Generatriz Aguirre, lavado de parrillas y cedazos rotativos (agua salada) de la entrada de agua para los condensadores y agua de lluvia. Dicha descarga deberá ser limitada y muestreada por el peticionario según especificado adelante:

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobs, SB

<u>Características del Efluente</u>	<u>Limitaciones de la Descarga</u>		<u>Requisitos de Muestreo</u>	
	Promedio Mensual	Máximo Diario	Frecuencia de Muestreo	Tipo de Muestra
Aceite y Grasa (mg/L) ^{2,3}	Las aguas de Puerto Rico deberán estar substancialmente libres de aceites y grasas flotantes no derivados del petróleo así como de aceites y grasas derivados del petróleo.		Mensual	Fortuita
Color (Unidades Pt-Co) β ^{2,3}	No deberá ser alterado por otras causas que no sean fenómenos naturales.		Mensual	Fortuita
DBO ₅ (mg/L) ^{1,2,3}	30.0		Mensual	Compuesta
Flujo m ³ /día (MGD) ^{3,4}		2.47 x 10 ⁶ (652.0)*	Diario	Estimado
Oxígeno Disuelto (mg/L) ^{1,2,3}	Contendrán no menos de 5.0.		Diario	Fortuita
pH (SU) ^{2,3}	Deberá siempre permanecer entre 7.3 y 8.5.		Diario	Fortuita
Sólidos Suspendidos, Coloidales o Sedimentables (mL/L) ^{1,2,3}	Los sólidos provenientes de aguas usadas no deberán ocasionar asentamientos, o perjudicar los usos existentes o designados de los cuerpos de agua.		Diario	Fortuita

TABLA A-1 LÍMITES DE EFLUENTE Y REQUISITOS DE MUESTREO

NPDES NÚM. PR0001660

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobos, SB

<u>Características del Efluente</u>	<u>Limitaciones de la Descarga</u>		<u>Requisitos de Muestreo</u>	
	Promedio Mensual	Máximo Diario	Frecuencia de Muestreo	Tipo de Muestra
Sólidos y Otras Materias ^{2,3}	Las aguas de Puerto Rico no deberán contener escombros flotantes, desechos u otros materiales flotantes atribuibles a descargas en cantidades suficientes que resulten desagradables o puedan perjudicar los usos existentes o designados del cuerpo de agua.		----	----
Substancias que provocan sabor u olor ^{2,3}	Ninguna deberá estar presente en cantidades que interfieran con el uso de recreación de contacto primario, o le impartan cualquier sabor u olor indeseable a la vida acuática comestible.		----	----
Temperatura °F (°C) ^{2,3}		101.30 (38.5)	Diario	Fortuita
Condiciones Especiales	Ver páginas adjuntas, las cuales contienen condiciones especiales que constituyen parte de esta certificación.		----	----

Notas:

Para cumplir con los requisitos de muestreo aquí especificados, las muestras deberán ser tomadas en el punto de descarga 001. Todas las medidas de flujo deberán alcanzar precisión dentro del rango de más o menos 10%.

* El límite de efluente diario máximo para flujo no considera la descarga de aguas de lluvia a través del punto de descarga 001.

β Color deberá ser muestreado en el efluente y en el cuerpo de agua receptor.

1, 2, 3 y 4 ver página 13 de las Condiciones Especiales.

**TABLA A-2 LÍMITES DE EFLUENTE Y REQUISITOS DE MUESTREO
EN LOS BORDES DE LA ZONA DE MEZCLA**

NPDES NÚM. PR0001660

Durante el periodo comenzado en la FEP + 4 meses y terminado en la FEP + 16 meses, el peticionario deberá realizar un muestreo en las estaciones de muestreo de la zona de mezcla según especificado adelante:

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobos, SB

<u>Características del Efluente</u>	<u>Limitaciones de la Descarga^α</u>		<u>Requisitos de Muestreo</u>	
	Promedio Mensual	Máximo Diario	Frecuencia de Muestreo	Tipo de Muestra
Temperatura °F (°C) ^{2,3,4}		90 °F (32.2 °C)	λ	Fortuita

Notas:

α Ver Condición Especial 24.

λ Ver Condición Especial 24.m.

2, 3 y 4 Véase Página 13 de las Condiciones Especiales

TABLA A-3 REQUISITOS DE MUESTREO EN LA ESTACIÓN DE TRASFONDO**NPDES NÚM. PR0001660**

Durante el periodo comenzado en la FEP + 4 meses y terminado en la FEP + 16 meses, el peticionario deberá realizar un muestreo en la estación de muestreo de trasfondo según especificado adelante:

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobos, SB

Características del Efluente

Temperatura °F (°C) ^{2,3,4}

Notas: _____

λ Ver Condición Especial 24.m.

1, 2, 3 y 4 Véase Página 13 de las Condiciones Especiales

Requisitos de Muestreo**Frecuencia de Muestreo****Tipo de Muestra** λ

Fortuita

TABLA A-4 LÍMITES DE EFLUENTE Y REQUISITOS DE MUESTREO

NPDES NÚM. PR0001660

Durante el periodo comenzando en la FEP y terminando en la FEP + 5 años, el peticionario está autorizado a descargar a través del punto de descarga 002 condensado de los calentadores de combustible, desagüe de pisos y equipos, aguas de usos misceláneos y agua de escorrentía pluvial. Dicha descarga deberá ser limitada y muestreada por el peticionario según especificado adelante:

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobs, SB

<u>Características del Efluente</u>	<u>Limitaciones de la Descarga</u>		<u>Requisitos de Muestreo</u>	
	Promedio Mensual	Máximo Diario	Frecuencia de Muestreo	Tipo de Muestra
Aceite y Grasa (mg/L) ^{2,3}	Las aguas de Puerto Rico deberán estar substancialmente libres de aceites y grasas flotantes no derivados del petróleo así como de aceites y grasas derivados del petróleo.		Mensual	Fortuita
Color (Unidades Pt-Co) β ^{2,3}	No deberá ser alterado por otras causas que no sean fenómenos naturales.		Mensual	Fortuita
DBO ₅ (mg/L) ^{1,2,3}	30.0		Mensual	Compuesta
Flujo m ³ /día (MGD) ^{3,4}		946.35 (0.25)*	Registro Continuo	
Oxígeno Disuelto (mg/L) ^{1,2,3}	Contendrán no menos de 5.0.		Diario	Fortuita
pH (SU) ^{2,3}	Deberá siempre permanecer entre 7.3 y 8.5.		Diario	Fortuita
Sólidos Suspendidos Totales (mg/L) ³		----	Mensual	Fortuita

TABLA A-4 LÍMITES DE EFLUENTE Y REQUISITOS DE MUESTREO

NPDES NÚM. PR0001660

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobos, SB

<u>Características del Efluente</u>	<u>Limitaciones de la Descarga</u>		<u>Requisitos de Muestreo</u>	
	Promedio Mensual	Máximo Diario	Frecuencia de Muestreo	Tipo de Muestra
Sólidos Suspendidos, Coloidales o Sedimentables (mL/L) ^{1,2,3}	Los sólidos provenientes de aguas usadas no deberán ocasionar asentamientos, o perjudicar los usos existentes o designados de los cuerpos de agua.		Diario	Fortuita
Sólidos y Otras Materias ^{2,3}	Las aguas de Puerto Rico no deberán contener escombros flotantes, desechos u otros materiales flotantes atribuibles a descargas en cantidades suficientes que resulten desagradables o puedan perjudicar los usos existentes o designados del cuerpo de agua.		----	----
Substancias que provocan sabor u olor ^{2,3}	Ninguna deberá estar presente en cantidades que interfieran con el uso de recreación de contacto primario, o le impartan cualquier sabor u olor indeseable a la vida acuática comestible.		----	----
Temperatura °F (°C) ^{2,3}	Excepto por causas naturales, no se le aumentará calor a las aguas de Puerto Rico que pueda ocasionar un alza sobre los 90 °F (32.2 °C) en cualquier lugar.		Diario	Fortuita
Turbiedad (NTU) ^{2,3}	10		Mensual	Fortuita
Condiciones Especiales	Ver páginas adjuntas, las cuales contienen condiciones especiales que constituyen parte de esta certificación.		----	----

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobos, SB

Notas:

Para cumplir con los requisitos de muestreo aquí especificados, las muestras deberán ser tomadas en el punto de descarga 002. Todas las medidas de flujo deberán alcanzar precisión dentro del rango de más o menos 10%.

* El límite de efluente diario máximo para flujo no considera la descarga de aguas de lluvia a través del punto de descarga 002.

β Color deberá ser muestreado en el efluente y en el cuerpo de agua receptor.

1, 2, 3 y 4 ver página 13 de las Condiciones Especiales.

TABLA A-5 LÍMITES DE EFLUENTE Y REQUISITOS DE MUESTREO

NPDES NÚM. PR0001660

Durante el periodo comenzando en la FEP y terminando en la FEP + 5 años, el peticionario está autorizado a descargar a través del punto de descarga 003 efluente de la planta de tratamiento de aguas usadas y aguas de escorrentía pluvial y lavado de parrillas y cedazos rotativos (agua salada) de la entrada de agua para los condensadores. Dicha descarga deberá ser limitada y muestreada por el peticionario según especificado adelante:

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobos, SB

<u>Características del Efluente</u>	<u>Limitaciones de la Descarga</u>		<u>Requisitos de Muestreo</u>	
	Promedio Mensual	Máximo Diario	Frecuencia de Muestreo	Tipo de Muestra
Aceite y Grasa (mg/L) ^{2,3}	Las aguas de Puerto Rico deberán estar substancialmente libres de aceites y grasas flotantes no derivados del petróleo así como de aceites y grasas derivados del petróleo.		Mensual	Fortuita
Cianuro Libre (CN) (µg/L) ^{ε 2,3}		----	φ	Fortuita
Color (Unidades Pt-Co) ^{β 2,3}	No deberá ser alterado por otras causas que no sean fenómenos naturales.		Mensual	Fortuita
DBO ₅ (mg/L) ^{1,2,3}	30.0		Mensual	Compuesta
Flujo m ³ /día (MGD) ^{3,4}		6,245.93 (1.65)*	Registro Continuo	
Oxígeno Disuelto (mg/L) ^{1,2,3}	Contendrán no menos de 5.0.		Diario	Fortuita
pH (SU) ^{2,3}	Deberá siempre permanecer entre 7.3 y 8.5.		Diario	Fortuita
Sólidos Suspendidos Totales (mg/L) ³		----	Mensual	Fortuita

TABLA A-5 LÍMITES DE EFLUENTE Y REQUISITOS DE MUESTREO

NPDES NÚM. PR0001660

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobos, SB

<u>Características del Efluente</u>	<u>Limitaciones de la Descarga</u>		<u>Requisitos de Muestreo</u>	
	Promedio Mensual	Máximo Diario	Frecuencia de Muestreo	Tipo de Muestra
Sólidos Suspendidos, Coloidales o Sedimentables (mL/L) ^{1,2,3}	Los sólidos provenientes de aguas usadas no deberán ocasionar asentamientos, o perjudicar los usos existentes o designados de los cuerpos de agua.		Diario	Fortuita
Sólidos y Otras Materias ^{2,3}	Las aguas de Puerto Rico no deberán contener escombros flotantes, desechos u otros materiales flotantes atribuibles a descargas en cantidades suficientes que resulten desagradables o puedan perjudicar los usos existentes o designados del cuerpo de agua.		----	----
Substancias que provocan sabor u olor ^{2,3}	Ninguna deberá estar presente en cantidades que interfieran con el uso de recreación de contacto primario, o le impartan cualquier sabor u olor indeseable a la vida acuática comestible.		----	----
Temperatura °F (°C) ^{2,3}	Excepto por causas naturales, no se le aumentará calor a las aguas de Puerto Rico que pueda ocasionar un alza sobre los 90 °F (32.2 °C) en cualquier lugar.		Diario	Fortuita
Condiciones Especiales	Ver páginas adjuntas, las cuales contienen condiciones especiales que constituyen parte de esta certificación.		----	----

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobs, SB

Notas:

Para cumplir con los requisitos de muestreo aquí especificados, las muestras deberán ser tomadas en el punto de descarga 003. Todas las medidas de flujo deberán alcanzar precisión dentro del rango de más o menos 10%.

- * El límite de efluente diario máximo para flujo no considera la descarga de aguas de lluvia a través del punto de descarga 003.
- β Color deberá ser muestreado en el efluente y en el cuerpo de agua receptor.
- ε Ver Condición Especial 4.

- ϕ El peticionario deberá implantar un programa de muestreo mensual utilizando el método analítico aprobado por la *EPA*, con el nivel de detección más bajo posible, en conformidad con la Sección 6.2.3 del RECA según enmendado, por un periodo de un (1) año, luego del cual se conducirá anualmente. El programa de muestreo deberá comenzar no más tarde de treinta (30) días después de la aprobación por escrito de la JCA del Plan de Aseguramiento de Calidad del Proyecto (*QAPP*, por sus siglas en inglés). El *QAPP* deberá ser sometido para evaluación y aprobación de la JCA no más tarde de treinta (30) días después de la FEP. Los resultados del programa de muestreo deberán someterse a la JCA y a la *EPA*-Región II no más tarde de sesenta (60) días luego de completarse un (1) año de muestreo. Basándose en la evaluación de los resultados obtenidos, la JCA determinará si es necesario establecer un límite de efluente para este parámetro. En tal caso, el CCA será reabierto para incluir el límite de efluente aplicable.

1, 2, 3 y 4 ver página 13 de las Condiciones Especiales.

TABLA A-6 LÍMITES DE EFLUENTE Y REQUISITOS DE MUESTREO

NPDES NÚM. PR0001660

Durante el periodo comenzando en la FEP y terminando en la FEP + 5 años, el peticionario está autorizado a descargar a través del punto de descarga 004 purga de las torres de enfriamiento de la Planta de Ciclo Combinado, aguas de pruebas hidrostáticas del equipo del Ciclo Combinado, aguas de usos misceláneos de la Planta de Ciclo Combinado, agua de lluvia de los diques de los tanques de combustible, aguas de escorrentía pluvial y agua subterránea. Dicha descarga deberá ser limitada y muestreada por el peticionario según especificado adelante:

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobos, SB

<u>Características del Efluente</u>	<u>Limitaciones de la Descarga</u>		<u>Requisitos de Muestreo</u>	
	Promedio Mensual	Máximo Diario	Frecuencia de Muestreo	Tipo de Muestra
Aceite y Grasa (mg/L) ^{2,3}	Las aguas de Puerto Rico deberán estar substancialmente libres de aceites y grasas flotantes no derivados del petróleo así como de aceites y grasas derivados del petróleo.		Mensual	Fortuita
Cianuro Libre (CN) (µg/L) ^{ε 2,3}		----	φ	Fortuita
Cinc (Zn) (µg/L) ^{2,3}		81.00	Mensual	Fortuita
Color (Unidades Pt-Co) ^{β 2,3}	No deberá ser alterado por otras causas que no sean fenómenos naturales.		Mensual	Fortuita
DBO ₅ (mg/L) ^{1,2,3}	30.0		Mensual	Compuesta
Flujo m ³ /día (MGD) ^{3,4}		151.42 (0.04)*	Registro Continuo	
Oxígeno Disuelto (mg/L) ^{1,2,3}	Contendrán no menos de 5.0.		Diario	Fortuita

TABLA A-6 LÍMITES DE EFLUENTE Y REQUISITOS DE MUESTREO

NPDES NÚM. PR0001660

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobos, SB

<u>Características del Efluente</u>	<u>Limitaciones de la Descarga</u>		<u>Requisitos de Muestreo</u>	
	Promedio Mensual	Máximo Diario	Frecuencia de Muestreo	Tipo de Muestra
Pentaclorofenol (µg/L) ^{2,3}		----	φ	Fortuita
pH (SU) ^{2,3}	Deberá siempre permanecer entre 7.3 y 8.5.		Diario	Fortuita
Sólidos Suspendidos Totales (mg/L) ³		----	Mensual	Fortuita
Sólidos Suspendidos, Coloidales o Sedimentables (mL/L) ^{1,2,3}	Los sólidos provenientes de aguas usadas no deberán ocasionar asentamientos, o perjudicar los usos existentes o designados de los cuerpos de agua.		Diario	Fortuita
Sólidos y Otras Materias ^{2,3}	Las aguas de Puerto Rico no deberán contener escombros flotantes, desechos u otros materiales flotantes atribuibles a descargas en cantidades suficientes que resulten desagradables o puedan perjudicar los usos existentes o designados del cuerpo de agua.		----	----
Substancias que provocan sabor u olor ^{2,3}	Ninguna deberá estar presente en cantidades que interfieran con el uso de recreación de contacto primario, o le impartan cualquier sabor u olor indeseable a la vida acuática comestible.		----	----
Temperatura °F (°C) ^{2,3}	Excepto por causas naturales, no se le aumentará calor a las aguas de Puerto Rico que pueda ocasionar un alza sobre los 90 °F (32.2 °C) en cualquier lugar.		Diario	Fortuita

TABLA A-6 LÍMITES DE EFLUENTE Y REQUISITOS DE MUESTREO

NPDES NÚM. PR0001660

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobos, SB

<u>Características del Efluente</u>	<u>Limitaciones de la Descarga</u>		<u>Requisitos de Muestreo</u>	
	Promedio Mensual	Máximo Diario	Frecuencia de Muestreo	Tipo de Muestra
Turbiedad (NTU) ^{2,3}		10	Mensual	Fortuita
Condiciones Especiales	Ver páginas adjuntas, las cuales contienen condiciones especiales que constituyen parte de esta certificación.		----	----

Notas:

Para cumplir con los requisitos de muestreo aquí especificados, las muestras deberán ser tomadas en el punto de descarga 004. Todas las medidas de flujo deberán alcanzar precisión dentro del rango de más o menos 10%.

* El límite de efluente diario máximo para flujo no considera la descarga de aguas de lluvia a través del punto de descarga 004.

β Color deberá ser muestreado en el efluente y en el cuerpo de agua receptor.

ϵ Ver Condición Especial 4.

ϕ El peticionario deberá implantar un programa de muestreo mensual utilizando el método analítico aprobado por la EPA, con el nivel de detección más bajo posible, en conformidad con la Sección 6.2.3 del RECA según enmendado, por un periodo de un (1) año, luego del cual se conducirá anualmente. El programa de muestreo deberá comenzar no más tarde de treinta (30) días después de la aprobación por escrito de la JCA del Plan de Aseguramiento de Calidad del Proyecto (QAPP, por sus siglas en inglés). El QAPP deberá ser sometido para evaluación y aprobación de la JCA no más tarde de treinta (30) días después de la FEP. Los resultados del programa de muestreo deberán someterse a la JCA y a la EPA-Región II no más tarde de sesenta (60) días luego de completarse un (1) año de muestreo. Basándose en la evaluación de los resultados obtenidos, la JCA determinará si es necesario establecer un límite de efluente para este parámetro. En tal caso, el CCA será reabierto para incluir el límite de efluente aplicable.

1, 2, 3 y 4 ver página 13 de las Condiciones Especiales.

TABLA A-7 LÍMITES DE EFLUENTE Y REQUISITOS DE MUESTREO

NPDES NÚM. PR0001660

Durante el periodo comenzando en la FEP y terminando en la FEP + 5 años, el peticionario está autorizado a descargar a través del punto de descarga 005 aguas de escorrentía pluvial tratadas en un separador de aceite y agua previo a ser descargadas. Dicha descarga deberá ser limitada y muestreada por el peticionario según especificado adelante:

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobos, SB

<u>Características del Efluente</u>	<u>Limitaciones de la Descarga</u>		<u>Requisitos de Muestreo</u>	
	Promedio Mensual	Máximo Diario	Frecuencia de Muestreo	Tipo de Muestra
Aceite y Grasa (mg/L) ^{2,3}	Las aguas de Puerto Rico deberán estar substancialmente libres de aceites y grasas flotantes no derivados del petróleo así como de aceites y grasas derivados del petróleo.		COF	Fortuita
Flujo m ³ /día (MGD) ^{3,4}	N/A		COF	Estimado
pH (SU) ^{2,3}	Deberá siempre permanecer entre 7.3 y 8.5.		COF	Fortuita
Sólidos Suspendidos, Coloidales o Sedimentables (mL/L) ^{1,2,3}	Los sólidos provenientes de aguas usadas no deberán ocasionar asentamientos, o perjudicar los usos existentes o designados de los cuerpos de agua.		COF	Fortuita
Sólidos y Otras Materias ^{2,3}	Las aguas de Puerto Rico no deberán contener escombros flotantes, desechos u otros materiales flotantes atribuibles a descargas en cantidades suficientes que resulten desagradables o puedan perjudicar los usos existentes o designados del cuerpo de agua.		----	----

TABLA A-7 LÍMITES DE EFLUENTE Y REQUISITOS DE MUESTREO

NPDES NÚM. PR0001660

Nombre y Clasificación del Cuerpo de Agua Receptor: Bahía de Jobos, SB

<u>Características del Efluente</u>	<u>Limitaciones de la Descarga</u>		<u>Requisitos de Muestreo</u>	
	Promedio Mensual	Máximo Diario	Frecuencia de Muestreo	Tipo de Muestra
Substancias que provocan sabor u olor ^{2,3}	Ninguna deberá estar presente en cantidades que interfieran con el uso de recreación de contacto primario, o le impartan cualquier sabor u olor indeseable a la vida acuática comestible.		----	----
Temperatura °F (°C) ^{2,3}	Excepto por causas naturales, no se le aumentará calor a las aguas de Puerto Rico que pueda ocasionar un alza sobre los 90 °F (32.2 °C) en cualquier lugar.		COF	Fortuita
Condiciones Especiales	Ver páginas adjuntas, las cuales contienen condiciones especiales que constituyen parte de esta certificación.		----	----

Notas:

Para cumplir con los requisitos de muestreo aquí especificados, las muestras deberán ser tomadas en el punto de descarga 005. Todas las medidas de flujo deberán alcanzar precisión dentro del rango de más o menos 10%.

N/A No aplica

COF Ver Condición Especial 18.

1, 2, 3 y 4 ver página 13 de las Condiciones Especiales.

ATTACHMENT III

DESCRIPTION OF DISCHARGES

The Aguirre Power Plant Complex Plant (APPC) consists of two twenty (20) megawatt (MW) oil-fired turbine generators, two three hundred (300) MW combined cycle oil-fired units, and two oil-fired four hundred and fifty (450) MW steam-electric units, with a total electrical output rating of 1,540 MW.

The outfalls at the facility, and a description of the corresponding effluent discharges is included below. APPC withdraws seawater from the Bahia de Jobos, an estuarine bay on the southern coast of Puerto Rico. Cooling water, process wastewater, and stormwater are discharged to Jobos Bay via five separate outfalls. The schematic of water flow is shown in Figures 1 and 2. Listed below are operations contributing wastestreams to Outfalls 001, 002, 003, 004, 005 and the internal monitoring points set up for the internal waste streams (IWSs).

<u>Discharge Serial Number</u>	<u>Discharge Description</u>	<u>Discharge Maximum Flow</u>
001	<ul style="list-style-type: none"> ▪ Thermoelectric Plant Condensers Cooling Water ▪ Thermoelectric Plant Service Water Cooling Towers Blowdown ▪ Combined Cycle Plant Sea Water Cooling Towers Make Up and Blowdown ▪ Thermoelectric Plant Tanks and Condenser Hydrostatic Test Waters ▪ Condenser Screen Washwaters ▪ Stormwater 	652.0 million gallons per day (MGD)
IWS 001a	▪ Thermoelectric Condenser Cooling Water	652.0 MGD
IWS 001b	▪ Thermoelectric Service Water Cooling Tower Blowdown Units 1 & 2	0.05 MGD/occurrence
IWS 001c	• Combined Cycle Condenser Water Cooling Tower Blowdown Unit No. 1	2.5 MGD/occurrence

<u>Discharge Serial Number</u>	<u>Discharge Description</u>	<u>Discharge Maximum Flow</u>
IWS 001d	• Combined Cycle Condenser Water Cooling Tower Blowdown Unit No. 2	2.5 MGD/occurrence
002	▪ Condensate of the Fuel Heaters ▪ Floor and Equipment Drains ▪ Miscellaneous Use Water ▪ Stormwater Runoff	0.25 MGD
003	▪ Wastewater Treatment Plant Effluent ▪ Stormwater Runoff	1.65 MGD
IWS 003a	▪ Central Waste Treatment Plant Effluent	1.65 MGD
004	▪ Combined Cycle Plant Service Water Cooling Tower Blowdown ▪ Combined Cycle Plant Miscellaneous Use Water ▪ Sedimentation Basin 2 Effluent (Stormwater from the Fuel Tanks Dikes) ▪ Stormwater Runoff ▪ Groundwater	0.04 MGD
IWS 004a	▪ Combined Cycle Plant Service Water Cooling Tower Blowdown	0.15 MGD
005	▪ Stormwater Runoff	N/A

Permit Conditions

The effluent limitations, monitoring requirements, and other conditions are described in the draft permit. The effluent limitations in the permit are equivalent to the most stringent values specified in the applicable technology-based guidelines or water quality-based limitations. The basis for each limitation is explained in the tables that follow this section.

Water Quality-Based Limits

The effluent limitations for several contaminants and special conditions are as imposed in the draft Water Quality Certificate (WQC) issued by the EQB, dated February 16, 2010. The WQC was issued by the EQB for the purpose of assuring compliance with EQB's water quality standards and compliance with other appropriate requirements of State law as provided by Section 401(d) of the Clean Water Act. All water quality-based antibacksliding decisions are made in accordance with EPA Region II Antibacksliding Policy dated August 10, 1993. Policy decisions, applicable to pollutants regulated by water quality-based effluent limitations for which antibacksliding is applicable, are provided as follows:

The water quality-based effluent limitations from the previous permit for cadmium are not included in the draft WQC. EPA has determined that it is appropriate to remove the effluent limitations for cadmium without violating antibacksliding provisions of the Clean Water Act (CWA), in accordance with section 402(o), since one of the exceptions to the provisions has been satisfied. CWA §402(o)(2)(B)(i) allows backsliding if information is available which was not available at the time of permit issuance and would have justified a less stringent effluent limitation at the time of permit issuance. Other parameters, such as iron, silver, and zinc have been removed from Outfall 001, but are addressed in internal wastestream technology based limitations, or other Outfall discharges. Additionally, EQB has chosen to regulate Free Cyanide in the draft WQC, as opposed to Total Cyanide as was included in the previous permit.

Region II AntiBacksliding Policy

Certain parameters that were regulated by the previous permit were not included in the current EQB WQC. In some case, as discussed in the following sections, these limitations were based on effluent limitation guidelines and were technology based, and are therefore included in this permit. In other cases, where there is no longer a water quality standard for that parameter in Puerto Rico, EPA has deleted the pollutant from the list of regulated parameters. For parameters that previously had a water quality based effluent limit, that were in compliance with that limit, EPA has either retained the previous permit limit, or incorporated a limitation based on the revised EQB water quality standards for Puerto Rico, dated March 2010. The basis for each limitation is provided in the tables that follow within this fact sheet attachment.

Technology-Based Limits

Technology-based limits are included based upon 40 CFR §122.45(h), Effluent Limitation Guidelines (ELG) for the Steam Electric Generating Point Source Category at 40 CFR §423.12, and §423.13, as well as the *EPA Region II Revised Guidance for Cooling Water and Storm Water Runoff* dated September 5, 1991. Where appropriate, the technology-based limitations have been applied at monitoring points along internal waste streams (IWS), since compliance with technology-based effluent guideline limitations cannot be demonstrated after dilution with once-through cooling water and storm water. A description of limitations and conditions for each outfall or waste stream follow below. Additionally, the calculation of technology-based limits, and the requiring regulation are cited in the limit basis tables that follow this section.

Outfall 001

Outfall 001 discharges approximately 5,800 feet offshore, and includes the Thermoelectric Plant Condenser Cooling Water, Thermoelectric Plant Service Water Cooling Towers Blowdown, Combined Cycle Plant Sea Water Cooling Towers Make Up and Blowdown Thermoelectric Plant Tanks and Condenser Hydrostatic Test Waters, Condenser Screen Washwaters, and Stormwater. EPA has included the limitation for polychlorinated biphenyls (PCBs) based upon the Steam Electric Power Generating Point Source Category 40 CFR §423.13(a), representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

IWS 001a: Table A-1a

IWS 001a discharges Thermoelectric Plant condenser cooling water which is ultimately discharged through Outfall 001. The limitation for Total Residual Chlorine, and the accompanying conditions are based upon the Steam Electric Power Generating Point Source Category 40 CFR §423.13(b), representing the degree of effluent reduction attainable by the application BAT. The calculation of this limit is included in Table A-1a of this fact sheet.

IWS 001b: Table A-1b

IWS 001b discharges Thermoelectric Service Water Cooling Tower Blowdown which ultimately is discharge to Outfall 001. The discharge from this waste stream occurs approximately twice per year, according to the NPDES permit application. The limitations for Free Available Chlorine, Chromium, and Zinc are based on Steam Electric Power Generating Point Source Category cooling tower blowdown waste sources effluent guideline, representing the degree of effluent

reduction attainable by the application of BAT (40 CFR 423.13(d)(1)). The mass based limitations were calculated using the maximum flow per blowdown occurrence. This guideline also includes a requirement that no detectable amount of the 126 Priority Pollutants be discharged. The calculation of this limit is included in Table A-1b of this fact sheet. Monitoring requirement is included as "occurrence", referring to each discharge of wastewater. The calculation of this limit is included in Table A-1b of this fact sheet.

IWS 001c: Table A-1c

IWS 001b discharges Combined Cycle Plant Condenser Water Cooling Tower Blowdown from Unit No. 1, which ultimately is discharged through Outfall 001. The limitations for Free Available Chlorine, Chromium, and Zinc are based on Steam Electric Power Generating Point Source Category cooling tower blowdown waste sources effluent guideline, representing the degree of effluent reduction attainable by the application of BAT (40 CFR 423.13(d)(1)). The mass based limitations were calculated using the maximum flow per blowdown occurrence. This guideline also includes a requirement that no detectable amount of the 126 Priority Pollutants be discharged. Monitoring requirement is included as "occurrence", referring to each discharge of wastewater. The calculation of this limit is included in Table A-1c of this fact sheet.

IWS 001d: Table A-1d

IWS 001d discharges Combined Cycle Plant Condenser Water Cooling Tower Blowdown from Unit No. 2, which ultimately is discharged through Outfall 001. The limitations for Free Available Chlorine, Chromium, and Zinc are based on Steam Electric Power Generating Point Source Category cooling tower blowdown waste sources effluent guideline, representing the degree of effluent reduction attainable by the application of BAT (40 CFR 423.13(d)(1)). The mass based limitations were calculated using the maximum flow per blowdown occurrence. This guideline also includes a requirement that no detectable amount of the 126 Priority Pollutants be discharged. The calculation of this limit is included in Table A-1b of this fact sheet. Monitoring requirement is included as "occurrence", referring to each discharge of wastewater. The calculation of this limit is included in Table A-1d of this fact sheet.

Outfall 002

Outfall 002 discharges the waste water from trap floor and equipment drains, and stormwater. The technology-based effluent limitations for PCBs are included as in Outfall 001. The limitations for Oil and Grease, based on the Steam Electric Power Generating Point Source Category low volume waste sources effluent guideline (40 CFR 423.12(b)(3)), would be included as 15 mg/l as a monthly average, and 20 mg/l as a daily maximum. The existing permit imposed Oil and Grease limits of 10 mg/l as a monthly average and 15 mg/l as a daily maximum. The requirements for Oil and Grease from the Effluent Limitation Guidelines and the previous permit are both more stringent than the narrative water quality based requirement included in the EQB WQC. Region 2

staff have evaluated the available monitoring results, and have determined that the discharge is in compliance with the existing permit limitations. Based on BPJ, this limitation has been retained from the existing permit to serve as an indicator of effluent quality at Outfall 002.

The Total Suspended Solids (TSS) limitation of 30 mg/l (monthly ave.) is based on the Steam Electric Power Generating Point Source Category low volume waste sources effluent guideline. The TSS limitation of 50 mg/l (daily max.), is based on the more stringent EPA Region II Best Professional Judgement Guidance for Stormwater, dated September 5, 1991, as is the limitation for Chemical Oxygen Demand (COD).

Outfall 003: Table A-3

Outfall 003 discharges effluent from the wastewater treatment plant effluent, condenser screen washwater, and storm water. The screen wash from the fish return system at the cooling water intake structure is discharged through Outfall 003. Effluent limitations for Oil and Grease and TSS limitations are based on Steam Electric Power Generating Point Source Category low volume waste sources effluent guideline (40 CFR 423.12(b)(3)). EPA has included a daily maximum limitation of 50 mg/l, as it is more stringent than the ELG daily maximum limitation of 100 mg/l.

IWS 003a: Table A-3a

IWS 003a discharges Central Waste Treatment Effluent which ultimately is discharged through Outfall 003. Effluent limitations for Oil and Grease and TSS limitations are based on Steam Electric Power Generating Point Source Category low volume waste sources effluent guideline. The limitations for Copper and Zinc are based on Steam Electric Power Generating Point Source Category metal cleaning waste sources effluent guideline (40 CFR 423.12(e)(5)).

Outfall 004: Table A-4

Outfall 004 discharges Combined Cycle Plant Service Water Cooling Tower Blowdown, Combined Cycle Plant Miscellaneous Use Water, Sedimentation Basin 2 Effluent (Stormwater from the Fuel Tanks Dikes), Stormwater Runoff, and Groundwater. EPA has included the limitation for polychlorinated biphenyls (PCBs) based upon the Steam Electric Power Generating Point Source Category 40 CFR §423.13(a), representing the degree of effluent reduction attainable by the application of BAT. EPA has included a daily maximum limitation of 50 mg/l, as it is more stringent than the ELG daily maximum limitation of 100 mg/l.

IWS 004a: Table A-4a

IWS 004a discharges Combined Cycle Plant Condenser Water Cooling Tower Blowdown from Unit No. 2, which ultimately is discharged through Outfall 001. The limitations for Free Available Chlorine, Chromium, and Zinc are based on Steam Electric Power Generating Point Source Category cooling tower blowdown waste sources effluent guideline, representing the degree of

effluent reduction attainable by the application of the best available technology economically achievable (BAT). The mass based limitations were calculated using the maximum flow per blowdown occurrence. This guideline also includes a requirement that no detectable amount of the 126 Priority Pollutants be discharged. The calculation of this limit is included in Table A-4a of this fact sheet. Monitoring requirement is included as "occurrence", referring to each discharge of wastewater. The calculation of this limit is included in Table A-4a of this fact sheet.

Outfall 005: Table A-5

Outfall 005 discharges storm water runoff. EPA has included the limitations for daily maximum COD and TSS based on *EPA Region II Revised Guidance for Cooling Water and Storm Water Runoff* dated September 5, 1991, as is the limitation for Chemical Oxygen Demand (COD).

Chemical Usage

The permittee is permitted to use chemicals to control biofouling in the service cooling towers, or for fire protection foam, provided that they meet the following conditions:

- 1) The discharge shall not cause a violation of any permit limit or cause or contribute to an exceedance of any applicable water quality standard for the receiving water.
- 2) Notification to EPA of the optimum product dosage necessary to ensure no deleterious effects to the effluent aquatic toxicity. PREPA shall also document that adequate process controls are in place to ensure that excessive levels of the chemical products are not subsequently discharged.
- 3) EPA may request that PREPA perform toxicity testing of the outfall discharges, or pilot test waste streams, to ensure that the use of chemicals does not contribute to effluent toxicity.
- 4) EPA has prohibited the discharge of plastic pellets or rockets utilized in the Continuous On-line Mechanical Condenser Cleaning System from outfalls 001, 002, 003, 004, and 005.
- 5) EPA has included a requirement that PREPA use best management practices to prevent and minimize any discharges of fire protection foam.
- 6) EPA has included a procedure for pilot testing of materials and chemicals to ensure that permit limitations are met at all times.

TABLE A-1: Outfall No. 001 Thermoelectric Plant condenser cooling water, Thermoelectric Plant service water cooling tower blowdown, Combined Cycle Plant condenser water cooling tower make up and blowdown, and stormwater.			
	Monthly Avg.	Daily Maximum	Basis
Flow m ³ /day (MGD)		2.47 x 10 ⁶ (652.0)*	EQB Water Quality Certificate
BOD ₅ (mg/l)	30.0		EQB Water Quality Certificate
Cadmium (µg/l)		5.0	Previous Permit
Color (Pt-Co units)	Shall not be altered except by natural causes.		EQB Water Quality Certificate
Copper (Cu) (µg/l)		3.73	Previous Permit, compliant with March 2010 Revised Puerto Rico Water Quality Standards
Dissolved Oxygen (mg/l)	Shall not contain less than 5.0.		EQB Water Quality Certificate
Lead (Pb) (µg/l)		8.52	Previous Permit, compliant with March 2010 Revised Puerto Rico Water Quality Standards
Mercury (µg/l)		---	Monitoring requirement to assess reasonable potential to cause or contribute to an exceedance of water quality standards.
Oil and Grease (mg/l)	10.0	15.0	Oil and Grease: The Oil and Grease limits of 10 mg/l as a monthly average and 15 mg/l as a daily maximum is based on BPJ. These limitations have been retained from the existing permit to serve as an indicator of effluent quality at Outfall 001.
Oil and Grease (mg/l)	The waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oils and greases.		EQB Water Quality Certificate

TABLE A-1: Outfall No. 001 Thermoelectric Plant condenser cooling water, Thermoelectric Plant service water cooling tower blowdown, Combined Cycle Plant condenser water cooling tower make up and blowdown, and stormwater.			
	Monthly Avg.	Daily Maximum	Basis
pH (SU)	Shall always lie between 7.3 and 8.5.		EQB Water Quality Certificate, more stringent than ELG
Polychlorinated Biphenyls (PCBs)	There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.		40 CFR 423.13(a) Steam Electric Point Source Category ELG
Silver (µg/l)		2.0	Previous Permit
Solids and Other Matter	The waters of Puerto Rico shall not contain floating debris, scum and other floating material attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the waterbody.		EQB Water Quality Certificate
Suspended, Colloidal or Settleable Solids (ml/l)	Solids from wastewater sources shall not cause deposition in or be deleterious to the existing or designated uses of the waters.		EQB Water Quality Certificate
Taste and Odor Producing Substances ²	Shall not be present in amounts that will interfere with the primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		EQB Water Quality Certificate
Temperature °F (°C)	Except by natural causes, no heat may be added to the waters of Puerto Rico, which would cause the temperature of any site to exceed 90 °F (32.2°C)		EQB Water Quality Certificate
Total Suspended Solids (mg/l)	30.0	50.0	The limit of 30.0 mg/l as monthly average is retained from the previous permit in accordance with antibacksliding provisions. The limit of 50.0 mg/l is established in accordance with the <i>Region II Revised Guidance for Cooling Water and Storm Water Runoff</i> , dated September 5, 1991.

Table A-1a: Internal Outfall 001a Condenser Cooling Water			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		Basis
	Monthly Average	Daily Maximum	
			40 CFR 423.13(b)(1) for once-through cooling water in accordance with Best Available Technology Economically Achievable (BAT):
Total Residual Chlorine (TRC) (kg/day)		494	$0.20 \text{ mg/l} \times 652.0 \text{ MGD} \times 8.34 = 1087.5 \text{ lb/d} = \mathbf{494 \text{ kg/d}}$

Table A-1b: Internal Outfall 001b Cooling Tower Blowdown			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		Basis
	Daily Average	Daily Maximum	
			40 CFR 423.13(d)(1)(2) for cooling tower blowdown in accordance with BAT. A flow of 0.05 MGD was used in the calculation for the estimate of the occurrence of cooling tower blowdown flow at outfall 001b.
Free Available Chlorine (1)	0.038	0.095	$0.2 \text{ mg/l} \times 0.05 \text{ MGD} \times 8.34 = 0.0834 \text{ lb/d} = \mathbf{0.038 \text{ kg/d}}$ Daily Avg.
			$0.5 \text{ mg/l} \times 0.05 \text{ MGD} \times 8.34 = 0.2085 \text{ lb/d} = \mathbf{0.095 \text{ kg/d}}$ Daily Max.
Total Chromium	0.038	0.038	$0.2 \text{ mg/l} \times 0.05 \text{ MGD} \times 8.34 = 0.0834 \text{ lb/d} = \mathbf{0.038 \text{ kg/d}}$ Daily Avg.
			$0.2 \text{ mg/l} \times 0.05 \text{ MGD} \times 8.34 = 0.0834 \text{ lb/d} = \mathbf{0.038 \text{ kg/d}}$ Daily Max.
Total Zinc	0.190	0.190	$1.0 \text{ mg/l} \times 0.05 \text{ MGD} \times 8.34 = 0.4170 \text{ lb/d} = \mathbf{0.190 \text{ kg/d}}$ Daily Avg.
			$1.0 \text{ mg/l} \times 0.05 \text{ MGD} \times 8.34 = 0.4179 \text{ lb/d} = \mathbf{0.190 \text{ kg/d}}$ Daily Max.

Table A-1b: Internal Outfall 001b Cooling Tower Blowdown			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		
	Daily Average	Daily Maximum	Basis
			40 CFR 423.13(d)(1)(2) for cooling tower blowdown in accordance with BAT. A flow of 0.05 MGD was used in the calculation for the estimate of the occurrence of cooling tower blowdown flow at outfall 001b.
126 Priority Pollutants	No detectable amount.		40 CFR 423.13(d)(1)(2) guidelines for cooling tower blowdown

Table A-1c: Internal Outfall 001c Combined Cycle Condenser Water Cooling Tower			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Basis</u>
	Daily Average	Daily Maximum	
			40 CFR 423.13(d)(1)(2) for cooling tower blowdown in accordance with BAT. A flow of 2.5 MGD was used in the calculation for the estimate of the occurrence of cooling tower blowdown flow at outfall 001c.
Free Available Chlorine	1.895	4.739	0.2 mg/l x 2.5 MGD x 8.34 = 4.170 lb/d = 1.895 kg/d Daily Avg.
			0.5 mg/l x 2.5 MGD x 8.34 = 10.425 lb/d = 4.739 kg/d Daily Max.
Total Chromium	1.895	1.895	0.2 mg/l x 2.5 MGD x 8.34 = 4.170 lb/d = 1.895 kg/d Daily Avg.
			0.2 mg/l x 2.5 MGD x 8.34 = 4.170 lb/d = 1.895 kg/d Daily Max.
Total Zinc	9.477	9.477	1.0 mg/l x 2.5 MGD x 8.34 = 20.850 lb/d = 9.477 kg/d Daily Avg.
			1.0 mg/l x 2.5 MGD x 8.34 = 20.850 lb/d = 9.477 kg/d Daily Max.
126 Priority Pollutants	No detectable amount.		40 CFR 423.13(d)(1)(2) guidelines for cooling tower blowdown

Table A-1d: Internal Outfall 001d Combined Cycle Condenser Water Cooling Tower			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		
	Daily Average	Daily Maximum	Basis
			40 CFR 423.13(d)(1)(2) for cooling tower blowdown in accordance with BAT. A flow of 2.5 MGD was used in the calculation for the estimate of the occurrence of cooling tower blowdown flow at outfall 001c.
Free Available Chlorine	1.895	4.739	0.2 mg/l x 2.5 MGD x 8.34 = 4.170 lb/d = 1.895 kg/d Daily Avg. 0.5 mg/l x 2.5 MGD x 8.34 = 10.425 lb/d = 4.739 kg/d Daily Max.
Total Chromium	1.895	1.895	0.2 mg/l x 2.5 MGD x 8.34 = 4.170 lb/d = 1.895 kg/d Daily Avg. 0.2 mg/l x 2.5 MGD x 8.34 = 4.170 lb/d = 1.895 kg/d Daily Max.
Total Zinc	9.477	9.477	1.0 mg/l x 2.5 MGD x 8.34 = 20.850 lb/d = 9.477 kg/d Daily Avg. 1.0 mg/l x 2.5 MGD x 8.34 = 20.850 lb/d = 9.477 kg/d Daily Max.
126 Priority Pollutants	No detectable amount.		40 CFR 423.13(d)(1)(2) guidelines for cooling tower blowdown

TABLE A-2: Outfall 002 Trap floor and equipment drains, stormwater			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Basis</u>
	Monthly Average	Daily Maximum	
Flow m ³ /day (MGD)		946.35 (0.25)	EQB Water Quality Certificate
BOD ₅ (mg/l)	30.0		EQB Water Quality Certificate/Previous Permit
Cadmium (µg/l)		5.0	Previous Permit
Color (Pt-Co units)	Shall not be altered except by natural causes.		EQB Water Quality Certificate
COD (mg/l)		100.0	<i>Region II Revised Guidance for Cooling Water and Storm Water Runoff</i> , dated September 5, 1991.
Dissolved Oxygen (mg/l)	Shall not contain less than 5.0		EQB Water Quality Certificate
Lead (Pb)(µg/l)		8.52	Previous Permit, compliant with March 2010 Revised Puerto Rico Water Quality Standards
Mercury (Hg) (µg/l)		1.0	Previous Permit
Oil and Grease (mg/l)		15.0	<i>Region II Revised Guidance for Cooling Water and Storm</i>

TABLE A-2: Outfall 002 Trap floor and equipment drains, stormwater			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Basis</u>
	Monthly Average	Daily Maximum	
			<i>Water Runoff</i> , dated September 5, 1991.
Oil and Grease (mg/l)	The waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oils and greases.		EQB Water Quality Certificate
Polychlorinated Biphenyls (PCBs)	There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.		40 CFR 423.13(a) Steam Electric Point Source Category ELG
pH (SU)	Shall always lie between 7.3 and 8.5		EQB Water Quality Certificate, more stringent than ELG
Silver (Ag) (µg/l)		1.0	Previous Permit, compliant with March 2010 Revised Puerto Rico Water Quality Standards
Solids and Other Matter	The waters of Puerto Rico shall not contain floating debris, scum or other floating material attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the waterbody.		EQB Water Quality Certificate
Suspended, Colloidal or Settleable Solids (ml/l)	Solids from wastewater sources shall not cause deposition in or be deleterious to the existing or designated uses of the waters.		EQB Water Quality Certificate
Taste and Odor Producing Substances	Shall not be present in amounts that will interfere with the primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		EQB Water Quality Certificate

TABLE A-2: Outfall 002 Trap floor and equipment drains, stormwater			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Basis</u>
	Monthly Average	Daily Maximum	
Temperature ° F (°C)	Except by natural causes, no head may be added to the waters of Puerto Rico, which would cause the temperature of any site to exceed 90° F (32.2° C)		EQB Water Quality Certificate
Total Suspended Solids (mg/l)		50.0	<i>Region II Revised Guidance for Cooling Water and Storm Water Runoff</i> , dated September 5, 1991.
Turbidity (NTU)		10	EQB Water Quality Certificate

TABLE A-3: Outfall 003 Condenser screen washwater, treatment plant effluent, storm water			
Effluent Characteristics			Basis
	Monthly Average	Daily Maximum	
Flow m ³ /day (MGD)		6,245.93 (1.65)*	EQB Water Quality Certificate
BOD ₅ (mg/l)	30.0		EQB Water Quality Certificate
Color (Pt-Co units)	Shall not be altered except by natural causes.		EQB Water Quality Certificate
Copper (Cu) (µg/l)		3.73	Previous Permit, compliant with March 2010 Revised Puerto Rico Water Quality Standards
Cyanide, Free (CN) (µg/l)		----	EQB Water Quality Certificate
Dissolved Oxygen (mg/l)	Shall not contain less than 5.0		EQB Water Quality Certificate
Mercury (Hg) (µg/l)		----	EPA monitoring requirement to determine reasonable potential
Oil and Grease (mg/l)		15.0	<i>Region II Revised Guidance for Cooling Water and Storm Water Runoff</i> , dated September 5, 1991.
Oil and Grease (mg/l)	The waters of Puerto Rico shall be substantially free from floating		EQB Water Quality Certificate

TABLE A-3: Outfall 003 Condenser screen washwater, treatment plant effluent, storm water			
Effluent Characteristics			Basis
	Monthly Average	Daily Maximum	
	non-petroleum oils and greases as well as petroleum derived oils and greases.		
pH (SU)	Shall always lie between 7.3 and 8.5		EQB Water Quality Certificate, more stringent than 40 CFR 423 ELG of pH 6.0 – 9.0 SU.
Solids and Other Matter ^{2,3}	The waters of Puerto Rico shall not contain floating debris, scum and other floating material attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the waterbody.		EQB Water Quality Certificate
Suspended, Colloidal or Settleable Solids (ml/l) ^{1,2,3} #	Solids from wastewater sources shall not cause deposition in or be deleterious to the existing or designated uses of the waters.		EQB Water Quality Certificate
Taste and Odor Producing Substances ^{2,3}	Shall not be present in amounts that will interfere with the primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		EQB Water Quality Certificate
Temperature °F (°C) ^{2,3}	Except by natural causes, no heat may be added to the waters of Puerto Rico, which would cause the temperature of any site to exceed 90 °F (32.2°C)		EQB Water Quality Certificate

TABLE A-3: Outfall 003 Condenser screen washwater, treatment plant effluent, storm water			
Effluent Characteristics			Basis
	Monthly Average	Daily Maximum	
Total Suspended Solids (mg/l)	30.0	50.0	30.0 Monthly Average is according to 40 CFR 423.13(e) BCT, 50.0 mg/l Daily Max is according to <i>Region II Revised Guidance for Cooling Water and Storm Water Runoff</i> , dated September 5, 1991, which is more stringent than the 100.0 mg/l ELG.
Turbidity (NTU) ^{2,3}		10	EQB Water Quality Certificate

TABLE A-3a: Outfall 003 Central Waste Treatment Effluent			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		Basis
	Daily Average	Daily Maximum	
Total Suspended Solids (mg/l)	30.0	100.0	40 CFR 423.12(b)(5) Steam Electric Point Source Category ELG for metal and cleaning wastes, in accordance with Best Practicable Technology (BPT)
Oil and Grease	15.0	20.0	40 CFR 423.12(b)(5) Steam Electric Point Source Category ELG for metal and cleaning wastes, in accordance with Best Practicable Technology (BPT)
Copper (Cu)	1.0	1.0	40 CFR 423.13(e) Steam Electric Point Source Category ELG for metal and cleaning wastes, in accordance with BAT
Iron (Fe) (mg/l)	1.0	1.0	40 CFR 423.13(e) Steam Electric Point Source Category ELG for metal and cleaning wastes, in accordance with BAT

Table A-4: Outfall 004 Combined Cycle Plant service water cooling tower blowdown, Combined Cycle Plant miscellaneous use water, sedimentation basin 2 effluent (stormwater from the fuel tanks dikes), stormwater runoff and groundwater.			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Basis</u>
	Monthly Average	Daily Maximum	
Flow m ³ /day (MGD)		151.42 (0.04)	EQB Water Quality Certificate
BOD ₅ (mg/l)	30.0		EQB Water Quality Certificate
Color (Pt-Co Units)	Shall not be altered except by natural causes.		EQB Water Quality Certificate
Cyanide, Free (CN) (µg/l)		----	EQB Water Quality Certificate
Dissolved Oxygen (mg/l)	Shall not contain less than 5.0.		EQB Water Quality Certificate
Lead (Pb) (µg/l)		8.52	EQB Water Quality Certificate
Mercury (Hg) (µg/l)		1.0	Previous Permit

Table A-4: Outfall 004 Combined Cycle Plant service water cooling tower blowdown, Combined Cycle Plant miscellaneous use water, sedimentation basin 2 effluent (stormwater from the fuel tanks dikes), stormwater runoff and groundwater.			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Basis</u>
	Monthly Average	Daily Maximum	
Oil and Grease	10.0	15.0	Previous Permit, numeric interpretation
Oil and Grease (mg/l)	The waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oils and greases.		EQB Water Quality Certificate
Pentachlorophenol (µg/l)		----	EQB Water Quality Certificate
pH (SU)	Shall always lie between 7.3 and 8.5.		EQB Water Quality Certificate, more stringent than 40 CFR 423 ELG
Phenol (µg/l) ^{2,3}		----	EQB Water Quality Certificate
Silver (Ag) (µg/l) ^{2,3}		1.0	Previous Permit
Solids and Other Matter	The waters of Puerto Rico shall not contain floating debris, scum or other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the water body.		EQB Water Quality Certificate
Suspended, Colloidal or Settleable Solids (ml/l)	Solids from wastewater source shall not cause deposition in or be deleterious to the existing or designated uses of the waters.		EQB Water Quality Certificate

Table A-4: Outfall 004 Combined Cycle Plant service water cooling tower blowdown, Combined Cycle Plant miscellaneous use water, sedimentation basin 2 effluent (stormwater from the fuel tanks dikes), stormwater runoff and groundwater.			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Basis</u>
	Monthly Average	Daily Maximum	
Taste and Odor Producing Substances	Shall not be present in amounts that will interfere with the use of primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		EQB Water Quality Certificate
Temperature °F (°C)	Except by natural causes, no heat may be added to the waters of Puerto Rico, which would cause the temperature of any site to exceed 90°F (32.2°C).		EQB Water Quality Certificate
Total Suspended Solids (mg/l)		----	EQB Water Quality Certificate
Turbidity (NTU)		50	EQB Water Quality Certificate
Zinc (Zn) (µg/l)		50.00	Previous Permit

Table A-4a: Internal Outfall 004a Combined Cycle Condenser Water Cooling Tower			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		
	Daily Average	Daily Maximum	Basis
			40 CFR 423.13(d)(1)(2) for cooling tower blowdown in accordance with BAT. A flow of 0.15 MGD was used in the calculation for the estimate of the occurrence of cooling tower blowdown flow at outfall 004a.
Free Available Chlorine	0.114	0.284	0.2 mg/l x 0.15 MGD x 8.34 = 0.2502 lb/d = 0.114 kg/d Daily Avg.
			0.5 mg/l x 0.15 MGD x 8.34 = 0.6255 lb/d = 0.284 kg/d Daily Max.
Total Chromium	0.114	0.114	0.2 mg/l 0.15 MGD x 8.34 = 0.2502 lb/d = 0.114 kg/d Daily Avg.
			0.2 mg/l x 0.15 MGD x 8.34 = 0.2502 lb/d = 0.114 kg/d Daily Max.
Total Zinc	0.569	0.569	1.0 mg/l x 0.15 MGD x 8.34 = 1.251 lb/d = 0.569 kg/d Daily Avg.
			1.0 mg/l x 0.15 MGD x 8.34 = 1.251 lb/d = 0.569 kg/d Daily Max.
126 Priority Pollutants	No detectable amount.		40 CFR 423.13(d)(1)(2) guidelines for cooling tower blowdown

TABLE A-5: Outfall 005 Storm Water Runoff				
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Basis</u>	
	Monthly Average	Daily Maximum		
Flow m ³ /day (MGD) ^{3,4}		N/A		
COD (mg/l)		100.0	<i>Region II Revised Guidance for Cooling Water and Storm Water Runoff, dated September 5, 1991</i>	
Oil and Grease (mg/l)		15.0	<i>Region II Revised Guidance for Cooling Water and Storm Water Runoff, dated September 5, 1991.</i>	
Oil and Grease (mg/l) ^{2,3}	The waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oils and greases.		EQB Water Quality Certificate	
pH (SU) ^{2,3}	Shall always lie between 7.3 – 8.5		EQB Water Quality Certificate	
Solids and Other Matter ^{2,3}	The waters of Puerto Rico shall not contain floating debris, scum or other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the water body.		EQB Water Quality Certificate	

TABLE A-5: Outfall 005 Storm Water Runoff			
<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Basis</u>
	Monthly Average	Daily Maximum	
Suspended, Colloidal or Settleable Solids (ml/l) 1,2,3	Solids from wastewater source shall not cause deposition in or be deleterious to the existing or designated uses of the waters.		EQB Water Quality Certificate
Taste and Odor Producing Substances ^{2,3}	Shall not be present in amounts that will interfere with the primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		EQB Water Quality Certificate
Temperature °F (°C) ^{2,3}	Except by natural causes, no heat may be added to the waters of Puerto Rico, which would cause the temperature of any site to exceed 90°F (32.2°C).		EQB Water Quality Certificate
Total Suspended Solids (mg/l)		50.0	<i>Region II Revised Guidance for Cooling Water and Storm Water Runoff</i> , dated September 5, 1991

TABLE A-6 Effluent Limitations And Monitoring Requirements At The Edge Of The Mixing Zone

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u> ^a		<u>Basis</u>
	Monthly Average	Daily Maximum	
Temperature °F (°C) ^{2,3,4}		90°F (32.2°C)	EQB Water Quality Certificate, as Table A-2

TABLE A-7 Monitoring Requirements At The Background Sampling Station

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u> ^a		<u>Basis</u>
	Monthly Average	Daily Maximum	
Temperature °F (°C) ^{2,3,4}		----	EQB Water Quality Certificate, as Table A-3

ATTACHMENT IV

**PUERTO RICO ELECTRIC POWER AUTHORITY
AGUIRRE POWER PLANT
316 (b) DETERMINATION OF
BEST TECHNOLOGY AVAILABLE**

June 2010

1.0 Introduction

The proposed National Pollutant Discharge Elimination System (NPDES) permit would control the discharge of treated effluent from the PREPA Aguirre Power Plant Complex into Jobos Bay through five separate outfalls. The previous permit for the PREPA Aguirre Power Plant Complex expired on February 28, 1997. On August 30, 1996, PREPA submitted a renewal application for a NPDES permit. The previous permit continued to remain fully effective and enforceable under 40 CFR Part 122.6. PREPA has also supplemented their permit application with an *Aguirre 316 Demonstration Study* (March 2005), and the *Impingement Mortality & Entrainment Characterization Study and Current Status Report* (January 2008).

1.1 Summary of Decision

Data submitted by APPC show that organisms are present in the vicinity of the cooling water intake structure (CWIS) that are susceptible to impingement mortality or entrainment. The facility uses a closed-loop cooling system for a large portion of the power generating activity, which does reduce the intake flow significantly from that of a once-through system for similar power generating units. The facility also schedules regular shut-down periods for maintenance purposes, which result in reductions of intake flow from the baseline. Finally, the dual flow traveling screens, of ¼ inch smooth mesh panels, are operated at a low approach velocity (0.79 fps in front of the traveling screens and 0.67 fps outboard of the course bar racks), which does reduce impingement, and allows fish and shellfish to survive through the fish return system.

As currently configured and operated, the existing CWIS technology does reduce impingement mortality and entrainment, but cannot be considered best technology available (BTA). Specifically, the current traveling screen debris return system is not designed or operated in a manner that minimizes injury and mortality of impinged fish. With respect to entrainment, the current traveling screens utilize ¼ inch smooth mesh screens. The permittee has stated that these screens prevent entrainment of eggs and larvae through the sea grasses that clog the drains and trap smaller organisms. The permittee has demonstrated that entrainment of fish and shellfish is very low at the facility. However, EPA does not agree that for larvae and eggs the difference measured between the intake flow and the discharge represents a reduction in entrainment that can qualify as BTA, as the organisms are trapped on the screens, effectively impinged by the seagrasses. The study submitted by the permittee did not estimate the survival of eggs or larvae, therefore prevention of their entrainment can not be counted as part of the overall reduction of impingement mortality and entrainment.

For the Aguirre Power Plant Complex, EPA Region 2 has determined that Best Technology Available shall be operation of the current control technology, as well as adherence to the permit Special Condition No. 25, which requires evaluation and implementation of improvements to be achieved through:

- Modifications to the fish return system to reduce impingement mortality;
 - Addition of fish buckets
 - Addition of gently sloped, smooth surface, fish return discharging underwater
- Modifications to the operational measures such as continuous operation of the traveling screens, and washing pressures and frequency, to reduce impingement mortality;
 - Continuous operation
 - Low pressure spray wash
- Investigation of other feasible methods to reduce entrainment.

1.2 Section 316(b) Requirements

Under section 316(b), NPDES permits must regulate CWISs at facilities that also have permitted discharges. Section 316(b) requires that "the location, design, construction, and capacity of CWISs reflect the best technology available (BTA) for minimizing adverse environmental impact" to protect aquatic organisms from being killed or injured by impingement (being pinned against screens or other parts of a CWIS) or entrainment (being drawn into cooling water systems and subjected to thermal, physical or chemical stresses).

EPA divided the 316(b) rulemaking into three phases: Phase I for new facilities was completed in December 2001. Phase II for large electric power facilities was signed on February 16, 2004, published in the Federal Register on July 9, 2004, and became effective on September 7, 2004. Phase II establishes requirements for existing electric power generating facilities that use CWISs to withdraw 50 million gallons per day (MGD) or more from waters of the U.S., and that use at least 25% of water withdrawn solely for cooling purposes. Phase III was published on June 16, 2006 and regulates new offshore oil and gas extraction facilities. Recently the Second U.S. Circuit Court of Appeals issued its decision in the litigation over the Phase II regulation. See *Riverkeeper, Inc., v. EPA*, No. 04-6692, (2d Cir. Jan, 25, 2007). The court's decision remanded several provision of the Rule on various grounds. With so many provisions of the Phase II rule affected by the decision, the rule should be considered suspended.

2.0 Background

2.1 Facility Description

The Aguirre Power Plant Complex (APPC) is owned and operated by Puerto Rico Electrical Power Authority (PREPA), and is located in the Municipality of Salinas, in the Aguirre Seco Ward on the southern coast of Puerto Rico. This activity has a Standard Industrial Classification (SIC) Code of 4911, Electric Services. The Thermo-Electric plant was built in the early 1970s, and consists of two twenty (20) megawatt (MW) oil-fired turbine generators, and two oil-fired four hundred and fifty (450) MW steam-electric units. The Combined Cycle plant includes two three hundred (300) MW combined cycle oil-fired units built in 1975. The Aguirre Power Plant Complex has a total electrical output rating of 1,540 MW.

The intake structure consists of five intake channels with five bar screens, five dual flow traveling screens and five intake pumps. The heated discharge from Units 1 & 2 flows first to an open 1,775 ft long discharge canal at the end of which water is pumped through a 13-ft diameter 5,800-ft long pipe to a discharge outlet located southwest of the intake in Jobos Bay. Waste heat from the two 300 MW combined cycle units is dissipated to the air using a closed cycle cooling system employing mechanical draft cooling towers. The open discharge canal serves as both the source of cooling tower makeup water (5,800 gpm) and the discharge location of cooling tower blowdown (2,400 gpm).

2.2 Location/Waterbody Description

APPC withdraws seawater from the Bahía de Jobos (Jobos Bay), which is the second largest estuary in Puerto Rico, and is designated by the National Oceanic and Atmospheric Administration (NOAA) as a National Estuarine Research Reserve. Cooling water, process wastewater, and stormwater are discharged to Jobos Bay via five separate outfalls. The total length of Jobos Bay, from the eastern tip of Cayos Ratones to the eastern-most part at Puerto Jobos, is approximately 7 nautical miles. The widest area is 2.2 nautical miles from Central Aguirre to Boca del Infierno. Jobos Bay contains three times more coastline (37 mi) than any other estuary in Puerto Rico due to an extensive mangrove fringe with many channels, islets and coastal lagoons. The bay is formed by Punta Pozuelo, protruding from the east, and a series of islands (cays) on the south (Cayos Caribes) and southwesterly sides (Cayos de Barca). Water depths range from 2 to 20 feet throughout most of the bay. A maximum depth of 27 feet is maintained in the dredged ship channel with naturally occurring depths of 28-34 feet in the western bay. The receiving body of water is classified SC by the Environmental Quality Board (EQB) of the Commonwealth of Puerto Rico.

2.3 Cooling Water Intake Structure Description

2.3.1 Existing Technologies

The CWIS for Units 1 & 2 is arrayed into five intake channels with five bar screens, five dual flow (double-entry single-exit) traveling screens, and five intake pumps. Normally all five bar

screens and traveling screens are in operation; however, only four pumps (two per unit) are used at full load with one as a spare. There is a common plenum between the bar screens and the traveling screens and also between the traveling screens and the intake pumps allowing for flow re-distribution between channels so that the flow tends to equalize between the bar screens and also between the traveling screens. Thus, during periods when less than four pumps are operated, water velocities through all screens is reduced. Stop log slots are located before and after each bar screen and traveling screen and before each pump allowing for the isolation, dewatering, and maintenance of individual pieces of equipment without affecting the continued use of others. This allows for maintenance and screen upgrades to be performed on individual components sequentially without affecting overall plant operation. The original intake description (operation began in 1975) refers to use of single-entry/single-exit (through flow) traveling screens instead of dual flow traveling screens. In 1998, the through flow screens were replaced with dual flow screens with more fish-friendly features as described below. Dual flow screens were probably selected because the design eliminates the problem of debris carryover, thus reducing the problem of debris plugging the condenser tubing. Seagrass was mentioned as a source of debris. The dual flow screens appear to have a greater total screen surface area than the original through flow screens, resulting in lower through-screen velocities. The dual flow screens include the following design features:

- ¼ inch (0.25-inch) square mesh openings
- Smooth surface mesh panels, woven to minimize physical abrasion
- Fish buckets at the bottom of each screen panel
- A single pressure spray header to dislodge fish and debris from the screen as it is carried over the top
- A fiberglass debris trough that discharges to a common return trench
- A concrete return trench that measures 1.5 ft wide by 2 ft deep that returns fish and debris to the bay at a considerable distance from the intake. Note that at the end of this trench, the water cascades approximately 9-10 ft to the water's surface
- An approach through-screen velocity of 0.79 fps in front of the traveling screens and 0.67 fps outboard of the course bar racks.

2.3.2 Intake Flow and Velocity

The existing intake structure is designed to convey a total of 452,500 gpm (652 MGD), or approximately 226,250 gpm per generating unit (211,250 gpm to the main steam condenser and 15,000 gpm to the boiler feed pump turbine condenser). In addition, five screen wash water pumps, with a design capacity of 300 gpm each (total of 1500 gpm), provide backwash water to each of the dual flow screens. The intake approach velocity is estimated as 0.79 fps in front of the traveling screens and 0.67 fps outboard of the course bar racks.

PREPA estimates that the use of the closed cycle cooling system results in a reduction in intake flow of approximately 29.7% as compared with the intake flow that would be necessary for once-through cooling used in combined cycle plants of the same electric generating capacity.

3.0 Impacts of Existing Intake Structure

APPC's CWIS is located near the water's surface on the shores of Jobos Bay. Jobos Bay is the second largest estuarine system in Puerto Rico (based on total surface area), and has more coastline than any other Puerto Rican estuary. Physical features include mangrove inlets, lagoons, channels, and island keys. A total of 2,800 acres of the bay have been designated Jobos Bay National Estuarine Research Reserve. Reefs in the vicinity (Punta Colchones and Cayo Puerca) are important foraging and nursery areas for a diverse assemblage of juvenile reef fishes and adult fishes of rocky, intertidal habitats.

3.1 Impingement

Impingement was evaluated at the APPC once a month from January to April 2007. Samples were collected from the screen wash sluice at the same location as the 2005 study. Due to high debris loading, sub-samplings were performed. One sample of approximately 4 hour duration was conducted during the day and one sample of approximately 4 hour duration was conducted at night. All fish and shellfish were identified, enumerated, measured, weighed, and assessed as alive, injured, or dead. Impingement sampling collected 11 fish from five taxa (plus one unidentified fish larva), weighing a total of 166.9 g) and 119 shellfish from five taxa (345.9 g) in 31 hours of sampling.

Shellfish comprised approximately 92 percent of the total impingement catch by number and 68 percent by biomass. Pink shrimp (*Farfantepenaeus duorarum*) dominated the shellfish catch by number (88.2 percent) and biomass (53.7 percent). Carangidae sp. (e.g. jacks and pompanos) comprised nearly half the number of fish impinged, but one large pinfish (*Lagodon rhomboids*) accounted for nearly 93 percent of the fish biomass caught. Important commercial, recreational and forage species (referred to as representative species ["RS"]) that were impinged included pink shrimp, silver jenny (*Eucinostomus gula*), yellow jack (*Carangoides bartholomaei*), and *Callinectes* sp. No grunts (Haemulidae), snappers (Lutjanidae), or spiny lobster were impinged. RS comprised 90 percent of the number of impinged organisms, mostly because 105 pink shrimp were impinged (80.8 percent of the total impingement catch by number). Yellow jacks were not identified to the species level. Thus, the five Carangidae impinged are considered as RS to conservatively estimate impacts to this group. No USFWS or PRDNER threatened or endangered species were collected during the 2007 sampling period at the APPC.

Initial survival, defined as the number alive plus the number injured at the time the sample baskets were cleared, was generally high for both fish and shellfish (Table 2-8). Fish survival was 61 percent, however the small number of impinged fish (11) precludes drawing meaningful conclusions regarding fish. For shellfish, 117 of the 119 impinged were alive of which only one was injured at the initial assessment, resulting in a 98 percent initial survival rate. The total combined initial survival for impinged fish and shellfish is 95 percent.

The majority of fish and shellfish impinged were less than 60 mm total length or carapace width (whichever was appropriate). The lengths (widths) and age classes of the RS are summarized below:

- The one silver jenny impinged measured 36 mm total length, indicating it is an age young-of-the-year (YOY) fish (Garcia and Duarte 2006);
- Impinged *Callinectes* sp. ranged from 14 – 88 mm carapace width, indicating all were YOY (Juet al. 2001, Perry and McIlwain 1986);
- Impinged jacks were similarly sized: 32 – 50 mm in total length, indicating all were YOY₂ (Honebrink 2000); and
- Pink shrimp impinged at APPC all measured less than 50 mm and weighed less than 15 grams, indicating all were age 0 (Eldred et al. 1961).

The remaining non-RS shellfish were mostly small (less than 40 mm), except for the flamebox crab (90 mm). Non-RS fish species collected ranged in size from 25 mm (a frogfish and a pipefish) to 214 mm (pinfish).

3.2 Entrainment

Entrainment was quantified at the APPC once a month in January, February, March, and May 2007. Sampling was not performed in April 2007, as originally proposed, because Unit 1 was offline. Samples were collected during the day and at night, behind the trash racks at the same location as the 2005 study and within the discharge channel (i.e. paired sampling), and using both 202 um and 500 um mesh nets.

Flow meter readings and duration of water filtration through the nets were recorded and used to calculate the volume filtered. Samples were sent to the University of Puerto Rico for enumeration, identification, and measurement of shellfish meroplankton and ichthyoplankton.

Results of the entrainment study found a total of 11 fish and five shellfish taxa collected during four entrainment sampling events at the APPC (Tables 2-11 and 2-12). In general, using 202 um mesh nets, entrainment during the day was less than that at night and plankton was denser at the intake than in the discharge

Based on entrainment samples using 500 um mesh nets, diel differences in ichthyoplankton and larger meroplankton densities are also evident. Additionally, entrainment was greater during night samples at both the intake and discharge locations and the samples were dominated by fish eggs, brachyuran crab larvae, and caridean shrimp larvae, similar to samples collected with the finer mesh nets. However, the diel differences were not considered statistically significant ($p=0.05$).

Plankton were not able to be identified to species, therefore, there is some uncertainty regarding the entrainment of RS. Fish RS impinged included silver jenny (Family Gerreidae) and yellow jack (Family Carangidae). However, no Carangidae were identified in any of the entrainment samples, and Gerreidae larvae were collected in only four samples at low densities (ranging from 0.8/100 m³ to 2.1/100 m³).

Other fish RS, including anchovy (Family Engraulidae and Order Clupeiformes), goby (Family Gobiidae), and grunts of the Genus *Haemulon* (Family Haemulidae) larvae, were collected in

entrainment samples, but rarely and at low densities. Caridean shrimp and brachyuran crab larvae, which include the RS blue crab, were a large component of the shellfish plankton entrained. Another RS, pink shrimp, belongs to the Superfamily Penaeoidea in the Suborder Dendrobranchiata and this superfamily of shrimp were collected only rarely and in low densities compared to caridean shrimp (Suborder Pleocyemata, which includes snapping, basket, armored, deepsea, glass, and other shrimps). The other shellfish RS, Caribbean spiny lobster belongs to the Infraorder Panulira, which was not collected in any entrainment sample.

These results indicate that, with the exception of blue crab (a brachyuran crab), the major components of the entrainment samples are not RS. Four fish species are protected by PRDNER (2005): Nassau grouper and jewfish (Family Serranidae), hognose mullet (Family Mugilidae), and seahorses in the Genus *Hippocampus* (Family Syngnathidae). No serranids were collected during the 2007 impingement or entrainment sampling. However, mugilid larvae were collected (at night, in the intake, in May, using 202 um mesh nets) at a density of 1.5/100 m³. There are 76 mugilid species³, of which, the only taxa to be collected by Washington Group P.C.S. (2005) was "*Mugil* sp." (collected in Jobos Bay using light traps); no mugilids were impinged in either the 2003-04 or 2007 studies. It is unlikely that the mugilid larvae identified in the 2007 entrainment study is hognose mullet because this species belongs to the *Joturus* genus. It is more likely that the mugilid larvae are *Mugil* sp. since adults and/or juveniles of this group were collected in the study area. Syngnathidae larvae were also collected in three samples (two from the intake during the day using 202 um mesh nets and one from the intake during the day using the 500 um mesh nets). Densities were low, ranging from 1.1/100 m³ to 2.5/100 m³. Of the 200+ species of Syngnathidae², two seahorses were collected (during impingement sampling) in 2003-04: longsnout seahorse (*Hippocampus reidi*) and dwarf seahorse (*H. zosterae*). However, no seahorses were impinged in 2007. Since the fish larvae could not be identified below the level of family and there are over 200 species of Syngnathidae it is highly unlikely this protected genus is entrained.

Lengths of fish larvae were measured to the nearest millimeter. Comparison of larval lengths from intake samples to discharge samples shows no obvious difference in length distribution between the tow locations. However, the small number of larvae, particularly in the discharge (21) precludes a rigorous comparison.

Shellfish meroplankton, fish larvae and fish densities generally decrease between the intake and the discharge. However this difference in is not statically significant ($p=0.016$). Because shellfish larvae and fish eggs are smaller than the ¼-inch square mesh of the intake screens, impingement of these taxa is not expected. However, some level of debris loading (ranging from light to heavy) which consists of mainly seagrass (*Thalassia testudinum* and *Syringodium filiforme*) was documented throughout the sampling. Strands of these seagrasses on the intake screens may reduce the effective screen mesh size thus trapping eggs and larvae and thereby decreasing densities in the discharge. Fish larvae were collected in impingement samples in both the 2003-04 and 2007 study even though the impingement sampling programs were not designed to collect eggs and larvae. PREPA claims that entrained organisms should not be lost within the cooling system.

4.0 Determination of BTA/Potential Technology Improvements

To meet section 316(b) requirements, a facility must employ CWISs that "reflect the BTA for minimizing adverse environmental impact." As summarized above, PREPA's intake studies provide information regarding losses to species and losses in comparison to the population associated with the intake structures. However, because the facility's permit expired prior to the effective dates of the 316(b) Phase II rule, neither the application nor any other submission from the facility contains the comprehensive studies and other information needed to determine compliance under the Phase II rule. As currently configured, the facility is not meeting BTA for reducing impingement or entrainment. Potential technology improvements using the existing screens include:

For the Aguirre Power Plant Complex, EPA Region 2 has determined that Best Technology Available shall be operation of the current control technology, as well as adherence to the permit Special Condition No. 25, which requires evaluation and implementation of improvements to be achieved through:

- Modifications to the fish return system to reduce impingement mortality;
 - Addition of fish buckets
 - Addition of gently sloped, smooth surface, fish return discharging underwater
- Modifications to the operational measures such as continuous operation of the traveling screens, and washing pressures and frequency, to reduce impingement mortality;
 - Continuous operation
 - Low pressure spray wash
- Investigation of other feasible methods to reduce entrainment.
- Continued use of closed-cycle cooling technology to reduce the flow required through the intake structure.

The existing traveling screens already include fish buckets to hold and protect impinged fish carried to the top of the screen. However, as noted in the 316 Demonstration Study (PREPA, 2005), the current debris return system is not designed to minimize damage to impinged organisms as they are conveyed back to Jobos Bay. A proposed impingement mitigation solution described in Section 6 of the 2005 Demonstration Study describes the installation of a separate fish return trough that would always contain water while the screens are in operation and be designed with a separate low pressure fish spray, a conveyance system with smooth features, gentle slope, and a discharge at or below the surface away from the intake. In addition, the discharge should also be designed and located such that the returned organisms are not subject to predation before they can disperse. This configuration would vastly assist in the protection of organisms. The original through flow screens and dual flow screens have relatively lower screen velocities of around 1 fps than is typical of older systems, probably as a measure to prevent debris loading problems. This lower approach velocity more readily allows for escape of swimming fish and exerts much less pressure on impinged organisms than screens with design velocities in the 2 to 2.5 fps range which is typical of older through flow screens where debris

removal was the primary design goal. Combining the lower approach velocity with the suggested modifications to the fish return system and continuous operation of all five intake screens would be considered BTA for reducing impingement mortality and entrainment.

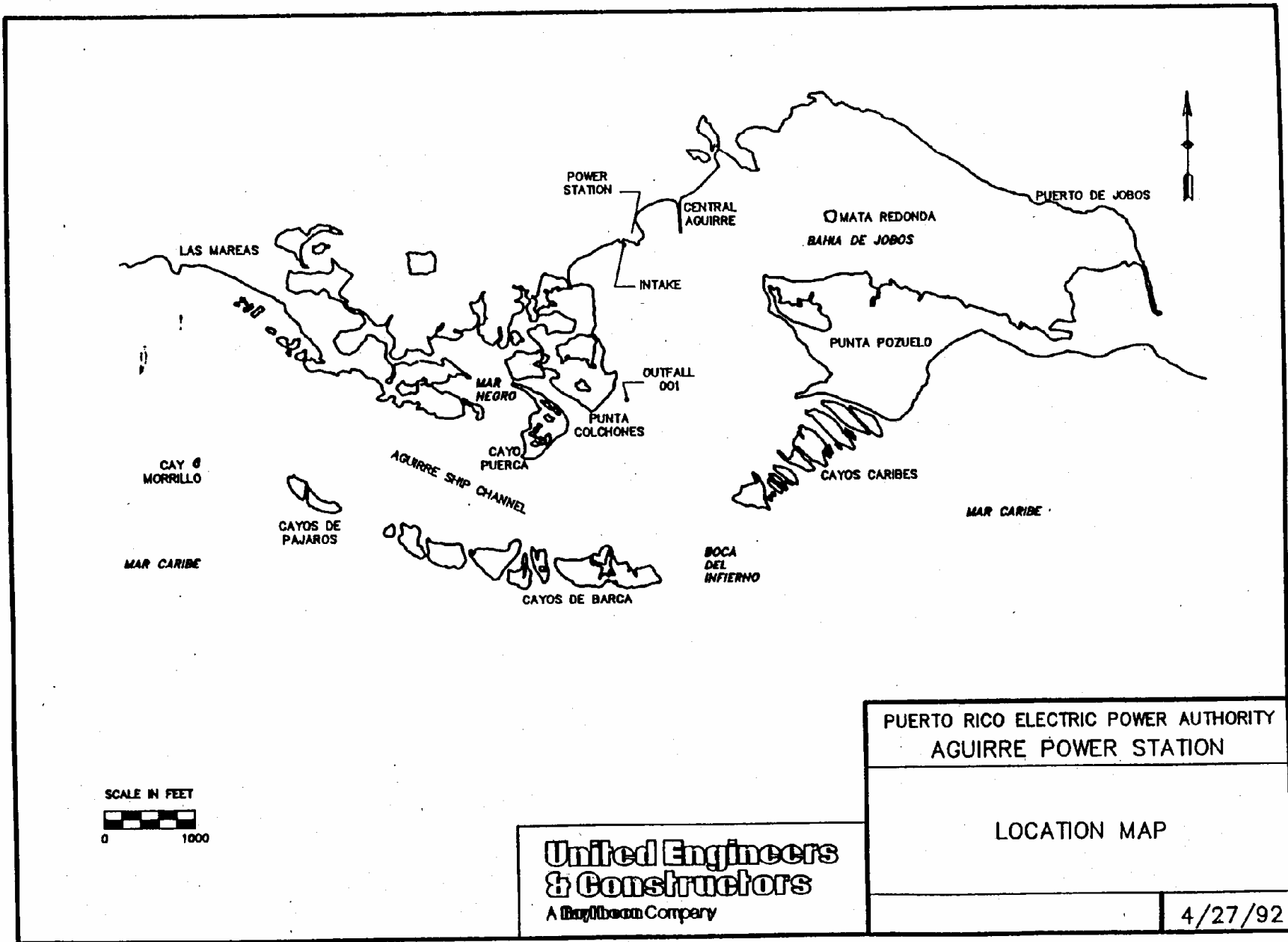


Figure 1: Location of Aguirre Power Station

ATTACHMENT V



**U.S. Environmental Protection Agency
Region 2
Environmental Justice Analysis for the
Puerto Rico Electric Power Authority
Aguirre Power Plant
Salinas, Puerto Rico**

June 2010

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I. INTRODUCTION

The US Environmental Protection Agency (EPA), Region 2, has performed an Environmental Justice (EJ) analysis in accordance with the President's Executive Order 12898 "Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations" following the Regional Policy. Environmental Justice 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.

Executive Order 12898 was signed by President Clinton on February 11, 1994, to focus federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order directed federal agencies to develop environmental justice strategies to help federal agencies identify and address disproportionately high and adverse human health or environmental effects of their programs, policies and activities on minority and low-income populations. The Order is also intended to promote nondiscrimination in federal programs substantially affecting human health and the environment, and to provide minority and low-income communities access to public information in matters relating to human health. The Order underscores certain provisions of existing law that can help ensure that all communities and persons across the nation live in a safe and healthful environment.

Under Title VI of the Civil Rights Act of 1964, administrative complaints have increasingly been filed to address environmental justice concerns, but it is important to note that environmental justice and Title VI claims are quite distinct. The major difference is that Title VI of the 1964 Civil Rights Act is a statute or law; whereas, the President's Executive Order on Environmental Justice is not. While Executive Order 12898 does not have the effect of law on the States and is only applicable to federal agencies that are involved with the public's health and the environment, the President has mandated all the federal agencies bound by the Executive Order to comply with it. Environmental Justice is an Agency priority and important policy consideration. Accordingly, EPA is committed to a policy of nondiscrimination in its own permitting actions.

The Civil Rights Act of 1964 prohibits: discrimination in public accommodations (Title II); segregation in public facilities (Title III); segregation in public schools (Title IV); and discrimination in employment (Title VII). Title VI of the Act, which prohibits discrimination in all Federally-assisted programs and activities, applies to the recipients of almost \$900 billion in Federal assistance distributed annually by approximately 27 Federal agencies. When submitting the Civil Rights Act to Congress, President Kennedy stated: "...Simple justice requires that public funds, to which all taxpayers of all races contribute, not be spent in any fashion, which encourages, entrenches, subsidizes, or results in racial discrimination..."

It is important to note that the major tenet of environmental justice is the fair treatment and meaningful involvement of the affected community in carrying out the Agency's and the Region's programs, policies and activities. Fair treatment and meaningful involvement should

not be understood to mean preferential treatment for certain communities. Rather, these principles should be understood to mean the Agency and Region will continue to provide equal protection and access to information to all served communities. Fair treatment and meaningful involvement may include, but not be limited to ensuring to the extent possible and practicable, the following:

- that notices about public meetings are disseminated in local media used by the community, and that such notices are translated into appropriate languages other than English, if a community is largely non-English speaking;
- that environmental laws are enforced equally in all communities;
- that Regional managers and their staff understand and are aware of cultural differences and unique dependence some communities, such as tribal nations and indigenous peoples, have upon their land for subsistence fishing and hunting; and
- that communities have access to accurate, timely and reliable information.

The EPA is hereby presenting this Environmental Justice Analysis for the Aguirre Power Plant located at Aguirre Seco Ward in Salinas, Puerto Rico.

II. **BACKGROUND OF THE FACILITY**

A. **Facility Description**

The Aguirre Power Plant Complex (APPC) is owned and operated by Puerto Rico Electrica Power Authority (PREPA), and is located in the Municipality of Salinas, in the Aguirre Seco Ward on the southern coast of Puerto Rico. This activity has a Standard Industrial Classification (SIC) Code of 4911, Electric Services. The Thermo-Electric plant was built in the early 1970s, and consists of two twenty (20) megawatt (MW) oil-fired turbine generators, and two oil-fired four hundred and fifty (450) MW steam-electric units. The Combined Cycle plant includes two three hundred (300) MW combined cycle oil-fired units built in 1975. The Aguirre Power Plant Complex has a total electrical output rating of 1,540 MW.

APPC withdraws seawater from the Bahía de Jobos (Jobos Bay), which is the second largest estuary in Puerto Rico, and is designated by the National Oceanic and Atmospheric Administration (NOAA) as a National Estuarine Research Reserve. Cooling water, process wastewater, and stormwater are discharged to Jobos Bay via five separate outfalls. The total length of Jobos Bay, from the eastern tip of Cayos Ratones to the eastern-most part at Puerto Jobos, is approximately 7 nautical miles. The widest area is 2.2 nautical miles from Central Aguirre to Boca del Infierno. Jobos Bay contains three times more coastline (37 mi) than any other estuary in Puerto Rico due to an extensive mangrove fringe with many channels, islets and coastal lagoons. The bay is formed by Punta Pozuelo, protruding from the east, and a series of

islands (cays) on the south (Cayos Caribes) and southwesterly sides (Cayos de Barca). Water depths range from 2 to 20 feet throughout most of the bay. A maximum depth of 27 feet is maintained in the dredged ship channel with naturally occurring depths of 28-34 feet in the western bay. The receiving body of water is classified SC by the Environmental Quality Board (EQB) of the Commonwealth of Puerto Rico.

The intake structure consists of five intake channels with five bar screens, five dual flow traveling screens and five intake pumps. The heated discharge from Units 1 & 2 flows first to an open 1,775 ft long discharge canal at the end of which water is pumped through a 13-ft diameter 5,800-ft long pipe to a discharge outlet located southwest of the intake in Jobos Bay. Waste heat from the two 300 MW combined cycle units is dissipated to the air using a closed cycle cooling system employing mechanical draft cooling towers. The open discharge canal serves as both the source of cooling tower makeup water (5,800 gpm) and the discharge location of cooling tower blowdown (2,400 gpm).

B. Regulatory Background

The Federal Water Pollution Control Act (FWPCA) Amendments of 1972 established the objective “to restore and maintain the integrity of the Nation’s waters.” In order to accomplish this objective FWPCA required the U.S. Environmental Protection Agency (EPA) to control the discharge of pollutants by creating a system for permitting wastewater discharges, known as the National Pollutant Discharge Elimination System (NPDES). All discrete sources of wastewater (known as “point sources”) must obtain a permit which regulates the facility’s discharge of pollutants into waters of the United States.

EPA regulations require each effluent limit imposed in a NPDES permit to be established using technology-based or water quality-based standard methodology. Technology-based limits define the minimum level of control and are imposed at the point of discharge or “end-of-pipe”. Facilities which intake water from a receiving water for use in cooling towers are also subject to Clean Water Act §316(b), which requires that “the location, design, construction, and capacity of cooling water intake structures reflect the best technology available (BTA) for minimizing adverse environmental impact”, to protect aquatic organisms from being killed or injured by impingement (fixation against screens or other parts of a cooling water intake structure), or entrainment (being drawn into cooling water systems and subjected to thermal, physical or chemical stresses).

In addition to the technology-based limits applicable to all sources, point sources must also comply with limits derived from additional or more stringent State water quality standards. The definition of State includes the Commonwealth of Puerto Rico.

The primary regulations developed by EPA to implement and administer the NPDES program are found in Title 40 of the Code of Federal Regulations (CFR) Part 122. Other parts of 40 CFR that are related to the NPDES Program include:

- 40 CFR Part 123 (State program requirements)
- 40 CFR Part 124 (procedures for decision making)
- 40 CFR Part 125 (technology-based standards)
- 40 CFR Part 129 (toxic pollutant standards)

- 40 CFR Part 130 (water quality management plans)
- 40 CFR Part 131 (water-quality-based standards)
- 40 CFR Part 125 (technology-based standards)
- 40 CFR Part 129 (toxic pollutant standards)

EPA regulations require permits for industrial sources to contain the following terms and conditions:

- Standard conditions common to all permits
- Effluent limits using technology-based or water quality-based standard methodology
- Standard and site-specific compliance monitoring and reporting requirements
- Other site-specific conditions that EPA may deem necessary to adequately control the discharge.

The Clean Water Act requires EPA and the State to provide the public with opportunities to participate in NPDES permit decision -making. The major facets of public involvement in NPDES permitting include:

- Commenting on permits;
- Appealing EPA permit decisions;
- Bringing citizen suits against dischargers to enforce permit conditions or against EPA for failure to comply with the Act; and

- Reporting violations to EPA.

C. **Proposed Action**

The proposed National Pollutant Discharge Elimination System (NPDES) permit would control the discharge of treated effluent from the PREPA Aguirre Power Plant Complex into Jobos Bay through five separate outfalls, one of which is a 5,800 foot long deep ocean pipe outfall system. The waste streams, and corresponding proposed discharge flows are summarized in the table below. The previous permit for the PREPA Aguirre Power Plant Complex expired on February 28, 1997. On August 30, 1996, PREPA submitted a renewal application for a NPDES permit. The previous permit continued to remain fully effective and enforceable under 40 CFR Part 122.6. PREPA has also supplemented their permit application with an *Aguirre 316 Demonstration Study* (March 2005), and the *Impingement Mortality & Entrainment Characterization Study and Current Status Report* (January 2008).

<u>Discharge Serial Number</u>	<u>Discharge Description</u>	<u>Discharge Maximum Flow</u>
001	<ul style="list-style-type: none"> ▪ Thermoelectric Plant Condensers Cooling Water ▪ Thermoelectric Plant Service Water Cooling Towers Blowdown ▪ Combined Cycle Plant Sea Water Cooling Towers Make Up and Blowdown ▪ Thermoelectric Plant Tanks and Condenser Hydrostatic Test Waters ▪ Condenser Screen Washwaters ▪ Stormwater 	652.0 million gallons per day (MGD)
IWS 001a	▪ Thermoelectric Condenser Cooling Water	652.0 MGD
IWS 001b	▪ Thermoelectric Service Water Cooling Tower Blowdown Units 1 & 2	0.05 MGD/occurrence
IWS 001c	• Combined Cycle Condenser Water Cooling Tower Blowdown Unit No. 1	2.5 MGD/occurrence
IWS 001d	• Combined Cycle Condenser Water Cooling Tower Blowdown Unit No. 2	2.5 MGD/occurrence
002	<ul style="list-style-type: none"> ▪ Condensate of the Fuel Heaters ▪ Floor and Equipment Drains ▪ Miscellaneous Use Water ▪ Stormwater Runoff 	0.25 MGD
003	<ul style="list-style-type: none"> ▪ Wastewater Treatment Plant Effluent ▪ Stormwater Runoff 	1.65 MGD
IWS 003a	▪ Central Waste Treatment Plant Effluent	1.65 MGD
004	<ul style="list-style-type: none"> ▪ Combined Cycle Plant Service Water Cooling Tower Blowdown ▪ Combined Cycle Plant Miscellaneous Use Water ▪ Sedimentation Basin 2 Effluent (Stormwater from the Fuel Tanks Dikes) ▪ Stormwater Runoff ▪ Groundwater 	0.04 MGD
IWS 004a	▪ Combined Cycle Plant Service Water Cooling Tower Blowdown	0.15 MGD
005	▪ Stormwater Runoff	N/A

The effluent limitations, monitoring requirements and other conditions are described in the draft permit. Effluent limitations are based on the more stringent of the applicable technology based effluent limitations or water quality-based effluent limitations. The water quality-based limitations are based on the water quality certificate issued by the Puerto Rico Environmental Quality Board (EQB).

The proposed permit includes:

- Technology-based effluent limitations, conditions and monitoring requirements;
- Water quality-based effluent limitations, conditions and monitoring requirements, including effluent toxicity testing; and
- Special Conditions for the Cooling Water Intake Structure, to minimize adverse environmental impact due to impingement mortality and entrainment.

III. ENVIRONMENTAL JUSTICE

A. Process

The steps for identifying and screening EJ areas center on the comparison of three factors between the Community of Concern (COC) and a reference area: their respective levels of minority representation, low-income representation, and environmental burden. The Community of Concern, as defined under EPA Region 2's Interim Environmental Justice Policy, is a neighborhood or community that is the subject of an environmental justice analysis, and hence it may exhibit a disproportionate burden of environmental hazards and/or experience a significantly reduced quality of life relative to the reference area.

The Region 2 Environmental Justice (EJ) Analysis supports [EPA Region 2's Interim Policy for Environmental Justice \(IP\)](#). The specific community that is under evaluation for inclusion in the Region's EJ program is referred to as the Community of Concern (COC) in the IP. The evaluation process hinges on the comparison of the respective levels of the environmental burden, minority representation, and low-income representation between the COC and its statistical reference area.

For environmental burden analysis, Region 2 advances the concept of an "Environmental Load Profile (ELP)". The profile would provide a representation of the environmental load (i.e. relative environmental burden) within a community. The ELP serves to identify communities that may bear a disproportionate environmental load in comparison to statewide-derived thresholds. Currently, the Environmental Load Profile consists of the following three indicators: Toxics Release Inventory (TRI) Air Emissions, Air Toxics, and Facility Density. The ELP generates a summary report that provides numeric values for state thresholds, indicator of the community of concern (COC Indicator), and the ranking of the community in the state. These

calculated values not only identify whether the particular community meets an ELP threshold, but further upon exceedance, the indicator value is ranked to provide a measure of magnitude.

B. Identification of Community of Concern

For this Environmental Justice analysis, EPA initiated the review by considering the Community of Concern as those communities located within a mile and a half radius (1 1/2) of the Aguirre Power Plant (see Map 1 in Attachment I). The demographic analysis uses the communities within, and in proximity to this radius, these include the Municipality of Salinas and Aguirre as the Community of Concern.

Approximately 11,876 families and 31,113 people live within the COC. The COC is the Municipality of Salinas.

C. Identification of Reference Area

EPA has decided to use the entire Commonwealth of Puerto Rico as the reference area for this analysis. This determination has been made due to the availability of average numbers of facilities for the entire Commonwealth. As such it will be more indicative to compare the community of concern with the average in Puerto Rico. The comparison is based on the poverty level, the mortality rate, the number of facilities in Puerto Rico in the Toxic Release Inventory, the Resource Conservation and Recovery Information System and the Comprehensive Environmental Response, Compensation and Liability Act Information System in Puerto Rico.

According to the 1990 Census, the population of Puerto Rico was 3.5 million (889,998 families). In the latest data received from the 2000 Census, the population is 3,808,610 people, 8.1% more than 10 years ago.

D. Evaluation of Minority and Income Data

These data will generally be evaluated using Region 2's GIS application. The demographic results for the Community of Concern will be evaluated with those from the reference area.

The attached Census block map (Map 1) is helpful in analyzing the income level of the potentially affected community. The map shows that most of the Municipality of Salinas, based on census block, is below the average household income in Puerto Rico. In EPA Region 2's December 2000 Interim Environmental Justice Policy, the poverty level for the population of Puerto Rico was calculated to be 52.0 %. This value was based on the use of a statistical methodology to derive the reference thresholds for minority and low-income areas within EPA's Region 2 jurisdictions.

The demographic analysis calculates the percent minority and percent poverty for the COC and compared to an appropriate statistical reference. Statistical reference for percent minority and percent poverty were calculated for each state in EPA Region 2 using cluster analysis. Separate statistical references for rural and urban settings were developed for evaluating percent minority. The location of the COC determines which statistical reference area is used.

Demographic Analysis

Indicators	<u>PR State Thresholds</u>	<u>COC Indicator</u>	<u>Urban/Rural</u>
<u>Percent Minority:</u>	NA	0	urban
<u>Percent Poverty:</u>	45.2	57.78	urban

This assessment will be based on a comparison of the Community of Concern with a reference area (Commonwealth of Puerto Rico). For the purpose of this evaluation, the 2000 U.S. Census results will be used to determine if a COC meets the low income criteria established in this document.

Based on this exceedance from the Commonwealth-wide threshold average, EPA concluded that the areas potentially-impacted by the PREPA Power Plant are low income communities.

E. Disproportionately High and Adverse Health Effect Analysis

To determine if there is a disproportionately high and adverse effect on human health and to determine if there is an environmental burden on the community of concern, EPA evaluated data from the Puerto Rico Department of Health (DOH) and data from the Toxic Release Inventory (TRI), Resource Conservation and Recovery Information System (RCRIS) and the Comprehensive Environmental Response, Compensation and Liability Act Information System (CERCLIS). The community of concern has been defined as the Municipality of Salinas. The data available from the DOH, as well as from the TRI, RCRIS and CERCLIS, is organized by municipality, therefore the data for the Municipality of Salinas was used for this analysis as an approximation of the specific data for the area of concern. In addition, EPA has considered the municipality of Aguirre in the evaluation of TRI, RCRIS and CERCLIS.

1. Adverse Health Effects Analysis

EPA asked the DOH for health data on the Municipality of Salinas, and for Puerto Rico, (See Attachment 2). The information included by the DOH is divided in selected causes of death such as heart disease, cancer, diabetes mellitus, accidents, AIDS, cerebrovascular disease, pulmonary obstruction, pneumonia and influenza, hypertension, homicides, cirrhosis of liver, septicaemia and other. Based on the mortality rates of Puerto Rico, we note that from 1995 to 1996 the mortality rate has been higher in the community of concern than Commonwealth wide. During the two year period between

1985 and 1996, the rate Commonwealth-wide was 811.9 in 1995 and 800.1 in 1996 as opposed to the rate in Salinas of 911.0 in 1995 and 946.9 in 1996. However, it should be noted that during that two year both the Commonwealth wide and the Municipality of Salinas rate increased. Data from 2004 indicates a decreasing mortality rate in Salinas while the Commonwealth rate has also decreased from 1996 (however it is up by 18.8 since 1987). The mortality rate is calculated by dividing the number of deaths by the population, and multiplying it by 100,000. *(Note: DOH uses mortality rates in order to have a relationship between deaths and population. The increases in mortality rates are very low, therefore DOH multiplies this rate by 100,000 in order to obtain a more indicative number.)*

F. **Environmental Burden Analysis**

Region 2 advances the concept of an "Environmental Load Profile (ELP)". The profile would provide a representation of the environmental load (i.e. relative environmental burden) within a community. The ELP serves to identify communities that may bear a disproportionate environmental load in comparison to statewide-derived thresholds. Currently, the Environmental Load Profile consists of the following three indicators: Toxics Release Inventory (TRI) Air Emissions, Air Toxics, and Facility Density. The ELP generates a summary report that provides numeric values for state thresholds, indicator of the community of concern (COC Indicator), and the ranking of the community in the state. These calculated values not only identify whether the particular community meets an ELP threshold, but further upon exceedance, the indicator value is ranked to provide a measure of magnitude.

Environmental Load Analysis

Indicators	<u>PR State Threshold</u>	<u>COC Indicator</u>	<u>Ranking</u>
<u>TRI Indicator:</u>	10.48	16.09	2
<u>Facility Density Indicator:</u>	61	50.39	0
<u>Air Toxics Cancer Indicator:</u>	41	137.21	9
<u>Air Toxics Non-cancer Indicator:</u>	3.2	.79	0

Other factors that were considered as potential indicators of environmental burden in these communities include data, by municipality, from TRI, RCRIS and CERCLIS. Commonwealth-wide, there is an average of two (2) facilities per municipality report on TRI. The facilities in the Salinas area that reported on TRI in 2008 were IDI Caribe Inc., Steri-Tech, Inc., the U.S. Army National Guard Camp Santiago Training Center, and the PREPA Aguirre Power Plant Complex. Map 2 shows a report prepared by EPA in 1998, in which we can observe the distribution of TRI facilities throughout Puerto Rico.

It should be noted that certain facilities located close to the Salinas boundary that could be perceived as being located within the Municipality of Salinas. Those facilities include: the Puerto Rico Electric Power Authority (PREPA) Aguirre Power Plant located in the Municipality of Salinas, in the Aguirre Seco Ward. TRI data reflect releases and other waste management activities of chemicals, not whether (or to what degree) the public has been exposed to those chemicals. A facility may be in compliance with environmental regulations and still appear on the TRI. Release estimates alone are not sufficient to determine exposure or to calculate potential adverse effects on human health and the environment.

In March 1999, the Federal District Court entered a Consent Decree between the United States and the PREPA. This Consent Decree embodied the settlement, reached between the U.S. and PREPA, of a Complaint filed by the Department of Justice on behalf of EPA in October 1993. The Consent Decree contained commitments by PREPA to undertake both short-term and long-term activities designed to lead to compliance with the major environmental statutes and regulations at the five PREPA facilities named in the 1993 Complaint, including the Aguirre and South Coast, located in Salinas and Guaynilla, respectively.

This Consent Decree also provided for the payment of a total cash penalty of \$1,500,000, including interest, over two and a half years. Additionally, PREPA agreed to implement environmental projects, referred to in the Consent Decree as Additional Compliance Projects, at a total cost of \$3,500,000. In addition, several other special projects designed by EPA to enhance compliance, have required significant expenditures by PREPA; among these was a commitment by PREPA to retain an Environmental Review Contractor (ERC) for at least five years at a minimum cost of \$1,000,000. The ERC has provided oversight for the improvements and expenditures from the Consent Decree for which PREPA was responsible, and also provided additional community involvement opportunities, and concluding their role at the end of 2007.

The Consent Decree required major equipment upgrades, the institution of a continuous monitoring program to check boiler operations and compliance, regular inspections, frequent fuel quality checks, and a rigorous preventive maintenance program. In addition to requiring compliance with all environmental laws, the settlement required that PREPA burn fuel with a sulfur content no greater than 1.5%.

Applied Energy System (AES) is an electric power generation facility located in Guayama, Puerto Rico. The facility burns coal as its combustible material in its boilers. The ashes that are generated are treated with water and asphalt to produce concrete monofills. These concrete monofills are shredded to 3-inch ash rocks that are eventually used as an aggregate to construction material to build buildings, ports and roads. Community members have expressed concern that this material is toxic and hazardous to the public health and the environment. It is EPA's position that beneficial uses of coal combustion products have not been shown to present significant risks to human health or the environment. In the case of AES, analytical data from EQB and from AES have shown that ash rock is not hazardous.

The EPA has worked closely with other federal agencies such as the Health Resource and Services Administration (HRSA) to co-sponsor projects that address the asthma situation in

Puerto Rico. To that regard it sponsored an Asthma Summit for Region 2 (NY, NJ, PR, VI) in May 2000 and a follow-up workshop in Puerto Rico in October 2000. These efforts have triggered the formation of the “Coalicion Contra el Asthma” and the “Alianza Puertorriquena Contra el Asthma”, two broad range organizations dedicated to addressing the asthma problem in Puerto Rico.

Under the Resource Conservation and Recovery Act (RCRA), generators, transporters, treaters, storers, and disposers of hazardous wastes as defined by the federally recognized hazardous waste codes, are required to provide information concerning their activities to state environmental agencies, which in turn provide the information to Regional and National U.S. EPA offices. The Resource Conservation and Recovery Information System (RCRIS) is a national program management and inventory system of RCRA hazardous waste handlers and is used by the EPA to support its implementation of RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA). The system is primarily used to track a handler's permit or closure status, compliance with Federal and State regulations, cleanup activities, waste handler inventory, and environmental program progress assessment. According to the database, Puerto Rico has an average of forty-two (42) facilities by municipality; in the Municipality of Salinas there are ten (10). There is one (1) facility (Resources Recycling Inc.) in the Municipality of Aguirre. The regulations applicable to this classification are more stringent than those applicable to generators. In addition, there are three (3) facilities that are considered Transporters. EPA promulgated regulations governing the safe transport of hazardous wastes from a generator to a designated facility, which is usually a TSDF. The promulgated EPA transporter requirements are consistent with appropriate Commonwealth Department of Transportation regulations.

From the time Superfund was created by the Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA), a wealth of technical information was collected. In 1986, as part of the Superfund Amendments & Reauthorization Act (SARA), Congress created the Comprehensive Environmental Response, Compensation and Liability Act Information System database (CERCLIS) to maintain all the related information. The system tracks information on all Superfund sites, both the most hazardous (the National Priorities List) and those where cleanup is easier or less urgent. Data from other Federal agencies' sites (Federal Facilities) is also included. According to CERCLIS, Puerto Rico has an average of five (5) facilities per municipality and the Municipality of Salinas has two (2) facilities. In the Municipality of Aguirre, there are no facilities. For the facilities in Salinas, a preliminary assessment was conducted to determine whether each site posed little or no threat to human health and the environment or whether it might pose a threat and require further investigation. After the preliminary assessment it was determined that there was no threat to human health and the environment and no further action was recommended for the sites. These facilities are not on National Priorities List (NPL).

The comparison of the average number of facilities per municipality on TRI, RCRIS and CERCLIS in Puerto Rico with the number of facilities in the municipality of Salinas, shows that there is a higher number of facilities on TRI in the Municipality of Salinas than the island wide average number of facilities.

G. **Other Concerns**

1. **Coastal Zone Management Certification Requirement:**

Federal regulations at 40 CFR §122.49 provide that EPA must address Coastal Zone Management Act consistency in NPDES permitting actions. PREPA submitted the necessary information to the Puerto Rico Planning Board certifying that the proposed activity complies with the State Coastal Zone Management program. In letter dated November 20, 1990, the Puerto Rico Planning Board, acting as concurring agency for Puerto Rico, issued the Federal Consistency Certification CZ-90-0525-132, NPDES-PR-0001660 for the PREPA Aguirre Power Plant Complex. Federal regulations at 40 CFR §122.49 provide that EPA must address Coastal Zone Management Act consistency in NPDES permitting actions. EPA has requested that PREPA request an updated certification based on this draft permit action, and included a reopener clause that the permit may be modified to incorporate conditions based on the State Coastal Zone Management program.

2. **Endangered Species Act Determination:**

A portion of Jobos Bay is designated as a National Estuarine Research Reserve by the National Oceanic and Atmospheric Administration (NOAA). The Reserve is home to the endangered brown pelican, peregrine falcon, hawksbill sea turtle and West Indian manatee. EPA is currently engaged in consultation with the National Marine Fisheries Service (NMFS) of NOAA and the U.S. Fish and Wildlife Service (FWS) under section 7 of the Endangered Species Act regarding this NPDES permit action. While EPA is reissuing the permit at this time, EPA may decide that changes to the permit are warranted based on the results of the consultation when it is completed. A reopener provision to this effect has, therefore, been included in the permit.

3. **Ocean Discharge Criteria**

Under Section 403(c) of the Clean Water Act, Ocean Discharge Criteria regulations (45 FR 65942, October 3, 1980, modified at 40 CFR Part 125, Subpart M), 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.

PREPA submitted a study in July 2005 demonstrating the existence of a balanced, indigenous population of shellfish, fish, and wildlife in and on the receiving water. Based on results of the demonstration submitted by PREPA and information available in other studies, EPA has determined that sufficient information is available to establish that the proposed discharge will not cause unreasonable degradation to the marine environment.

4. Essential Fish Habitat Requirements

As mentioned above, a portion of Jobos Bay is designated as a National Estuarine Research Reserve by NOAA. Pursuant to Section 305(b) (2) of the Magnuson-Stevens Fishery Conservation and Management Act, Federal agencies must coordinate with NMFS regarding any of their actions authorized, funded or undertaken that may adversely affect Essential Fish Habitat or species (EFH). EPA is currently coordinating with NMFS for this facility. While EPA is reissuing the permit at this time, EPA may decide that changes to the permit are warranted based EFH on discussions with NMFS. A reopener provision to this effect has, therefore, been included in the permit.

IV. **CONCLUSION**

The evaluation of income data within the community of concern has revealed that the average poverty level in the community of concern exceeds the threshold average for Puerto Rico, as established in EPA’s Region 2 Interim Environmental Justice Policy. For this reason the community of concern is considered to be a Low Income Community.

Using the demographic tool the following results were obtained:

Environmental Load Analysis

Indicators	PR State Threshold	COC Indicator	Ranking
<u>TRI Indicator:</u>	10.48	16.09	2
<u>Facility Density Indicator:</u>	61	50.39	0
<u>Air Toxics Cancer Indicator:</u>	41	137.21	9
<u>Air Toxics Non-cancer Indicator:</u>	3.2	.79	0

Evaluation of the data reveals that the COC exceeds the threshold for Puerto Rico. Therefore, EPA concludes that a potential exists for a disproportionate and/or adverse environmental burden in Salinas.

In the absence of further analysis, EPA will therefore treat the community of concern as if it were an Environmental Justice Community.

Consistent with the direction outlined in Section I of this document, “Introduction”: All supporting documents will be available in a repository located at the EPA-Caribbean Environmental Protection Division in San Juan, Puerto Rico.

As this demonstrates, EPA is committed to taking all reasonable steps to ensure that citizens in the COC are truly empowered to participate effectively in the decision-making process. EPA will continue to inspect the facility and related appurtenances to evaluate its performance and will take necessary enforcement actions to ensure that there are no adverse effects to human health and/or the environment.

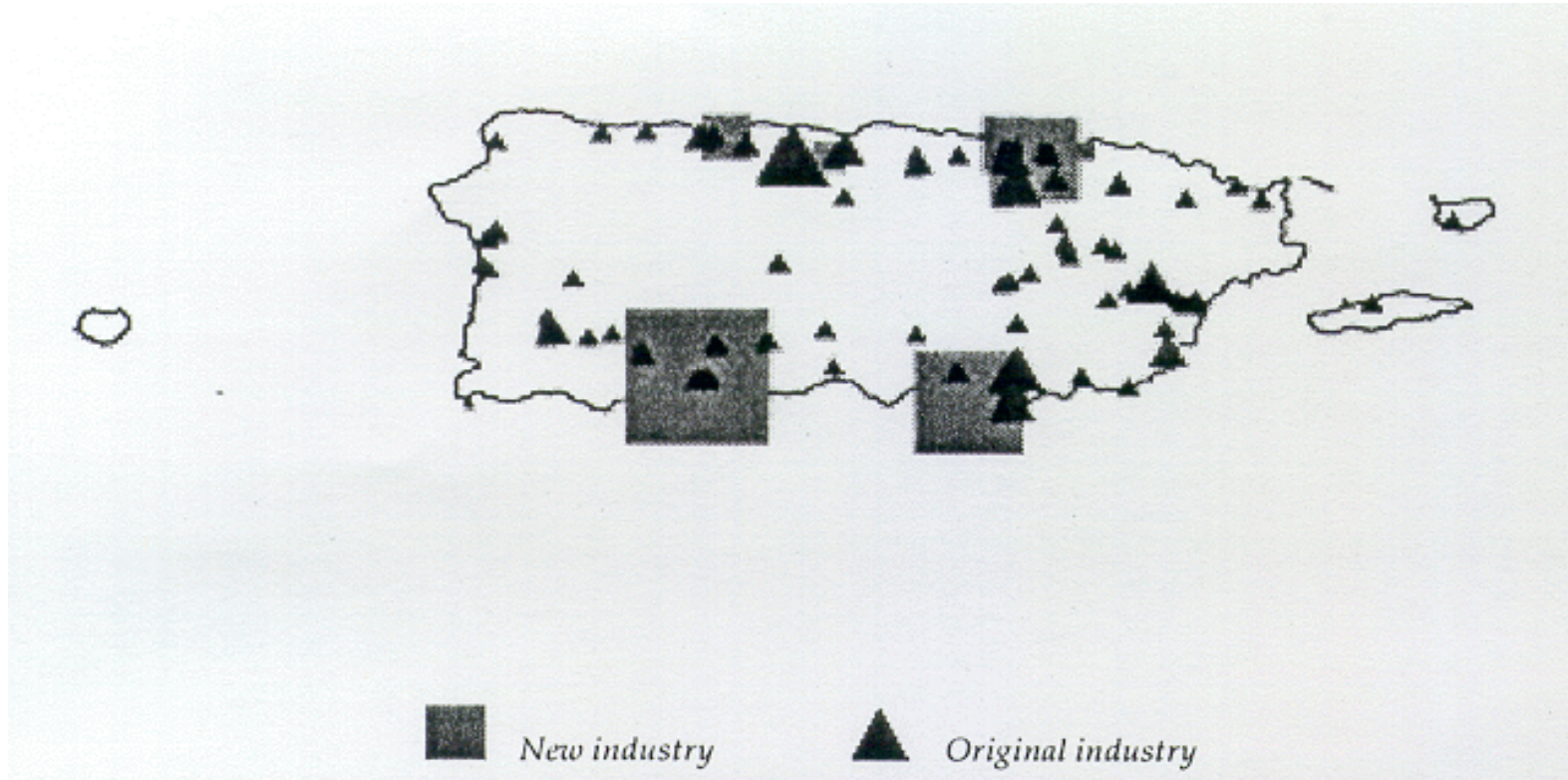
Finally, as outlined in Section III.G, A Other Concerns, EPA is committed to taking all necessary actions to minimize potential adverse impacts from the PREPA Aguirre Power Plant facility:

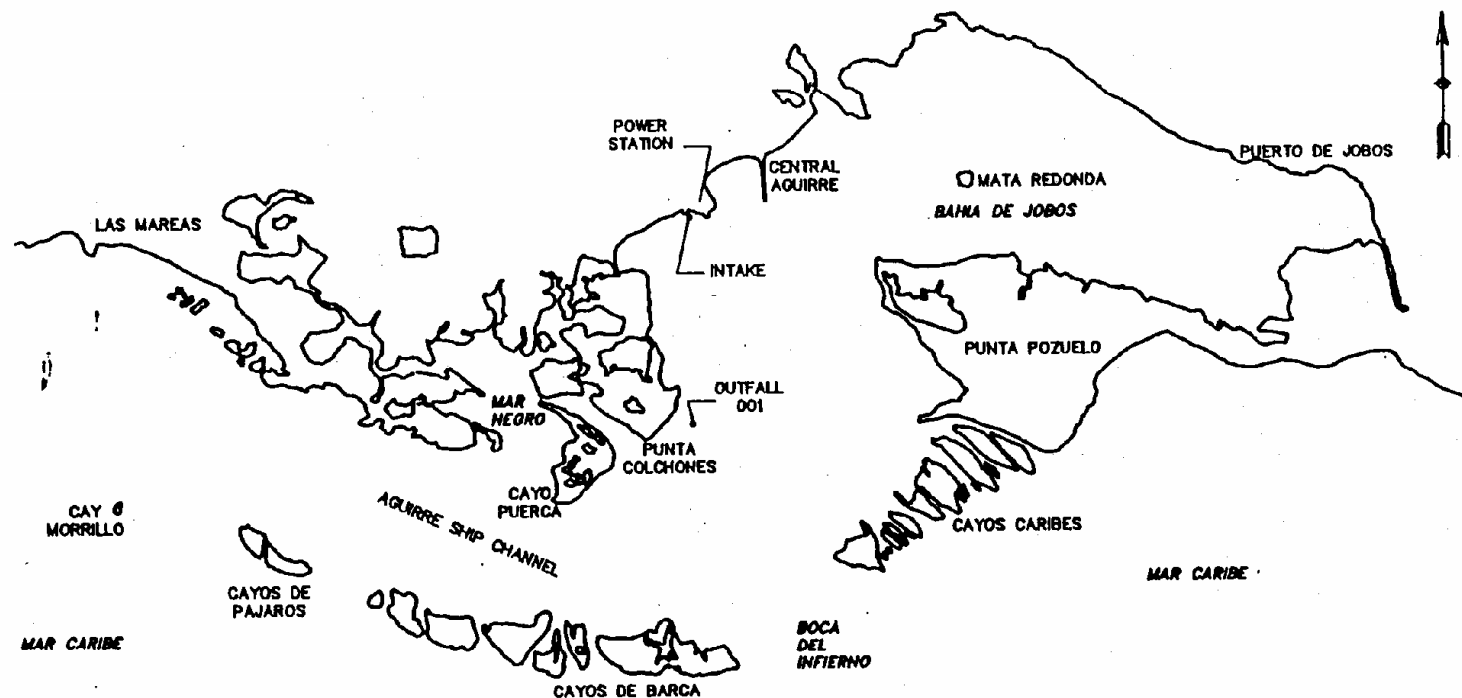
- EPA's proposed Section 316 (b) decision document demonstrates that the discharge fully protects public health and the environment.
- Compliance with the Ocean Discharge Criteria has been evaluated as part of this NPDES permit renewal process, and EPA has concluded that PREPA Aguirre Power Plant's discharges are within the baseline in Jobos Bay and the requirements of the Ocean Discharge Criteria do not apply. EPA concludes that the issuance of NPDES permit to ensure compliance with water quality standards is sufficient to protect estuarine environment from unreasonable degradation due to effluent discharges.
- EPA is fully committed to equal enforcement of the law with respect to operation of the Aguirre Power Plant.

EPA's proposed NPDES permit contain sufficient to meet water quality standards and treatment standards established pursuant to Federal or State law or regulations. The proposed issuance document demonstrates that the discharge fully protects public health and the environment.

APPENDICES

MAP 1
PUERTO RICO
1998 TOXIC RELEASE INVENTORY





**United Engineers
& Constructors**
A Raytheon Company

PUERTO RICO ELECTRIC POWER AUTHORITY
AGUIRRE POWER STATION

LOCATION MAP

4/27/92

The largest triangle appearing in the map represents the largest facility for on-site releases in Puerto Rico. All triangles are proportionally-sized to represent the amounts of release at each facility within this territory.

Summary of Mortality Rates Table 1: Mortality Rates by Municipality of Residence and Selected Causes from 1995, 1996 and 2004.

Year	Total		Heart Disease		Cancer		Diabetes Mellitus		Accidents		AIDS		Cerebrovascular Disease	
	Salinas	Puerto Rico	Salinas	Puerto Rico	Salinas	Puerto Rico	Salinas	Puerto Rico	Salinas	Puerto Rico	Salinas	Puerto Rico	Salinas	Puerto Rico
2004	701.3	746.3	103.3	129.2	84.5	124	59.5	66	12.5	28.3	18.8	13.9	41	39.3
1996	946.9	800.1	233.3	158.7	175.9	122.2	64.3	56.0	54.1	40.7	23.7	39.5	57.5	39.2
1995	911.0	811.9	232.1	159.7	175.9	121.3	45.7	59.6	38.7	41.1	52.2	37.6	38.7	39.6

cont.

Year	Pulmonar Obst. Disease		Pneumonia & Influenza		Hypertensive		Homicides		Cirrosis of Liver		Septicaemia		Other	
	Salinas	Puerto Rico	Salinas	Puerto Rico	Salinas	Puerto Rico	Salinas	Puerto Rico	Salinas	Puerto Rico	Salinas	Puerto Rico	Salinas	Puerto Rico
2004	25.9	29.9	18.8	26.4	22.6	29.1	18.8	19.5	15.7	19.7	15.7	17.2	209.8	203.7
1996	44.0	33.4	27.1	31.4	30.4	29.0	10.1	24.9	23.7	17.9	20.3	17.0	182.6	190.0
1995	31.7	35.8	24.6	36.4	28.1	28.6	-	25.0	28.1	19.3	35.2	16.0	179.4	192.0

Data provided by the Puerto Rico Department of Health.

The mortality rate is calculated dividing the number of deaths by the population, and multiplying it by 100,000.

Demographic Profile of Surrounding Area (3 Miles)

Data Dictionary

Open more detailed information in a new window (links leave ECHO): [1 Mi](#) [3 Mi](#) or [5 Mi](#).

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2000 US Census data, and are accurate to the extent that the facility latitude and longitude listed below are correct. The latitude and longitude are obtained from the EPA [Locational Reference Table\(LRT\)](#) when available.

Radius of Area:	3 Miles	Land Area:	57.49%	Households in area:	3,046
Center Latitude:	17.950000	Water Area:	42.51%	Housing units in area:	3,703
Center Longitude:	-66.232500	Population Density:	578.24/sq. mi.	Households On Public Assistance:	863
Total Persons:	9,275	Percent Minority:	99.70%	Persons Below Poverty Level:	5,462

Race Breakdown	Persons (%)	Age Breakdown:	Persons (%)
White:	6,643 (71.62%)	Child 5 years and less:	1,058 (11.41%)
African-american:	1,151 (12.41%)	Minors 17 years and younger:	3,125 (33.69%)
Hispanic-Origin:	9,212 (99.32%)	Adults 18 years and older:	6,151 (66.32%)
Asian/Pacific Islander:	43 (0.46%)	Seniors 65 years and older:	866 (9.34%)
American Indian:	20 (0.22%)		
Other/Multiracial:	675 (7.28%)		

Education Level (Persons 25 & older)	Persons (%)	Income Breakdown:	Households (%)
Less than 9th grade:	936 (20.86%)	Less than \$15,000:	1,829 (60.05%)
9th-12th grades:	869 (19.37%)	\$15,000-\$25,000:	593 (19.47%)
High School Diploma:	1,419 (31.62%)	\$25,000-\$50,000:	470 (15.43%)
Some College/2-yr:	606 (13.51%)	\$50,000-\$75,000:	90 (2.95%)
B.S./B.A. or more:	657 (14.64%)	Greater than \$75,000:	53 (1.74%)

Please note: Entries in gray denote records that are not federally required to be reported to EPA. These data may not be reliable.